INITIAL STUDY – MITIGATED NEGATIVE DECLARATION

FOR THE ALTURA CENTER FOR HEALTH-CARTMILL PROJECT

May 2019

Table of Contents

City of Tulare

Planning and Building Department
411 East Kern Avenue
Tulare, CA 93274

Executive Summary

Project Title: Altura Center for Health Cartmill Project

Project Location

The project site is located within Tulare County in the northern area of the City of Tulare (City). The project area is composed of two neighboring parcels (APN 149-060-024 and 149-060-016). The two parcels total 10.44 acres.

The two parcels are designated by the City as Community Commercial under the General Plan and Retail Commercial (C-3) under the current zoning code. The current parcels currently include vacant land as well as agricultural land used previously as a strawberry field with stand.

Project Overview

The proposed project is a five building medical complex to be constructed in three (3) phases. Phase 1 consists of two new single-story medical office buildings and one new single-story administration office building. Construction of Phase 1 is proposed to begin in November 2019 and continue to November 2020. Phase 2 consists of one new single-story dental building, proposed to be constructed in 2035. Phase 3 consists of one new two-story medical office building, with construction expected in 2045.

Summary of IS/MND Findings

The analysis in Section 3 of this Initial Study and Proposed Mitigated Negative Declaration (IS/MND) evaluates the potential environmental impacts associated with project implementation. It was found that implementation of the proposed project would not result in potentially significant impacts on the environment, as detailed in Section 3.

Mitigation Monitoring and Reporting Program

Mitigation Measure	Responsible Party for Implementation	Implementation Timing	Responsible Party for Monitoring	Verification
BIO-1a: In order to avoid impacts to nesting raptors and migratory birds, the project shall be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.	Project Applicant & Construction Contractor	Prior to, and during, ground-disturbing and construction activities	City of Tulare	
BIO-1b: If project activities must occur during the nesting season (February 1-August 31), a qualified biologist shall conduct preconstruction surveys for active raptor and migratory bird nests within 14 days prior to the start of these activities. The survey shall include the proposed work area(s) and surrounding lands within 500 feet, where accessible, for all nesting raptors and migratory birds save Swainson's hawk; the Swainson's hawk survey shall extend to 0.5 mile outside of work area boundaries. If no nesting pairs are found within the survey area, no further mitigation is required.	Project Applicant & Construction Contractor	Within 14 days prior to the start of ground-disturbing and construction activities	City of Tulare	

BIO-1c: Should any active nests be discovered near proposed work areas, the biologist shall determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers shall be identified on the ground with flagging, fencing, or by other easily visible means, and shall be maintained until the biologist has determined that the young have fledged.	Construction Contractor & Qualified Biologist	Prior to, and during, ground-disturbing and construction activities	City of Tulare	
BIO-2a: (Take Avoidance Survey). A take avoidance survey for burrowing owls shall be conducted by a qualified biologist knowledgeable of the species within 14 days prior to the start of construction. This take avoidance survey shall be conducted according to methods described in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The survey area shall include all suitable habitat on and within 200 meters of project impact areas, where accessible.	Project Applicant & Construction Contractor	Within 14 days prior to the start of ground-disturbing and construction activities	City of Tulare	

BIO-2b: (Avoidance of Active Nests and Roosts). If project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are identified within or near project impact areas, a 200-meter disturbance-free buffer shall be established around these burrows, unless a qualified biologist approved by CDFW verifies through noninvasive methods either that the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Owls present on site after February 1 will be assumed to be nesting unless evidence indicates otherwise. The protected exclusion zone established for the breeding season shall remain in effect until August 31 or, as determined based on monitoring evidence, until the young owl(s) is foraging independently or the nest is no longer active.	Project Applicant, Construction Contractor, & Qualified Biologist	Prior to, and during, ground-disturbing and construction activities	City of Tulare	

BIO-2c: (Passive Relocation of Resident Owls). During the nonbreeding season (September 1-January 31), resident owls occupying burrows in project impact areas may be passively relocated to alternative habitat after consulting with the CDFW. Prior to passively relocating burrowing owls, a Burrowing Owl Exclusion Plan shall be prepared by a qualified biologist in accordance with Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). The Burrowing Owl Exclusion Plan shall be submitted to the CDFW for review prior to implementation. Relocation of any owls during the nonbreeding season shall be performed by a qualified biologist using one-way doors, which shall be installed in all burrows in the impact area and left in place for at least two nights. The doors shall be removed and the burrows backfilled immediately before the initiation of grading or, if no grading would occur, left in place until the end of construction. To avoid the potential for owls evicted from a burrow to occupy other burrows in the project site, one-way doors shall be placed in all potentially suitable burrows within the impact area when eviction occurs.	Construction Contractor & Qualified Biologist	Prior to, and during, ground-disturbing and construction activities	City of Tulare	

BIO-3a: Preconstruction surveys for the San Joaquin kit fox shall be conducted on and within 200 feet of the project site, no more than 30 days prior to the start of ground disturbance activities on the site. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on and adjacent to the site and evaluate their use by kit foxes. Protection provided by dens for shelter, escape, cover, and reproduction is vital to the survival of San Joaquin kit foxes. For San Joaquin kit foxes, the ecological value of potential, known, and natal/pupping dens differs; therefore, each den type requires the appropriate level of protection. The following text describes the different steps involved with implementing this mitigation measure: Determine Den Status. When a suitable den or burrow is discovered, a qualified biologist shall determine whether the hole is occupied by a San Joaquin kit fox. Den entrances at least 4 inches in diameter (but not greater than 20 inches) qualify as suitable for San Joaquin kit fox use. Some dens can be immediately identified as recently used by kit fox; qualifying signs include kit fox tracks, scats, and a fresh soil apron extending up to 6 feet from the den entrance. Dens with proper	Project Applicant, Construction Contractor, & Qualified Biologist	Within 30 days of any ground-disturbing activities	City of Tulare	

dimensions, but no obvious sign will require further investigation. A remote motion-sensing camera with tracking medium shall be deployed for at least 5 days in an attempt to document a San Joaquin kit fox using the den. If, after 5 days, no San Joaquin kit foxes are detected and the hole has remained unchanged (no new tracks or excavations are observed), and there is no historic record of an active kit fox den at that location, the den will be deemed a "potential den" and unoccupied. The den will be considered occupied if a kit fox is photographed using the den or if a recent sign is found. The biologist shall contact CDFW and the USFWS upon the confirmation of any occupied den. Preconstruction surveys shall be repeated following any lapses in construction of 30 days or more.				

BIO-3b: Should active kit fox dens be detected during preconstruction surveys, the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW shall be notified. A disturbance-free buffer shall be established around the burrows in consultation with the USFWS and CDFW, to prevent access to the occupied den by construction equipment and personnel who are not biologists, and to be maintained until an agency-approved biologist has determined that the burrows have been abandoned. After construction activities would no longer affect the den, all fencing and flagging shall be removed to avoid attracting attention to the den by other animals or humans. All onsite flagging and buffer delineations shall be kept in good working order for the duration of activity near the den or until the den is determined to be unoccupied, whichever occurs first. The following radii are standard San Joaquin kit fox buffer distances: • Known occupied den—100 feet • Occupied natal/pupping den—500 feet • Occupied atypical den—50 feet In the exclusion zones, only essential vehicle and foot traffic shall be permitted. No activity that would destroy the den may occur, and no	Construction Contractor & Qualified Biologist	Prior to, and during, ground-disturbing activities	City of Tulare	

activity that may harm a San Joaquin kit fox will proceed until the individual is out of harm's way, without harassment. No activity that may cause strong ground vibrations may occur in the exclusion zone until the den is no longer occupied. Essential vehicle traffic shall include any emergency vehicles. If San Joaquin kit foxes are not observed above ground, essential foot traffic also may be allowed. The USFWS and CDFW shall be notified of any reductions in the standard radii or allowance for additional activity in the restrictive exclusion zones based on individual circumstances to provide USFWS and CDFW an opportunity to offer technical guidance. If a known or occupied den cannot be avoided, consultation with the USFWS and CDFW shall be required.				

BIO-3c: Construction activities shall be carried out in a manner that minimizes disturbance to kit foxes in accordance with the USFWS Standardized Recommendations. The applicant shall implement all minimization measures presented in the Construction and On-going Operational Requirements section of the Standardized Recommendations, including, but not limited to: • Project-related vehicles shall observe a daytime speed limit of 15-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit shall be reduced to 10-mph. Off-road traffic outside of designated project areas shall be prohibited. • To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep shall be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or	Applicant & Construction Contractor	During all ground-disturbing and construction activities	City of Tulare	

wooden planks shall be installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and CDFW shall be contacted. • Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped. • All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from a construction or project site.				

• No firearms shall be allowed on the project site. • No pets, such as dogs or cats, shall be permitted on the project site, to prevent harassment, mortality of kit foxes, or destruction of dens. • Use of rodenticides and herbicides in project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by USFWS. If rodent control must be conducted, zinc phosphide shall be used because of a proven lower risk to kit fox. • An employee education program shall be conducted for the project. The program shall consist of a brief presentation by persons knowledgeable in kit fox biology and protection to explain endangered species concerns to contractors, their employees, and agency personnel involved in the project. This training will include a description of the kit fox and its habitat needs;				

a report of the occurrence of kit fox in the project vicinity; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of the measures being taken to reduce impacts to the species during project construction and implementation. The training will include a handout with all of the training information included in it. The applicant will use this handout to train any construction personnel that were not in attendance at the first meeting, prior to those personnel starting work on the site. • A representative shall be appointed by the Applicant who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to USFWS. • Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An				

area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined on a site-specific basis in consultation with USFWS, CDFW, or revegetation experts. • Any contractor, employee, or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW will be notified in writing within three working days in case of the accidental death or injury of a San Joaquin kit fox during project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal, and any other pertinent information. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530) 934-9309.				

• New sightings of kit fox shall be reported to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to USFWS.				
CUL-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any potential significant impacts.	Construction Contractor	During ground-disturbing activities	City of Tulare	

CUL-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California 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. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.	Construction Contractor	During ground-disturbing activities	City of Tulare	

TRA-1: Prior to opening day of Phase 2, the project applicant shall construct the recommended roadway/intersection improvements identified in the project traffic impact study for the intersections of De La Vina Street/Cartmill Avenue and Mooney Boulevard/Cartmill Avenue. The Applicant's fair share of the costs of these improvements shall be as identified in Table 7 of this IS-MND, subsequently adjusted to account for fees paid towards these improvements by the project through the City's Development Impact Fee Program.	Project Applicant	Prior to opening day of Phase 2 of the Project	City of Tulare	

City of Tulare
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411 East Kern Avenue
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Introduction

Project Title: Altura Center for Health Cartmill Project

This Initial Study/Mitigated Negative Declaration has been prepared for the City of Tulare to address the environmental effects of the construction of a five building medical complex on approximately 10.4 acres within the City of Tulare, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines. The City of Tulare is the CEQA lead agency for this project.

The project site is located within Tulare County in the northern area of the City of Tulare, north of Cartmill Avenue, east of Hillman Street, south of agricultural lands and a Tulare Irrigation District (TID) canal, and west of vacant agricultural lands.

This Initial Study document for the **Altura Center for Health Cartmill Project**, is organized as follows:

Section 1: Environmental Review Process
The Environmental Review Process covers the procedures, under the California Environmental Quality Act (CEQA), for evaluating the environmental effects of the proposed project including the CEQA guidelines, Initial Study, Environmental Checklist, Notice of Intent to adopt a Mitigated Negative Declaration, Mitigated Negative Declaration, and the Notice of Determination.

Section 2: Project Description
The Project Description identifies the project location, provides a background to the project, and describes the project.

Section 3: Evaluation of Environmental Impacts
Evaluation of Environmental Impacts contains the CEQA Environmental Checklist, Environmental Factors Potentially Affected, Evaluation of Environmental Impacts, Draft Notice of Intent to Adopt Initial Study/Mitigated Negative Declaration, Draft Mitigated Negative Declaration, Notice of Completion and Environmental Document Transmittal form, Draft Notice of Determination, and a Schedule of Compliance with CEQA for a Mitigated Negative Declaration.

Section 4: References
References provides a list of reference material used during the preparation of the Initial Study.

Section 5: List of Report Preparers

The List of Report Preparers provides a list of key personnel involved in the preparation of the Environmental Assessment/Initial Study.

Appendices

The Appendices consist of Appendix A and Appendix B. Appendix A includes the modeling output sheets from the California Emissions Estimator Model (CalEEMod) run for estimating construction and operational emissions summarized in the air quality and greenhouse gas sections of this Initial Study/Mitigated Negative Declaration. Appendix B is the Traffic Impact Analysis for the Project.

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SECTON 1
CEQA Environmental Review Process

Project Title: Altura Center for Health Cartmill Project

1.1 California Environmental Quality Act Guidelines

Section 15063 of the California Environmental Quality Act (CEQA) Guidelines requires that the Lead Agency prepare an Initial Study to determine whether a discretionary project will have a significant effect on the environment. All phases of the project planning, implementation, and operation must be considered in the Initial Study. The purposes of an Initial Study, as listed under Section 15063(c) of the CEQA Guidelines, include:

> *(1) Provide the lead agency with information to use as the basis for deciding whether to prepare an EIR or 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 mitigated negative declaration;*
>
> *(3) Assist 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 mitigated 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.

1.2 Initial Study
The Initial Study provided herein covers the potential environmental effects of the construction of a five building medical complex on approximately 10.4 acres within the City of Tulare, California.

The City of Tulare will act as the Lead Agency for processing the Initial Study/Mitigated Negative Declaration pursuant to the CEQA and the CEQA Guidelines.

1.3 Environmental Checklist
The Lead Agency may use the CEQA Environmental Checklist Form [CEQA Guidelines, Section 15063(d)(3) and (f)] in preparation of an Initial Study to provide information for determination if there are significant effects of the project on the environment. A copy of the completed Environmental Checklist is set forth in Section Three.

1.4 Notice of Intent to Adopt a Mitigated Negative Declaration
The Lead Agency shall provide a Notice of Intent to Adopt a Mitigated Negative Declaration (CEQA Guidelines, Section 15072) to the public, responsible agencies, trustee agencies and the County Clerk within which the project is located, sufficiently prior to adoption by the Lead Agency of the Negative Declaration to allow the public and agencies the review period. The public review period (CEQA Guidelines, Section 15105) shall not be less than 20 days. When the Initial Study/Mitigated Negative Declaration is submitted to the State Clearinghouse for review by state agencies, the public review period shall not be less than 30 days, unless a shorter period, not less than 20 days, is approved by the State Clearinghouse.

Prior to approving the project, the Lead Agency shall consider the proposed Mitigated Negative Declaration together with any comments received during the public review process, and shall adopt the proposed Mitigated Negative Declaration only if it finds on the basis of the whole record before it, that there is no substantial evidence that the project will have a significant effect on the environment and that the Mitigated Negative Declaration reflects the Lead Agency's independent judgment and analysis.

The written and oral comments received during the public review period will be considered by the City of Tulare prior to adopting the Mitigated Negative Declaration.

Regardless of the type of CEQA document that must be prepared, the overall purpose of the CEQA process is to:

1) Assure that the environment and public health and safety are protected in the face of discretionary projects initiated by public agencies or private concerns;

2) Provide for full disclosure of the project's environmental effects to the public, the agency decision-makers who will approve or deny the project, and the responsible trustee agencies charged with managing resources (e.g. wildlife, air quality) that may be affected by the project; and

3) Provide a forum for public participation in the decision-making process pertaining to potential environmental effects.

According to Section 15070(a) a public agency shall prepare or have prepared a proposed mitigated negative declaration for a project subject to CEQA when:

The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment. Less than significant impacts have been identified, with implementation of mitigation measures.

The Environmental Checklist Discussion contained in Section Three of this document has determined that the environmental impacts of the project are less than significant with mitigation measures and that a Mitigated Negative Declaration is adequate for adoption by the Lead Agency.

1.5 Negative Declaration or Mitigated Negative Declaration

The Lead Agency shall prepare or have prepared a proposed Negative Declaration or Mitigated Negative Declaration (CEQA Guidelines Section 15070) for a project subject to CEQA when the Initial Study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment.

The proposed Negative Declaration or Mitigated Negative Declaration circulated for public review shall include the following:

(a) A brief description of the project, including a commonly used name for the project.

(b) The location of the project, preferably shown on a map.

(c) A proposed finding that the project will not have a significant effect on the environment.

(d) An attached copy of the Initial Study documenting reasons to support the finding.

(e) Mitigation measures, if any.

1.6 Intended Uses of Initial Study/Mitigated Negative Declaration Documents

The Initial Study/Mitigated Negative Declaration document is an informational document that is intended to inform decision-makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed project. The environmental review process has been established to enable the public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency must balance any potential environmental effects against other public objectives, including economic and social goals.

The City of Tulare, as Lead Agency, will make a determination, based on the environmental review for the Initial Study and comments from the general public, if there are less than significant impacts from the proposed project and the requirements of CEQA can be met by adoption of a Mitigated Negative Declaration.

1.7 Notice of Determination (NOD)

The Lead Agency shall file a Notice of Determination within five working days after deciding to approve the project. The Notice of Determination (CEQA Guidelines, Section 15075) shall include the following:

> *(1) An identification of the project including the project title as identified on the proposed negative declaration, its location, and the State Clearinghouse identification number for the proposed negative declaration if the notice of determination is filed with the State Clearinghouse.*
>
> *(2) A brief description of the project.*
>
> *(3) The agency's name and the date on which the agency approved the project.*
>
> *(4) The determination of the agency that the project will not have a significant effect on the environment.*
>
> *(5) A statement that a negative declaration or a mitigated negative declaration was adopted pursuant to the provisions of CEQA.*
>
> *(6) A statement indicating whether mitigation measures were made a condition of the approval of the project, and whether a mitigation monitoring plan/program was adopted.*
>
> *(7) The address where a copy of the negative declaration or mitigated negative declaration may be examined.*

(8) The Notice of Determination filed with the County Clerk shall be available for public inspection and shall be posted by the County Clerk within 24 hours of receipt for a period of at least 30 days. Thereafter, the clerk shall return the Notice to the Lead Agency with a notation of the period posted.

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SECTON 2
Project Description

Project Title: Altura Center for Health Cartmill Project

2.1 Project Location
The project site is located within Tulare County in the northern area of the City of Tulare, north of Cartmill Avenue, east of Hillman Street, south of agricultural lands and a Tulare Irrigation District (TID) canal, and west of vacant agricultural lands. The project area is composed of two neighboring parcels (APN 149-060-024 and 149-060-016) totaling 10.44 acres.

The two parcels are designated by the City as Community Commercial under the General Plan and Retail Commercial (C-3) under the current zoning code. The current parcels currently include vacant land as well as agricultural land used previously as a strawberry field with stand. The project area is bound by agricultural land uses to the north, east, west, and both vacant land and single family homes to the south.

2.2 Project Description
The proposed project is a five building medical complex to be constructed in three (3) phases. Phase 1 consists of two new single-story medical office buildings and one new single-story administration office building. Phase 2 consists of one new single-story dental building. Phase 3 consists of one new two-story medical office building.

Project Construction
Construction of the Project would proceed in phases. Phase 1 construction is expected to begin in November 2019 and be completed in November 2020. Construction of Phase 2 is proposed for 2035, and Phase 3 would be constructed in 2045 to complete full buildout of the campus. In each phase, construction activities would generally follow these steps:

1. Site Preparation. Mobilization of equipment, materials, and staffing resources, and involves clearing vegetation and stones prior to grading.

2. Grading. Project site area would be prepared and leveled as needed for the construction foundation.

3. Building Construction. Involves the construction of structures and buildings.

4. Paving. Involves the laying of concrete or asphalt such as in parking lots, walkways, or roads.

5. Architectural Coating & Landscaping. Involves the application of coatings to both the interior and exterior of buildings and includes parking lot striping. Landscaping would also be planted prior to opening of the buildings for use.

Operations

The operating hours for the medical office development are proposed as follows:

- Women's Center: 8:00am – 7:00pm Monday through Thursday, 9:00am – 5:00pm Fridays, and 8:00am – 5:00pm Saturdays
- Pediatrics: 8:00am – 7:00pm Monday through Thursday, 9:00am – 5:00pm Fridays, and 8:00am – 5:00pm Saturdays
- Administration: 8:00am – 5:00pm Monday through Friday

The number of employees for Phase 1 would be approximately 150 for the three buildings. After the full build-out and full capacity, the anticipated staff members would be approximately 300 employees. The scope of services and description of operations that will be provided within each of the proposed buildings are as follows and are visually represented on the Site Plan (Figure 2-2).

<u>Phase 1</u>

Building 1 would provide pediatrics medical services on an outpatient basis, will be an Office of Statewide Health Planning and Development (OSHPD) 3 Licensed Facility, and would consist of medical exam rooms, hearing testing rooms, medical laboratory, vaccine room, nurse stations, provider offices, administrative support offices, employee break room, provider's lounge, reception desk, and waiting rooms. There will be a covered outdoor patio for employees and covered outdoor waiting areas for patients. There would not be any long-term care or overnight stays as part of the services provided.

Building 2 would provide women's health OB/GYN medical services on an outpatient basis, would be an OSHPD 3 Licensed Facility, and would consist of medical exam rooms, laboratories, nurse stations, medical laboratory, provider offices, provider's lounge, employee break room, administrative support offices, reception desk, and waiting rooms. There would be a covered outdoor patio for employees and covered outdoor waiting areas for patients. This building would temporarily house the Call Center until the future phases are built out. There would not be any long-term care or overnight stays as part of the services provided.

Building 4 would house all the administrative offices for the complex and would include the following departments: human resources, billing, patient bill pay desk, accounting, IT support, accounts payable, mail/copy room, reception desk, and waiting area. There would be an employee break room, various meeting rooms, and the company boardroom. This building would also house the Company Main Computer Distribution Center.

Phase 2

Building 3 would provide dental services and would be an OSHPD 3 Licensed Facility. The dental department consists of private operatories, an open operatory area with self-contained dental stations to provide general dentistry services, a dental sterile laboratory, panoramic x-ray room, support offices, reception desk, waiting room, administrative support offices, and employee break room.

Phase 3

Building 5 would provide adult medicine, family practice, internal medicine, and specialty services on an outpatient basis, would be an OSHPD 3 Licensed Facility, and would consist of medical exam rooms, behavioral health, health education offices, medical laboratory, nurse stations, provider offices, administrative support offices, employee break room, providers lounge, reception desk, and waiting rooms. The Call Center for the company would be relocated from Building 2 to this building, once it’s built. There will be a covered outdoor patio for employees and covered outdoor waiting areas for patients. There would not be any long-term care or overnight stays as part of the services provided.

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Figure 2-1 Regional Location

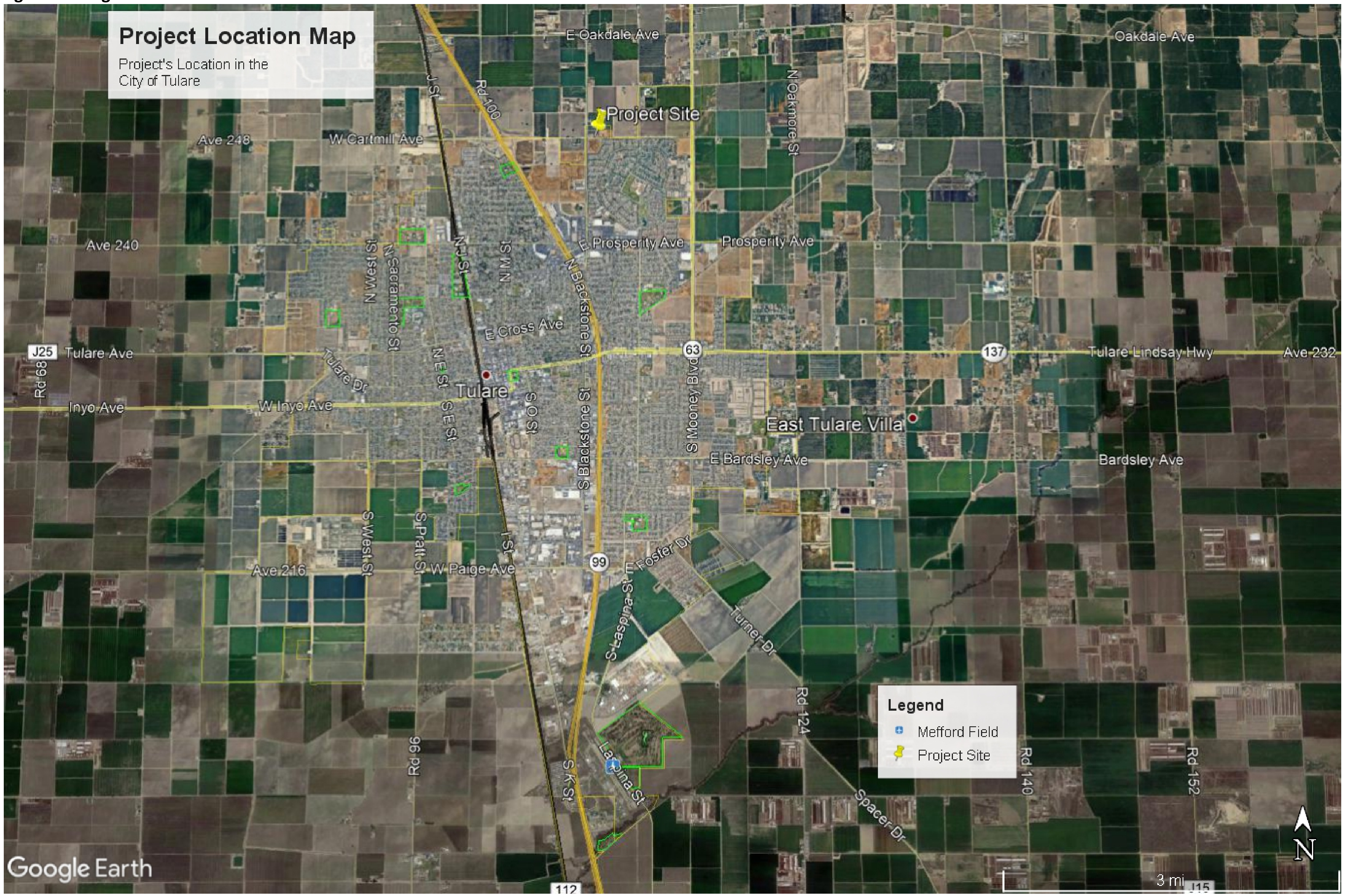

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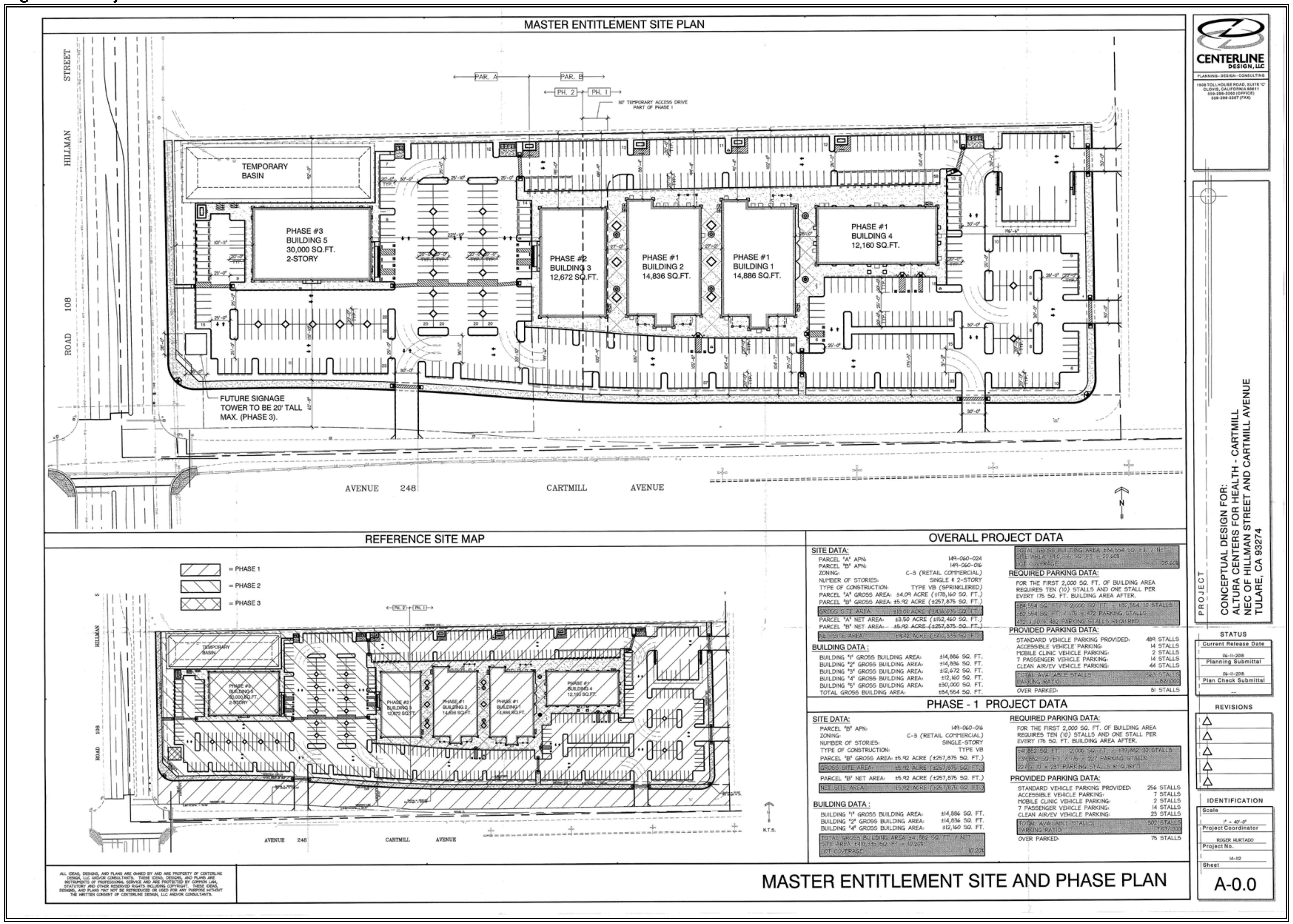
Figure 2-2 Project Site Plan



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Photos of Site

1. Aerial View of Site Looking North-East

2. Aerial View of Site Looking North-West

3. Looking North-West Along Cartmill Avenue

4. East Property Boundary at Cartmill Avenue

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SECTON 3
Evaluation of Environmental Impacts
Project Title: Altura Center for Health Cartmill Project

This document is the Initial Study/Mitigated Negative Declaration for a proposed five building medical complex to be constructed in three (3) phases on approximately 10.4 acres. Phase 1 consists of two new single-story medical office buildings and one new single-story administration office building. Phase 2 consists of one new single-story dental building. Phase 3 consists of one new two-story medical office building. The City of Tulare will act as the Lead Agency for this project pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

3.1 PROJECT PURPOSE
The purpose of this environmental document is to implement the California Environmental Quality Act (CEQA). Section 15002(a) of the CEQA Guidelines describes the basic purposes of CEQA as follows.

(1) Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
(2) Identify the ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
(4) 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.

This Initial Study of environmental impacts has been prepared to conform to the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.).

According to Section 15070(b), a Mitigated Negative Declaration is appropriate if it is determined that: (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and (2) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment.

INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

1.	**Project Title:**	Altura Center for Health Cartmill Project
2.	**Lead Agency:**	City of Tulare 411 E. Kern Avenue Tulare, Ca 93274 (559) 684-4217 FAX 685-2339
3.	**Applicant:**	Altura Centers for Health 1201 N. Cherry Street Tulare, CA 93274
4.	**Contact Person:**	Mario Anaya, Principal Planner City of Tulare 411 E. Kern Avenue Tulare, CA 93274 (559)684-4223

5. **Project Location:**
The project site is located within Tulare County in the northern area of the City of Tulare, north of Cartmill Avenue, east of Hillman Street, south of agricultural lands and a Tulare Irrigation District (TID) canal, and west of vacant agricultural lands. The project area is composed of two neighboring parcels (APN 149-060-024 and 149-060-016) totaling 10.44 acres.

6. **General Plan Designation:**
Tulare General Plan designates the site as Community Commercial.

7. **Zoning Designation:**
Tulare Zoning Map designates the site as C-3 (retail commercial).

8. **Surrounding Land Use Designations and Existing Land Use:**

North	CC	agricultural land (row crops)
South	CC/LDR	vacant land/low density single family residential
East	CC	agricultural land (row crops)
West	CC	heavy industrial (row crops)

9. **Project Description:** The proposed project would construct a five building medical complex to be constructed in three (3) phases. Phase 1 consists of two new single-story medical office buildings and one new single-story administration office building. Construction of Phase 1 is proposed to begin in November 2019 and continue to November 2020. Phase 2 consists of one new 12,672 square feet single-story dental

building, proposed to be constructed in 2035. Phase 3 consists of one new 30,000 square feet two-story medical office building, with construction expected in 2045.

10. **Parking and access:** Access to and from the project site would be from four points. Two access points are proposed along the north side of Cartmill Avenue while the remaining access points are proposed along the west side of a future local street proposed and located on the eastern project site boundary. The access points proposed along the north side of Cartmill Avenue are located approximately 300 feet and 1,110 feet east of Hillman Street and are proposed as full access. The access points proposed along the west side of the future local street are located approximately 125 feet and 300 feet north of Cartmill Avenue and are also proposed as full access. The proposed driveways for the project would be located at points that minimize traffic operational impacts to the existing roadway network.

    At full build out of the project a total of 302 parking stalls would be provided. These parking stalls would consist of 256 standard vehicle parking stalls, seven (7) stalls for accessible vehicle parking, two (2) mobile clinic vehicle parking stalls, 14 stalls for 7-passenger vehicles, and 23 stalls for clean air/EV vehicles.

11. **Landscaping and Design**: All landscaping and design components will comply with the City of Tulare Code of Ordinances §10.60 for Commercial Districts. The landscape and design plans will be required at time the project submits for a building permit on the project and will be subject to water efficient landscape ordinance (WELO).

12. **Utilities and Electrical Services:** The proposed project would be installed into the City's water supply, wastewater, and storm water infrastructure systems and would be served by the City for solid waste disposal. In addition, electrical service would be provided by the local energy utility company, Southern California Edison.

13. **Project Components:** The discretionary approvals required from the City of Tulare for the proposed project include:

    - Conditional Use Permit

Acronyms

AFY	Acre-feet Per Year
APN	Assessor's Parcel Number
ARB	Air Resources Board
BMP	Best Management Practices
CAA	Clean Air Act
CARB	California Air Resources Board
CC	Community Commercial
CCR	California Code of Regulation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CO	Carbon Monoxide
CWA	California Water Act
DHS	Department of Health Services
DWR	Department of Water Resources
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
EV	Electric Vehicles
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FMBTA	Federal Migratory Bird Treaty Act
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
GHG	Greenhouse Gas
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
IS/MND	Initial Study Mitigated Negative Declaration
ISR	Indirect Source Review
IT	Information Technology
LDR	Low Density Residential
LOS	Level of Service
MCL	Maximum Contaminant Level
MGD	Million Gallons a Day
MKJPA	Mid-Kaweah Joint Powers Authority
MLD	Most Likely Descendant
MND	Mitigated Negative Declaration
MT	Metric Tons
NAC	Noise Abatement Criteria

NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NDIR	Non-Dispersive Infrared Photometry
NOD	Notice of Determination
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
OB/GYN	Obstetrics/Gynecology
OSHPD	Office of Statewide Health Planning and Development
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act of 1976
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SCH	State Clearinghouse
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Office
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO2	Sulfur Dioxide
SO_x	Sulfur Oxides
SPAL	Small Project Analysis Level
SWPPP	Storm Water Pollution Prevention Plan
TID	Tulare Irrigation District
UBSC	Uniform Building and Safety Code (UBSC)
USC	United States Code
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UWMP	Urban Water Management Plan
VOC	Volatile Organic Compound
WDR	Waste Discharge Requirements
WELO	Water Efficient Landscape Ordinance
WWTP	Wastewater Treatment Facility
WWTT	Wastewater Treatment Train

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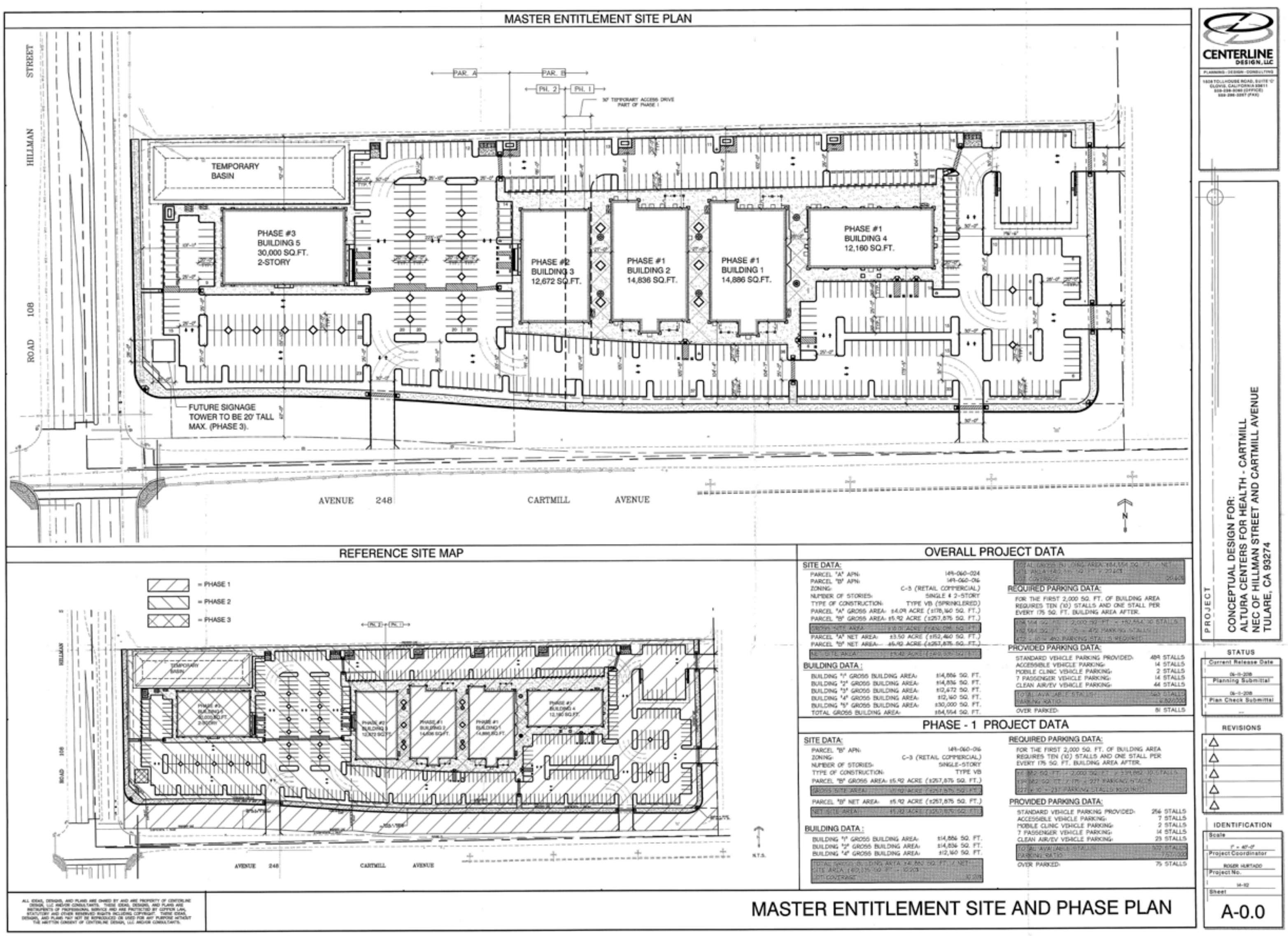
Figure 3-1: Project Site Vicinity Map

Figure 3-2: Site Plan



3.2 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 reference 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 if 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 adequate 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 and 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.

3.3 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	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture and Forestry Resources	☐ Hazards & Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology/Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use/Planning	☐ Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities/Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☐ Geology/Soils	☐ Population/Housing	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency) Where potential impacts are anticipated to be significant, mitigation measures will be required, so that impacts may be avoided or reduced to insignificant levels.

On the basis of this 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 IMPAT 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. A Negative Declaration 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 requested.

______________________________	______________
SIGNATURE	DATE
Mario A. Anaya, Principal Planner	City of Tulare
PRINTED NAME	Agency

3.4 ENVIRONMENTAL ANALYSIS

The following section provides an evaluation of the impact categories and questions contained in the checklist and identify mitigation measures, if applicable.

I. AESTHETICS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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 state scenic highway?	☐	☐	☐	☑
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 publically accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☑
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

DISCUSSION:

a) **No Impact:** A scenic vista is defined as a viewpoint that provides expansive views of highly valued landscape for the benefit of the general public. In the project vicinity the Sierra Nevada Mountains in the background as well as the flat rural agricultural landscape with Valley Oak trees rising from the valley floor are the two primary scenic vistas. Due to the distance between the project site and the Sierra Nevada Mountains, in conjunction with the poor air quality of the valley, the Sierra Nevada Mountains can rarely be seen from this location. In addition, there are no Valley Oak trees located on the project property. The project site is zoned for commercial land uses and is surrounded by agricultural and residential land uses. The proposed development would be compatible with the City's General Plan and Zoning Ordinance for development on the corner of two major streets, and the project would not have an adverse effect on a scenic vista due to the proposed development at the project site. For these reasons, this project would have *no impact* on scenic vistas.

b) **No Impact:** The site does not contain any rock outcropping or historic buildings. After review of the state route "scenic highways" in Tulare County, it was determined that there are no highways designated by State or local agencies as "Scenic highways" near the project site. Therefore, the proposed project would have *no impact* to any scenic resources.

c) **No Impact:** The proposed project site is surrounded by agricultural lands and residential subdivisions, therefore the City does not anticipate that the development of the proposed project will create a visually degraded character or quality to the project site or to the properties near and around the project site. Additionally, all of the development will be required to comply with the site plan review and design limitations required by the General Plan and the City's adopted design guidelines and zoning regulations which require setbacks, landscaping and designs to limit impact to neighboring properties. Therefore, the proposed project would have *no impact* on the visual character of the area.

d) **Less Than Significant Impact:** The proposed project would not create a new source of light or glare so substantial that it would affect day or nighttime views in the area. Any proposed overhead or perimeter lighting would be designed using best practices to avoid spillover light to adjacent or nearby residential properties. The design and orientation of the proposed project lighting for this project would prevent substantial increases in light or glare in the vicinity of the project site. Therefore, the proposed project would have a *less than significant impact* with regard to existing day or nighttime views in the area of the project site.

II. AGRICULTURE 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:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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) **No Impact:** The proposed project site is designated as Community Commercial by the City and is labeled Farmland of Local Importance by the 2016 Map of State Farmland Mapping and Monitoring Program (FMMP). The proposed project would not result in the conversion of any land labeled Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or of any land under Williamson Act contracts. Therefore, the project has *no impacts*.

b) **No Impact:** The project site is located within Tulare city limits and is zoned for commercial land uses. The project site is not under Williamson Act contract and therefore would create *no impacts.*

c) **No Impact:** The project site is not zoned for forest land or timberland and there is no forest land or timberland zone change proposed for the site, therefore *no impacts* would occur.

d) **No Impact:** No conversion of forestland, as defined under Public Resource Code or General Code, will occur as a result of the project and would create *no impacts*.

e) **No Impact:** The project site is located on two parcels zoned for commercial land uses, at the northern boundary of the City limits. Although the project site is surrounded by agricultural uses to the north, east, and west, those areas are outside of City limits and would require annexation in order to be incorporated into the City. The proposed project is not proposing to convert any agriculturally zoned land to another use and would not require or result in conversion of farmland to on-agricultural use or forestland to non-forest use. For these reasons, the project has *no impacts*.

III. 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:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑	☐
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?	☐	☐	☑	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☑	☐

CURRENT POLICIES AND REGULATIONS

Federal Clean Air Act - The 1977 Federal Clean Air Act (CAA) authorized the establishment of the National Ambient Air Quality Standards (NAAQS) and set deadlines for their attainment. The Clean Air Act identifies specific emission reduction goals, requires both a demonstration of reasonable further progress and an attainment demonstration, and incorporates more stringent sanctions for failure to meet interim milestones. The U.S. EPA is the federal agency charged with administering the Act and other air quality-related legislation. EPA's principal function include setting NAAQS; establishing minimum national emission limits for major sources of pollution; and promulgating regulations.

California Clean Air Act - California Air Resources Board coordinates and oversees both state and federal air pollution control programs in California. As part of this responsibility, California Air Resources Board monitors existing air quality, establishes California Ambient Air Quality Standards, and limits allowable emissions from vehicular sources. Regulatory authority within established air basins is provided by air pollution control and management districts, which control stationary-source and most categories of area-source emissions and develop regional air quality plans. The project is located within the jurisdiction of the San Joaquin Valley Air Pollution Control District.

The state and federal standards for the criteria pollutants are presented in (see Table 1). These standards are designed to protect public health and welfare. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soils, water, visibility, materials, vegetation and other aspects of general welfare. The U.S. EPA revoked the national 1-hour ozone standard on June 15, 2005, and the annual PM_{10} standard on September 21, 2006, when a new $PM_{2.5}$ 24-hour standard was established.

Air quality is described in terms of emissions rate and concentration of emissions. An emissions rate is the amount of pollutant released into the atmosphere by a given source over a specified time period. Emissions rates are generally expressed in units such as pounds per hour (1lbs/hr) or tons per year. Concentrations of emissions, on the other hand, represent the amount of pollutant in a given space at any time. Concentration is usually expressed in units such as micrograms per cubic meter, kilograms per metric ton, or parts per million. There are 4 primary sources of air pollution within the SJVAB: motor vehicles, stationary sources, agricultural activities, and construction activities.

Criteria air pollutants are classified in each air basin, county, or, in some cases, within a specific urbanized area. The classification is determined by comparing actual monitoring data with state and federal standards. If a pollutant concentration is lower than the standard, the pollutant is classified as "attainment" in that area. If an area exceeds the standard, the pollutant is classified as "non-attainment." If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

Air quality in the vicinity of the proposed project is regulated by several jurisdictions including the State and Federal Environmental Protection Agency (EPA), California Air Resources Board (CARB), and the San Joaquin Valley Air Pollution Control District (SJVAPCD). Each jurisdiction develops rules, regulations, policies, and/or goals to attain the directives imposed upon them through Federal and State legislation.

The Clean Air Act (CAA) of 1990 requires emission controls on factories, businesses, and automobiles by:

- Lowering the limits on hydrochloric acid and nitrogen oxides (NO_X) emissions, requiring the increased use of alternative-fuel cars, on-board canisters to capture vapors during refueling, and extending emission-control warranties.

- Reducing airborne toxins by requiring factories to install "maximum achievable control technology" and installing urban pollution control programs.

- Reducing Acid rain production by cutting sulfur dioxide emissions for coal-burning power plants.

Table 1
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)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet 8 Hour Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Annual Analysis
	Annual Arithmetic Mean	20 µg/m^3		-		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	-	Gravimetric or Beta Attenuation	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Annual Analysis
	Annual Arithmetic Mean	12 µg/m^3		12 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)	None	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9 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)[8]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	-	Gas Phase Chemiluminescence
		0.030 ppm		53 ppb		

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
	Arithmetic Mean	(57 µg/m³)		(100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	-	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	-		-	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³		0.14 ppm (for certain areas)[9]	-	
	Annual Arithmetic Mean	-		0.030 ppm (for certain areas)[9]	-	
Lead[10,11]	30 Day Average	1.5 µg/m³	Atomic Absorption	-	-	High Volume Sampler and Atomic Absorption
	Calendar Quarter	-		1.5 µg/m³ (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-month Average	-		0.15 µg/m³		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standard		

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Flourescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m³	Gas Chromatography			

Notes:
1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, 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 8hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, 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 one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. 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 U.S. 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 U.S. EPA.
8. To attain the 1-hour national 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 standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
9. On June 2, 2010, a new 1-hour SO2 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 SO2 national standards (24-hour and annual) remain in effect until one 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

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
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. 10. 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. 11. 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 one 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 standard are approved. 12. 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.						

In July of 1997, the EPA adopted a PM2.5 standard in recognition of increased concern over particulate matter 2.5 microns in diameter (PM2.5). Ending several years of litigation, EPA's PM2.5 regulations were upheld by the U.S. Supreme Court on February 27, 2001. According to information provided by the EPA, designations for the new PM2.5 standards began in the year 2002 with attainment plans submitted by 2005 for regions that violate the standard. In October 2006, EPA revised the PM2.5 standard to 35 µg/m3. The most recent revision to the PM2.5 standard was in 2012 when the EPA revised the annual PM2.5 standard to 12 µg/m3. The San Joaquin Valley was classified as a moderate nonattainment area for the 2012 PM2.5 standard effective April 15, 2015.

The following rules and regulations have been adopted by the Air District to reduce PM2.5 emissions throughout the San Joaquin Valley and verification by the City of compliance with these rules and regulations will be required, as applicable, to construct and operation of the project.

- Rule 4002 – National Emission Standards for Hazardous Air Pollutants. There are no existing structures located on the proposed site.

- Rule 4102 – Nuisance
  This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and be subject to district enforcement action.

- Rule 4601 – Architectural coatings. The purpose of this rule is to limit volatile organic compound (VOC) emissions from architectural coatings. Emission are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling
- Rule 4641- Cutback, slow cure, and emulsified asphalt, paving and maintenance operations. The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. If asphalt paving will be used, then the paving operations will be subject to Rule 4641.

- Rule 9510 – Indirect Source Review (ISR) This rule reduces the impact PM10 and NOX emissions from growth on the SJVB. This rule places application and emission reduction requirements on applicable development projects in order to reduce emissions through onsite mitigation, offsite SJVAPCD-administered projects, or a combination of the two. This project will submit an Air Impact Assessment (AIA) application in accordance with Rule 9510's requirements.

- Compliance with SJVAPCD Rule 9510 (ISR) reduces the emissions impact of the project through incorporation of onsite measures as well as payment of an offsite fee that funds emissions reduction projects in the SJVAB. A number of "optional"/Above and Beyond" mitigation measures included in this project can be created as Rule 9510 – onsite mitigation measures.

- Regulation VIII – fugitive PM10 Prohibitions Rules 8011 – 8081 are designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track-out etc. Among the Regulation VIII Rules applicable to the project are the following:

- Rule 8011 – Fugitive Dust Administrative Requirements for Control of Fine Particulate Matter (PM10)

- Rule 8021 – Fugitive Dust Requirements for Control of fine Particulate Matter (PM10) from Construction, Excavation, and Extraction Activities

- Rule 8030 – Fugitive dust Requirements for Control of Fine Particulate Matter (PM10) from Handling and Storage of Fine Bulk Materials.

- Rule 8060 – Fugitive dust Requirements for Control of fine Particulate Matter (PM10) from Paved and Unpaved Roads.

DISCUSSION:

a) **__Less Than Significant Impact:__** The proposed project is located within the boundaries of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAPCD is responsible for bringing air quality in the City of Tulare into compliance with federal and state air quality standards. The air district has Particulate Matter (PM) plans, Ozone Plans, and Carbon Monoxide Plans that serve as the clean air plans for the basin. Together, these plans quantify the required emission reductions to meet federal and state air quality standards and provide strategies to meet these standards.

   Construction Phase. Project construction would generate pollution emissions from the following construction activities: site preparation, grading, building construction, grading, and application of architectural coatings. The construction related emissions from these activities were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The full CalEEMod Modeling output sheets can be found in Appendix A. As shown in Table 2 below, project construction related emissions do not exceed the thresholds established by the SJVAPCD.

Table 2: Estimated Project Construction Emissions in Tons Per Year

	CO	ROG	SO_x	NO_x	PM10	PM2.5
Maximum Annual Emissions Generated from Project Construction	2.4875	0.9611	0.0061	2.907	0.2795	0.1659
SJVAPCD Air Quality Thresholds of Significance	100	10	27	10	15	15
*Threshold established by SJVAPCD for SO_x, however emissions are reported as SO2 by CalEEMod.						

Source: SJVAPCD, CalEEMod (Appendix A)

Operation Phase. Implementation of the proposed project would result in long-term emissions associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, as well as mobile emissions. Operational emissions from these factors were calculated using CalEEMod. The full CalEEMod Modeling output sheets can be found in Appendix A. As shown in Table 3 below, the project's operational emissions do not exceed the thresholds established by the SJVAPCD.

Because the emissions from both construction and operation of the proposed project would be below the thresholds of significance established by the SJVAPCD, the project would not conflict with or obstruct implementation of an applicable air quality plan and impacts would be *less than significant*.

Table 3: Estimated Project Operational Emissions in Tons Per Year

	CO	ROG	SO_x	NO_x	PM10	PM2.5
Maximum Annual Emissions Generated from Project Operations	2.6953	0.7022	0.0023	4.7963	1.7111	0.4678
SJVAPCD Air Quality Thresholds of Significance	100	10	27	10	15	15
*Threshold established by SJVAPCD for SO_x, however emissions are reported as SO2 by CalEEMod.						

Source: SJVAPCD, CalEEMod (Appendix A)

b) **<u>Less Than Significant Impact:</u>** The SJVAPCD accounts for cumulative impacts to air quality in Section 1.8 "Thresholds of Significance – Cumulative Impacts" in its 2015 Guide for Assessing and Mitigating Air Quality Impacts. The SJVAPCD considered basin-wide cumulative impacts to air quality when developing its significance thresholds. Because construction emissions are relatively insignificant and can be mitigated with implementation of air district control measures and operational emissions would be well below air district thresholds established to attain and/or maintain attainment with state and federal air quality standards, impacts regarding cumulative emissions would be *less than significant*.

c) **<u>Less Than Significant Impact:</u>** During construction, pollution concentrations will temporarily increase, however construction activities will remain below the thresholds of significance established by the San Joaquin Valley Unified Air Pollution Control District. During operations, the facility would not produce any notable air pollution. Because impacts to air quality would be below the significance thresholds established by CARB and SJVAPCD, the impact is *less than significant*.

d) **<u>Less Than Significant Impact</u>:** The project would create temporary typical construction odors during the construction phase. Since any odors from project construction would be temporary and common to any construction activity, and the project would not create objectionable odors during facility operations, impacts are *less than significant*.

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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 & 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 US Fish and Wildlife Service?	☐	☐	☐	☑
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through director 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?	☐	☐	☐	☑

The Project site is situated within a combination of agricultural lands and urban development. It is bordered to the north, east, and west by agricultural land use, and to the south by vacant and suburban residential land uses.

The California Natural Diversity Database (CNDDB) QuickView Tool was used to evaluate special status species occurrences in the Tulare USGS 7.5 minute quadrangle where the project is located. Six special status animal species and two special status plant species were identified within this search area. These species and their protection status are listed in the tables below:

Table 4: Special Status Animal Species

Common Name	Scientific Name	Status
western spadefoot	Spea hammondii	CSC
Swainson's hawk	Buteo swainsoni	CT
burrowing owl	Athene cunicularia	CSC
An andrenid bee	Andrena macswaini	-
San Joaquin kit fox	Vulpes macrotis mutica	FE, CT
Tipton kangaroo rat	Dipodomys nitratoides nitratoides	FE, CE
Status Codes FE Federally Endangered	CE California Endangered CT California Threatened CSC California Species of Special Concern	

Source: CNDDB Quickview Tool

Table 5: Special Status Plant Species

Common Name	Scientific Name	Status
San Joaquin adobe sunburst	Pseudobahia peirsonii	FT, CE, 1B
California jewelflower	Caulanthus californicus	FE, CE
Status Codes FE Federally Endangered FT Federally Threatened 1B Plants Rare, Threatened, or Endangered in California and Elsewhere	CE California Endangered	

Source: CNDDB Quickview Tool

Federal Endangered Species Act (FESA**)** - defines an *endangered species* as "any species or subspecies that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species or subspecies that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712): FMBTA prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Although the United States Fish & Wildlife Service (USFWS) and its parent administration, the U.S. Department of the Interior, have traditionally interpreted the FMBTA as prohibiting incidental as well as intentional “take” of birds, a January 2018 legal opinion issued by the Department of the Interior now states that incidental take of migratory birds while engaging in otherwise lawful activities is permissible under the FMBTA. However, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

<u>Birds of Prey (CA Fish and Game Code Section 3503.5):</u> Birds of prey are protected in California under provisions of the Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

<u>California Endangered Species Act (CESA)</u> **–** prohibits the take of any state-listed threatened and endangered species. CESA defines *take* as “any action or attempt to hunt, pursue, catch, capture, or kill any listed species.” If the proposed project results in a take of a listed species, a permit pursuant to Section 2080 of CESA is required from the CDFW.

DISCUSSION:

a) <u>Less Than Significant Impact with Mitigation Incorporated:</u> Based on the existing conditions of the project site and vicinity (open field and row crop agricultural uses to the north, east, and west), there is potential for the following special status species to occur within the vicinity of the project site:

<u>Swainson's hawk:</u> The Swainson’s hawk is a raptor that migrates to California during its breeding season. The species usually nests in mature trees in riparian areas, oak savannah, and at the margins of agricultural fields. The species forages for small rodents in grasslands and low profile agricultural fields. The project site and adjacent agricultural fields could be used as foraging or nesting habitat for this species. The following mitigation measures will be implemented to prevent significant impacts from occurring to the Swainson’s hawk and other nesting raptors.

Mitigation Measure BIO-1a: In order to avoid impacts to nesting raptors and migratory birds, the project shall be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.

Mitigation Measure BIO-1b: If project activities must occur during the nesting season (February 1-August 31), a qualified biologist shall conduct preconstruction surveys for active raptor and migratory bird nests within 14 days prior to the start of these activities. The survey shall include the proposed work area(s) and surrounding lands within 500 feet, where accessible, for all nesting raptors and migratory birds save Swainson's hawk; the Swainson's hawk survey shall extend to 0.5 mile outside of work area boundaries. If no nesting pairs are found within the survey area, no further mitigation is required.

Mitigation Measure BIO-1c: Should any active nests be discovered near proposed work areas, the biologist shall determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers shall be identified on the ground with flagging, fencing, or by other easily visible means, and shall be maintained until the biologist has determined that the young have fledged.

Burrowing Owl: The burrowing owl can be found in dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. The species is dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows. The project site consists of open space and low agricultural vegetation, which could be suitable habitat for the burrowing owl. The following mitigation measures shall be implemented to prevent significant impacts from occurring to the burrowing owl:

Mitigation Measure BIO-2a: (Take Avoidance Survey). A take avoidance survey for burrowing owls shall be conducted by a qualified biologist knowledgeable of the species within 14 days prior to the start of construction. This take avoidance survey shall be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The survey area shall include all suitable habitat on and within 200 meters of project impact areas, where accessible.

Mitigation Measure BIO-2b: (Avoidance of Active Nests and Roosts). If project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are identified within or near project impact areas, a 200-meter disturbance-free buffer shall be established around these burrows, unless a qualified biologist approved by CDFW verifies through noninvasive methods either that the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Owls present on site after February 1 will be assumed to be nesting unless evidence indicates otherwise. The protected exclusion zone established for the breeding season shall remain in effect until August 31 or, as determined based on monitoring evidence, until the young owl(s) is foraging independently or the nest is no longer active.

Mitigation Measure BIO-2c: (Passive Relocation of Resident Owls). During the nonbreeding season (September 1-January 31), resident owls occupying burrows in project impact areas may be passively relocated to alternative habitat after consulting with the CDFW. Prior to passively relocating burrowing owls, a Burrowing Owl Exclusion Plan shall be prepared by a qualified biologist in accordance with Appendix E of the *Staff Report on Burrowing Owl*

Mitigation (CDFW, 2012). The Burrowing Owl Exclusion Plan shall be submitted to the CDFW for review prior to implementation. Relocation of any owls during the nonbreeding season shall be performed by a qualified biologist using one-way doors, which shall be installed in all burrows in the impact area and left in place for at least two nights. The doors shall be removed and the burrows backfilled immediately before the initiation of grading or, if no grading would occur, left in place until the end of construction. To avoid the potential for owls evicted from a burrow to occupy other burrows in the project site, one-way doors shall be placed in all potentially suitable burrows within the impact area when eviction occurs.

<u>San Joaquin kit fox :</u> The San Joaquin kit fox relies primarily on grassland or scrubland habitat; however, they can also be found in grazing areas, urban settings, and in areas adjacent to tilled or fallow fields. They require underground dens for protection from predators, heat regulation, and to raise pups, and usually utilize burrows created by other small, burrowing mammals. The highly disturbed nature of the project site and adjacent lands make it unlikely habitat for the species, however it is possible to that the project site and adjacent agricultural fields could be used as foraging or burrowing habitat for the species.

The following measures adapted from the *U.S. Fish and Wildlife Service 2011 Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* will be implemented:

Mitigation Measure BIO-3a: Preconstruction surveys for the San Joaquin kit fox shall be conducted on and within 200 feet of the project site, no more than 30 days prior to the start of ground disturbance activities on the site. The primary objective is to identify kit fox habitat features (e.g., potential dens and refugia) on and adjacent to the site and evaluate their use by kit foxes. Protection provided by dens for shelter, escape, cover, and reproduction is vital to the survival of San Joaquin kit foxes. For San Joaquin kit foxes, the ecological value of potential, known, and natal/pupping dens differs; therefore, each den type requires the appropriate level of protection. The following text describes the different steps involved with implementing this mitigation measure:

> <u>Determine Den Status.</u> When a suitable den or burrow is discovered, a qualified biologist shall determine whether the hole is occupied by a San Joaquin kit fox. Den entrances at least 4 inches in diameter (but not greater than 20 inches) qualify as suitable for San Joaquin kit fox use. Some dens can be immediately identified as recently used by kit fox; qualifying signs include kit fox tracks, scats, and a fresh soil apron extending up to 6 feet from the den entrance. Dens with proper dimensions, but no obvious sign will require further investigation. A remote motion-sensing camera with tracking medium shall be deployed for at least 5 days in an attempt to document a San Joaquin kit fox using the den. If, after 5 days, no San Joaquin kit foxes are detected and the hole has remained unchanged (no new tracks or excavations are observed), and there is no historic record of an active kit fox den at that location, the den will be

deemed a “potential den” and unoccupied. The den will be considered occupied if a kit fox is photographed using the den or if a recent sign is found. The biologist shall contact CDFW and the USFWS upon the confirmation of any occupied den.

Preconstruction surveys shall be repeated following any lapses in construction of 30 days or more.

Mitigation Measure BIO-3b: Should active kit fox dens be detected during preconstruction surveys, the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW shall be notified. A disturbance-free buffer shall be established around the burrows in consultation with the USFWS and CDFW, to prevent access to the occupied den by construction equipment and personnel who are not biologists, and to be maintained until an agency-approved biologist has determined that the burrows have been abandoned. After construction activities would no longer affect the den, all fencing and flagging shall be removed to avoid attracting attention to the den by other animals or humans. All onsite flagging and buffer delineations shall be kept in good working order for the duration of activity near the den or until the den is determined to be unoccupied, whichever occurs first. The following radii are standard San Joaquin kit fox buffer distances:

- Known occupied den—100 feet
- Occupied natal/pupping den—500 feet
- Occupied atypical den—50 feet

In the exclusion zones, only essential vehicle and foot traffic shall be permitted. No activity that would destroy the den may occur, and no activity that may harm a San Joaquin kit fox will proceed until the individual is out of harm’s way, without harassment. No activity that may cause strong ground vibrations may occur in the exclusion zone until the den is no longer occupied. Essential vehicle traffic shall include any emergency vehicles. If San Joaquin kit foxes are not observed above ground, essential foot traffic also may be allowed. The USFWS and CDFW shall be notified of any reductions in the standard radii or allowance for additional activity in the restrictive exclusion zones based on individual circumstances to provide USFWS and CDFW an opportunity to offer technical guidance. If a known or occupied den cannot be avoided, consultation with the USFWS and CDFW shall be required.

Mitigation Measure BIO-3c: Construction activities shall be carried out in a manner that minimizes disturbance to kit foxes in accordance with the USFWS Standardized Recommendations. The applicant shall implement all minimization measures presented in the Construction and On-going Operational Requirements section of the Standardized Recommendations, including, but not limited to:

- Project-related vehicles shall observe a daytime speed limit of 15-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit shall be reduced to 10-mph. Off-road traffic outside of designated project areas shall be prohibited.

• To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep shall be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and CDFW shall be contacted.

• Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

• All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from a construction or project site.

• No firearms shall be allowed on the project site.

• No pets, such as dogs or cats, shall be permitted on the project site, to prevent harassment, mortality of kit foxes, or destruction of dens.

• Use of rodenticides and herbicides in project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by USFWS. If rodent control must be conducted, zinc phosphide shall be used because of a proven lower risk to kit fox.

• An employee education program shall be conducted for the project. The program shall consist of a brief presentation by persons knowledgeable in kit fox biology and protection to explain endangered species concerns to contractors, their employees, and agency personnel involved in the project. This training will include a description of the kit fox and its habitat needs; a report of the occurrence of kit fox in the project vicinity; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of the measures being taken to reduce impacts to the species during project construction and implementation. The training will include a handout with all of the training information included in it. The applicant will use this handout to train any construction personnel that were not in attendance at the first meeting, prior to those personnel starting work on the site.

• A representative shall be appointed by the Applicant who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to USFWS.

• Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. shall be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas shall be determined on a site-specific basis in consultation with USFWS, CDFW, or revegetation experts.

• Any contractor, employee, or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW will be notified in writing within three working days in case of the accidental death or injury of a San Joaquin kit fox during project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal, and any other pertinent information. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530) 934-9309.

• New sightings of kit fox shall be reported to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to USFWS.

<u>Tipton kangaroo rat:</u> The Tipton kangaroo rat occupies underground burrows in scrubland habitats within the San Joaquin Valley. The species was once widely distributed throughout the valley; however, their remaining habitat is extremely limited. A Habitat Suitability Study was conducted in 2016 for CDFW. The report found that the project site and surrounding areas are not considered suitable habitat for the Tipton kangaroo rat. The project will not impact the Tipton kangaroo rat and no mitigation is required.

<u>Western spadefoot:</u> The Western spadefoot is a small toad found in grasslands within the San Joaquin Valley. The species requires wetland for breeding and is typically found within

1,200 ft. of aquatic habitat. Wetland habitat suitable for breeding by the western spadefoot is absent from the project site and adjacent lands. The Project would have no impact on western spadefoot and no mitigation is required.

<u>San Joaquin adobe sunburst:</u> The San Joaquin adobe sunburst is found in valley and foothill grassland and cismontane woodland. The flowering plant requires heavy clay soils often found on grassy valley floors and rolling foothills. The soils found on the project site are loams and sandy loams. Therefore, the project site is not suitable habitat for this species and no impact on this species would occur. No mitigation is required.

<u>California jewelflower</u> **:** The California jewelflower is a State and Federally endangered species that can occur in chenopod scrub, pinyon and juniper woodland, and sandy valley and foothill grassland. The species is presumed be extirpated from Tulare County by CDFW and the project site and adjacent lands do not contain suitable habitat for this species. It is extremely unlikely for the species to occur on the project site. The Project would have no impact on this species and no mitigation is required.

Implementation of Mitigation Measures BIO-1a, BIO-1b, BIO-1c, BIO-2a, BIO-2b, BIO-2c, BIO-3a, BIO-3b, and BIO-3c, will ensure that impacts to species identified as a candidate, sensitive, or special status will be *less than significant with mitigation incorporated.*

b) **<u>No Impact:</u>** As identified in the City's General Plan EIR, the project site in not located within or adjacent to an identified sensitive riparian habitat or other natural community. Therefore, the proposed project would have *no impact* to riparian habitat.

c) **<u>No Impact:</u>** As identified in the City's General Plan EIR, there are no known wetlands located in or around the Project site as reviewed on the U.S. Fish and Wildlife Service National Wetlands Inventory map, and in addition, there are no state protected wetlands at or in the vicinity of the Project site. Therefore, the project will have *no impact* on federal or state protected wetlands.

d) **<u>No Impact:</u>** As identified in the City's General Plan EIR, there are no identified migratory corridors on or near the site. Therefore, the proposed project would have *no impacts*.

e) **<u>No Impact:</u>** The City of Tulare has an oak tree preservation policy according to Tulare Municipal Code 8.52.100 (Preservation of Heritage Trees). There are no oak trees on the project site, therefore there would be *no impacts*.

f) **<u>No Impact:</u>** There are no local or regional habitat conservation plans for the area and *no impacts* would occur.

V. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☑	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐

Discussion:

a) **<u>Less Than Significant Impact with Mitigation Incorporated</u>:** There are no known historical resources located within the project area and the soils in the project area have been previously disturbed and were most recently disturbed in the cultivation of agricultural row crops. There would be no excavation in undisturbed soils or in areas with known historical resources. However, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measure CUL-1 would ensure that impacts due to discovery of cultural resources during excavation would be *less than significant with mitigation incorporated*.

Mitigation Measure CUL-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any potential significant impacts.

b) **<u>Less Than Significant Impact with Mitigation Incorporated:</u>** There are no known archaeological resources located within the project area and no excavation proposed in undisturbed soils. However, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measure CUL-1 would ensure that impacts due to discovery of cultural resources during excavation would be *less than significant with mitigation incorporated*.

c) **<u>Less Than Significant Impact with Mitigation Incorporated:</u>** There are no known human remains buried in the project vicinity and the soils in the project area have been previously disturbed. No excavation in undisturbed soils is proposed, however if human remains are unearthed during development, there is a potential for a significant impact. As such, implementation of Mitigation Measure CUL-2 would ensure that impacts remain *less than significant with mitigation incorporated*.

Mitigation Measure CUL-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California 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. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

VI. ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☑	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☑

a) **<u>Less Than Significant Impact</u>:** The proposed project would require the use of electricity, natural gas, and use of transportation fuel during the construction phase. The demand for these resources would be supplied from existing services within the proposed project area. The overall construction activities would require minimal consumption of these resources as these activities would be temporary and conclude once the proposed project is complete.

The proposed project consists of a five building medical office development. Operation of the Project would result in an increase in energy consumption for multiple purposes, including, but not limited to, inside and outside lighting, building heating and cooling, and commercial equipment.

The project would be required to comply with the 2016 California Green Building Standards Code. The project also would be required to comply with the building energy efficiency standards of California Code of Regulations Title 24, Part 6 in effect at the time of project approval. Compliance with these standards would reduce energy consumption associated with project operations. The emissions estimates for energy use provided in the CalEEMod output sheets in Appendix A take into account these mandatory compliance measures.

Overall, project construction and operations would not consume energy resources in a manner considered wasteful, inefficient, or unnecessary. Project impacts related to energy consumption would be considered *less than significant*.

b) **No Impact:** The proposed project would be required to abide by the requirements of state and local plans for renewable energy efficiency, including Title 24 2013 standards. There would be *no impact*.

VII. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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.	☐	☐	☑	☐
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 direct or indirect risks to life or property?	☐	☐	☐	☑
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				

Discussion:

a-i and ii) **Less Than Significant Impact:** According to the state Regulatory Earthquake maps, no active faults underlay the project site, nor are any active faults located in the surrounding project vicinity. Although the project is located in an area of low seismic activity, the project could be affected by groundshaking from nearby faults. The potential for strong seismic ground shaking on the project site is not a significant environmental concern due to the infrequent seismic activity of the area and distance to the faults. Furthermore, the proposed project would not expose people to seismic ground shaking beyond the conditions that currently exist throughout the project area. The project would be constructed to the standards of the most recent seismic Uniform Building and Safety Code (UBSC). Compliance with these design standards will ensure potential impacts related to strong seismic ground shaking would be *less than significant.*

a-iii) **<u>Less Than Significant Impact:</u>** Liquefaction is a phenomenon whereby unconsolidated and/or near-saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in temporary, fluid-like behavior of the soil. The 2017 Tulare Multi-Jurisdictional Local Hazard Mitigation Plan identifies the risk of liquefaction within the county as low because the soil types in the area either too coarse or too high in clay content to be suitable for liquefaction. According to state soils maps, the project site consists mostly of Nord fine sandy loam and does not contain soils suitable for liquefaction. The impact would be *less than significant*.

a-iv) **<u>No Impact:</u>** The project site is generally flat and previously disturbed. There are no hill slopes in the area and no potential for landslides. No geologic landforms exist on or near the site that would result in a landslide event. There would be *no impact.*

b) **<u>Less Than Significant Impact:</u>** Because the project site is relatively flat, the potential for erosion is low. However, construction-related activities and increased impermeable surfaces can increase the probability for erosion to occur. Construction-related impacts to erosion will be temporary and subject to best management practices (BMPs) required by stormwater pollution prevention plans (SWPPP), which are developed to prevent significant impacts related to erosion from construction. After construction, stormwater will be directed to an on-site stormwater basin to prevent erosion from occurring on- or off-site. Because impacts related to erosion would be temporary and limited to construction and required best management practices would prevent significant impacts related to erosion, the impact will remain *less than significant*.

c) **<u>Less Than Significant Impact</u>:** Substantial grade change would not occur in the topography to the point where the project would expose people or structures to potential adverse effects on-, or off-site, such as landslides, lateral spreading, subsidence, liquefaction or collapse. The impact would be *less than significant*.

d) **<u>No Impact</u>:** Expansive soils contain large amounts of clay, which absorb water and cause the soil to increase in volume. Conversely, the soils associated with the proposed project site are granular, well-draining, and therefore have a limited ability to absorb water or exhibit expansive behavior. Because the soils associated with the project are not suitable for expansion, implementation of the project will pose no risk to life or property caused by expansive soils and there is *no impact*.

e) **<u>No Impact</u>:** The proposed project will have access to existing City wastewater infrastructure and would not require the use of septic tanks or alternative wastewater disposal systems. There is *no impact*.

f) **<u>Less Than Significant Impact:</u>** There are no known paleontological resources located within the project area and no excavation proposed in undisturbed soils, particularly to a depth with a potential to unearth paleontological resources. Potential impacts would be *less than significant*.

VIII. GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☑

Climate Change - (also referred to as Global Climate change) is sometimes used to refer to all forms of climatic inconsistency, but because the earth's climate is never static, the term is more properly used to imply a significant change from one climatic condition to another. In some cases, climate change has been used synonymously with the term "global warming." Scientists however, tend to use the term in the wider sense to address uneven patterns of predicted global warming and cooling and include natural changes in climate.

Global Warming - refers to an increase in the near surface temperature of the earth. Global warming has occurred in the distant past as the result of natural influences, but the term is commonly used to refer to the warming predicted to occur because of increased emissions of greenhouse gases. Scientists generally agree that the earth's surface has warmed by about 1° F in the past 140 years, but warming is not predicted evenly around the globe. Due to predicted changes in the ocean currents, some places that are currently moderated by warm ocean currents are predicted to fall into deep freeze as the pattern changes.

Greenhouse Effect - is the warming of the earth's atmosphere attributed to a buildup of carbon dioxide (CO_2) or other gases; some scientists think that this build-up allows the sun's rays to heat the earth, while making the infrared radiation atmosphere opaque to infrared radiation, thereby preventing a counterbalancing loss of heat.

Greenhouse Gases - are those that absorb infrared radiation in the atmosphere. GHG include water vapor, CO_2, methane, nitrous oxide (N_2O), halogenated fluorocarbons, ozone, per fluorinated carbons PFCs), and hydroflurocarbons.

Discussion:

a) **<u>Less Than Significant Impact:</u>** Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. Implementation of the proposed project would contribute to increases of GHG emissions that are associated with global climate change. Estimated GHG emissions attributable to future development would be primarily associated with increases of CO2 and other GHG pollutants, such as methane (CH4) and nitrous oxide (N_2O), from mobile sources and utility usage.

The proposed project's short-term construction-related and long-term operational GHG emissions were estimated using CalEEMod Version 2016.3.2. See Appendix A of this IS-MND for complete CalEEMod inputs and results. CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planner, and environmental professionals to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Emissions are expressed in annual metric tons of CO_2 equivalent units of measure (i.e., $MTCO_2e$), based on the global warming potential of the individual pollutants.

Short-Term Construction GHG Emissions: Estimated increases in GHG emissions associated with construction of the proposed project are summarized in Table 6. As presented in the table, the total short-term construction emissions of GHG associated with the Project are estimated to be approximately 1,628 metric tons (MT) of CO_2e. This represents a low of approximately 77 and a high of 540 MT of CO_2e emitted during each of the construction years (2019, 2020, 2035, and 2045). These construction GHG emissions are a one-time release and are comparatively much lower than emissions associated with operational phases of a project. Cumulatively, these construction emissions would not generate a significant contribution to global climate change, as they would not continue to occur into the future.

Table 6: Estimated Project Construction GHG Emissions (Unmitigated Metric Tons Per Year)

	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e
2019	0.0	76.3576	76.3576	0.0233	0.0	76.9404
2020	0.0	507.8480	507.8480	0.0828	0.0	509.9167
2035	0.0	500.0668	500.0668	0.0199	0.0	500.5646
2045	0.0	539.6925	539.6925	0.0207	0.0	540.2098
Total	**0.0**	**1,623.9649**	**1,623.9649**	**0.1467**	**0.0**	**1,627.6315**

Source: SJVAPCD, CalEEMod (Appendix A)

Long-Term Operational GHG Emissions: Implementation of the proposed project would result in long-term greenhouse gas emissions associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, as well as mobile emissions.

The U.S. Environmental Protection Agency (EPA) published a rule for the mandatory reporting of greenhouse gases (GHG) from sources that in general emit 25,000 MT or more of CO_2e per year. Project GHG emissions were calculated using CalEEMod (emissions output results found in Appendix A) based on 84,554 square feet of medical office buildings and 563 parking spaces at full buildout. The proposed project is estimated to produce 3,014.29 MT of CO_2e per year, which is well below the 25,000 MT threshold for GHG emissions.

Therefore, because the GHG emissions related to construction and operation of the proposed project are below accepted thresholds of significance, the potential impacts are considered *less than significant*.

b) **No Impact:** The proposed project would comply with all federal, state, and local rules pertaining to the regulation of greenhouse gas emissions. In addition, the project would implement Best Performance Standards developed by the SJVAPCD. Projects implementing Best Performance Standards are determined to have a less than significant impact on global climate change. The project would not conflict with any plan, policy, or regulation developed to reduce GHG emissions. There would be *no impact*.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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 or excessive noise for people residing or working in the project area?	☐	☐	☐	☑
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

Discussion:

a) **Less Than Significant Impact:** Project construction activities may involve the use and transport of hazardous materials. During construction, the contractor will use fuel trucks to refuel onsite equipment, and may use paints and solvents to a limited degree. The project must adhere to applicable zoning and fire regulations regarding the use and storage of any hazardous substances. Any medical waste would be handled and transported for off-site disposal in accordance with applicable regulations for medical offices and clinics. Further, there is no evidence that the site has been used for underground storage of hazardous materials. Therefore, the proposed project will have *less than significant impacts* to hazardous materials.

b) **<u>Less Than Significant Impact:</u>** There is no reasonably foreseeable condition or incident involving the project that could result in release of hazardous materials into the environment. As mentioned, any medical waste would be handled and transported for off-site disposal in accordance with applicable licensing regulations for medical offices and clinics. There are *less than significant impacts.*

c) **<u>No Impact</u>:** The project is not located within ¼ mile of an existing or proposed school, and there is no reasonably foreseeable condition or incident involving the emission, handling, or disposal of hazardous materials, substances, or waste that would affect areas within ¼ miles of existing or proposed school sites. The closest schools are Liberty Elementary School and Mission Valley Elementary School, both located just under a ½ mile from the project site. The project does not involve the use or storage of hazardous substances other than small amounts of medical waste, which would be handled and transported for off-site disposal in accordance with applicable licensing regulations for medical offices and clinics. Because of the limited use of hazardous materials and the distance from the project site to any existing or proposed schools, there is *no impact*.

d) **<u>No Impact:</u>** The project site is not listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control. There would be *no impact*.

e) **<u>No Impact</u>:** The proposed project site is not located within the boundary of an airport land use plan and is not within two miles of a public airport or public use airport. Mefford Field Airport is located over five miles south of the project site and Visalia Municipal Airport is located over five miles northwest of the project site. Therefore, there is *no impact*.

f) **<u>No Impact</u>:** The City's site plan and environmental review procedures shall ensure compliance with emergency response and evacuation plans. In addition, the site plan will be reviewed by the Fire Department per standard City procedure to ensure consistency with emergency response and evacuation needs. Therefore, the proposed project would have *no impact* on emergency evacuation.

g) **<u>No Impact</u>:** The land surrounding the project site is developed with urban, suburban, and agricultural uses and are not considered to be wildlands. Additionally, the 2017 Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan finds that fire hazards within the City of Tulare, including the proposed project site, have low frequency, limited extent, limited magnitude, and low significance. The proposed project would not expose people or structures to significant risk of loss, injury or death involving wildland fires and there is *no impact*.

X. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☑	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☑	☐
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 offsite;	☐	☐	☑	☐
(iii) 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; or	☐	☐	☑	☐
(iv) Impede or redirect flood flows?	☐	☐	☐	☑
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☑
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☑	☐

Discussion:

a) **<u>Less Than Significant Impact:</u>** Construction would include excavation, grading, and other earthwork that may occur across the 10.44 acre project site. During storm events, exposed construction areas across the project site may cause runoff to carry pollutants, such as chemicals, oils, sediment, and debris. However, this project will not violate any water quality standards or waste discharge requirements because the project would require complying with a Stormwater Pollution Prevention Plan (SWPPP), which identifies all potential sources of pollution that could affect stormwater discharges from the project site and identifies best management practices (BMPs) related to stormwater runoff for the project to use. The proposed project would tie into the City's sewer system and wastewater treatment plant, which has sufficient capacity to accommodate this project. Therefore, since the project will not violate any water quality standards, there is impacts would be *less than significant*.

b) **Less Than Significant Impact:** The project would result in a reduction in percolation to the groundwater basin, because the project would create an increase in the amount of paved and impervious surfaces. However, this impact would be greatly reduced by the stormwater basin included in the project. The project has been reviewed by the City of Tulare Public Works Director and Engineer who have determined that the Project will not have a significant impact on the existing water system, and would tie in to the existing water infrastructure for this part of the City. Therefore, the project would have a *less than significant impact* on groundwater resources.

c) **Less Than Significant Impact:**

(i) The proposed project includes the construction and operation of an 84, 554 square foot five building medical complex to be constructed in three (3) phases. The construction of this project may be considered an alteration in drainage patterns, however this would not result in substantial erosion or siltation on- or off-site. A Stormwater Pollution Prevention Plan (SWPPP) will be implemented during project construction. SWPPPs include mandated erosion control measures, which are developed to prevent significant impacts related to erosion caused by runoff during construction. The impact is *less than significant.*

(ii) See discussion X. c) (i) above for discussion of project-related changes to site drainage and runoff. Therefore there will be less than significant impacts to flooding on or off site. The on-site storm water collection shall meet City standards for capacity. As such, the potential for flooding on or off-site as a result of the project is considered *less than significant*.

(iii) See discussion X.c) (i) above for discussion of project-related changes to site drainage and runoff. Construction and grading activities could create a potential for surface water to carry sediment from onsite erosion into the storm water system and downstream waterways. However, stormwater pollution prevention BMP's, including the implementation of adopted management practices and compliance with the provisions of the National Pollutant Discharge Elimination System (NPDES) permit will ensure that these impacts remain *less than significant*.

(iv) The Project site is generally flat and no significant grading or leveling will be required. The proposed project site is not in proximity to a stream or river and will not alter the course of a stream or river. According to National Flood Hazard mapping by the Federal Emergency Management Agency, the site is not within a 100-year flood hazard zone. The site is located in Flood Zone X, an Area of Minimal Flood Hazard. There would be *no impact* in regard to impeding or redirecting flood flows.

d) **No Impact:** The proposed project is located inland and not near an ocean or large body of water, and therefore, would not be affected by a tsunami. The proposed project is located in a relatively flat area and would not be impacted by inundation related to mudflow. Therefore, the proposed project would have *no impact* due to seiche, tsunami, or mudflow.

e) **Less Than Significant Impact:** The proposed project will not conflict with or obstruct implementation of a water quality control plan. The proposed project will be subject to the requirements of the NPDES Stormwater Program and will be required to comply with a SWPPP which will identify all potential sources of pollution that could affect stormwater discharges from the project site and identify Best Management Practices (BMPs) related to stormwater runoff for the project to use.

The proposed project is located within the Kaweah Groundwater Subbasin and is included within the Mid-Kaweah Groundwater Sustainability Agency (GSA). The California Department of Water Resources (DWR) in its Bulletin 118 – Interim Update, classified the Kaweah Subbasin as a High-Priority Groundwater Subbasin. Under the requirements for the Sustainable Ground Water Management Act (SGMA), a high-priority basin shall develop and implement a groundwater sustainability plan (GSP) to meet the sustainability goal established by the SGMA. All basins designated as high-priority by DWR are required to be managed under a GSP or coordinated GSP by January 31, 2020. On September 21, 2017 the Mid-Kaweah GSA submitted a Notice of Intent to initate development of a GSP to DWR. Preparation of a GSP for the Mid-Kaweah GSA is ongoing. It is the intent of the Mid-Kaweah GSA to submit a completed GSP to DWR for review shortly prior to January 31, 2020. Therefore, the proposed project would have *a* *less than significant impact* on implementation of a water quality control plan or sustainable groundwater management plan.

XI. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Discussion:

a) **No Impact:** The proposed project will not physically divide an established community, as it will develop a medical office complex on a vacant parcel surrounded by agricultural lands, with suburban residential uses across the street so there will be *no impact*.

b) **No Impact:** The proposed project is a permitted conditional use under the current zoning and general plan land use designations. The project does not conflict with any land use plans for the area, and there is *no impact*.

XII. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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 lands use plan?	☐	☐	☐	☑

Discussion:

a,b) **<u>No Impact</u>:** There are no known mineral resources of importance to the region and the project site is not designated under the City's General Plan as an important mineral resource recovery site. Therefore, the proposed project would not result in the loss or impede the mining of regionally or locally important mineral resources and less than significant impact would result. There is *no impact*.

XIII. NOISE

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☐	☑	☐
b) Generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☐	☑
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 public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

The City of Tulare's Noise Element was adopted in 2013 to protect the citizens of the City of Tulare from the harmful effects of exposure to excessive noise pollution and to protect the economic base of the City by preventing the encroachment of incompatible land uses near known noise-producing industries, railroads, airports and other sources. Noise pollution is defined as unwanted or excessive sound. Sound is a variation in air pressure that the human ear can detect. This pressure is measured within the human hearing range as decibels on the A scale (dBA). As the pressure of sound waves increases, the sound appears louder and the dBA level increases logarithmically. A noise level of 120 dB represents a million fold increases in sound pressure above the 0 dB level.

Discussion:

a) **<u>Less Than Significant Impact:</u>** The proposed project would develop medical offices and clinics , open standard office and clinic hours with no overnight or long-term stays by patients, and no helipad or regular ambulance service proposed. There and would not be a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

   The Project will result in an increase in noise levels due to construction, however long term noise level increases in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies are not expected. Construction equipment would include generators, excavators, bore/drill Rigs, track-mounted skid steers, plate compactors and backhoes. High noise levels resulting from construction activities generally would be limited to daytime hours. The City's Ordinance requires that noise-producing equipment used during construction shall be restricted to the hours of 6:00 a.m. to 10:00 p.m. These noise levels would be intermittent and short term, and would be considered *less than significant*.

b) **<u>No Impact</u>:** Some construction activities have the potential to generate ground-borne vibration, however excessive vibration is not expected and there are no sensitive receptors, such as residences, near enough to be affected by the temporary construction activities able to generate ground-borne vibration. Operation of the proposed medical offices and clinics will not result in excessive ground-borne vibration. Therefore, there would be *no impact*.

c) **<u>No Impact</u>:** The proposed project site is not located within the boundary of an airport land use plan and is not within two miles of a public airport or public use airport. Mefford Field Airport is located over five miles south of the project site and Visalia Municipal Airport is located over five miles northwest of the project site. There are no private airstrips in the vicinity of the proposed project. Therefore, there would be *no impact*.

XIV. POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by new homes and businesses) or directly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Discussion:

a,b) **No Impact:** The proposed project would not result in any population growth or population displacement in the City of Tulare. The project would provide long-term employment opportunities, however these could be filled by employees already living within the City of Tulare or in neighboring cities and communities. The proposed project would be developed on vacant land zoned for commercial use within the City limits. There are no existing residences that would be removed and no individuals would be displaced because of the project. Therefore, there would be *no impact*.

XV. PUBLIC SERVICES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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 serve ratios, response times of other performance objectives for any of the public services:				
a. Fire protection?	☐	☐	☑	☐
b. Police protection?	☐	☐	☑	☐
c. Schools?	☐	☐	☐	☑
d. Parks?	☐	☐	☐	☑
e. Other public facilities?	☐	☐	☑	☐

Discussion:

a. **<u>Less Than Significant Impact:</u>** The City of Tulare already provides fire protection services to the project site and although the proposed project may slightly increase the demand for fire protection services, demand would not increase to the extent that it would create a need for new or physically altered fire protection facilities. The impact is therefore *less than significant.*

b. **<u>Less Than Significant Impact:</u>** The City of Tulare already provides police protection services to the project site and although the proposed project may slightly increase the demand for fire protection services, demand would not increase to the extent that it would require the provision of new or physically alter existing facilities related to police protection. The impact is therefore *less than significant.*

c. **<u>No Impact:</u>** Since the project will not result in additional residents, the project will not increase the number of students in the school district. Therefore, there is *no impact*.

d. **<u>No Impact:</u>** The City standard is currently 5.0 acres of parkland per 1,000 population. However, the project will not result in additional residents, so the project will not create a need for additional parkland. Therefore, there is *no impact*.

e. **<u>Less Than Significant Impact:</u>** Water and wastewater services for the proposed development would be serviced by existing infrastructure beneath neighboring streets. The proposed project would increase the demand for water and wastewater service.

However, according to Tulare's 2035 General Plan Land Use Element, new development must be responsible for expanding existing water and sewage systems. Therefore, the project applicant shall pay the required development impact fees to accommodate the expansion of existing systems. Therefore, the impact would be *less than significant*.

XVI. RECREATION

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project 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) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☑

Discussion:

a) **<u>No Impact:</u>** The City standard is currently 5.0 acres of parkland per 1,000 population. Because the project will not result in additional residents, the project will not create need for additional parkland. Therefore, there is *no impact*.

b) **<u>No Impact:</u>** There are no parkland or recreational facilities associated with the project. The City standard is currently 5.0 acres of parkland per 1,000 population. Because the project will not result in additional residents, the project will not create need for additional parkland. Therefore, there is *no impact*.

XVII. TRANSPORTATION

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☑	☐	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☑	☐	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
d) Result in inadequate emergency access?	☐	☐	☑	☐

Discussion:

a,b) **Less Than Significant Impact With Mitigation Incorporated:** The project would not conflict with any transportation policies plans or programs regarding public transit, bicycle, or pedestrian facilities. The proposed project would include frontage improvements, including sidewalks, which would be an improvement to pedestrian accessibility over existing conditions. Any congestion during construction would be temporary. Vehicular access to the project site would be available on Cartmill Avenue and via the side street being constructed as part of this project on the eastern boundary of the property. At present, all study intersections operate at an acceptable level of service (LOS)[1], per the City's General Plan standards, during both AM and PM peak periods. According to the *Traffic Impact Analysis* (JLB Engineering Inc., April 2019) completed for the proposed project and included in Appendix B, the Project driveways to be constructed are located at points that would minimize traffic operational impacts to the existing roadway network.

The proposed project is a five building medical complex to be constructed in three (3) phases. Phase 1 consists of two new single-story medical office buildings and one new single-story administration office building. Construction of Phase 1 is proposed to begin in November 2019 and continue to November 2020. Phase 2 consists of one new single-

[1] Level of service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measure like vehicle speed, density, congestion, etc. and assigning a letter grade of acceptability as follows: A=free flow; B=reasonably free flow; C=stable flow, at or near free flow; D=approaching unstable flow; E=unstable flow operating at capacity; F=forced or breakdown flow

story dental building, proposed to be constructed in 2035. Phase 3 consists of one new two-story medical office building, with construction expected in 2045.

The Project under Phase 1 is estimated to generate a maximum of 1,171 daily trips, 105 AM peak hour trips and 124 PM peak hour trips. When combining the project's Phase 1 trip generation with ambient trip generation expected in the project vicinity in the near term (upon project opening day), the total trip generation would be 4, 799 daily trips, 380 AM peak hour trips and 486 PM peak hour trips. Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

By the year 2035, when Phase 2 of the proposed project is expected to be constructed and opened, the intersections of De La Vina Street and Cartmill Avenue and Mooney Boulevard and Cartmill Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, the following improvements need to be implemented:

- De La Vina Street/ Cartmill Avenue
  - Reduce the width of the receiving southbound through lane on De La Vina Street to 11 feet;
  - Add a northbound left-turn lane with an 11-foot width;
  - Modify the northbound left-right lane to a right-turn lane with an 11-foot width;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right lane; and
  - Signalize the intersection with protective left-turn phasing.

- Mooney Boulevard/ Cartmill Avenue
  - Add a second eastbound left-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add an eastbound right-turn lane;
  - Modify the northbound through-right lane to a through lane;
  - Add a northbound right-turn lane;
  - Modify the southbound through-right lane to a through lane;
  - Add a third southbound through lane with a receiving lane south of Cartmill Avenue;
  - Add a southbound right-turn lane; and
  - Modify the traffic signals as needed to accommodate the modified lane geometrics.

The project applicant will have to contribute their equitable fair share towards the cost of the aforementioned improvements at the intersections of De La Vina Street/ Cartmill Avenue and Mooney Boulevard/ Cartmill Avenue. Fair share contributions should only be made for those facilities, or portion thereof, currently not funded by the responsible agencies' roadway impact fee program(s) or grant funding, as appropriate. For those improvements not presently covered by local or regional roadway impact fee programs or grant funding, it is recommended that the Project contribute its equitable fair share as shown in Table 7. Payment of the Project's equitable fair share, in addition to the local and regional impact fee programs, would satisfy the Project's traffic mitigation measures.

Table 7: Project's Fair Share of Future Roadway Improvements

Intersection	Existing Traffic Volumes (PM Peak)	Cumulative Year 2035 plus Project (Buildout) Traffic Volumes (PM Peak)	Project Only Trips (Buildout) (PM Peak)	Project's Fair Share (%)
De La Vina Street/ Cartmill Avenue	652	2,252	147	9.19
Mooney Boulevard/ Cartmill Avenue	2,095	3,302	86	7.13
Note: Project Fair Share = ((Project Only Trips (Buildout) / (Year 2035+Project (Buildout) Traffic Volumes – Existing Traffic Volumes)) x 100				

Source: JLB Traffic Engineering, Inc., 2019.

The traffic impact analysis conducted for the proposed project does not provide construction costs for the recommended mitigation measures; therefore, the project proponent must continue to work with the City of Tulare, and/or Caltrans, to develop the estimated construction costs.

To improve the LOS at these intersections, Mitigation Measure TRA-1 shall be implemented to ensure a *less than significant impact with mitigation incorporated*.

Mitigation Measure TRA-1: Prior to opening day of Phase 2, the project applicant shall construct the recommended roadway/intersection improvements identified in the project traffic impact study for the intersections of De La Vina Street/Cartmill Avenue and Mooney Boulevard/Cartmill Avenue. The Applicant's fair share of the costs of these improvements shall be as identified in Table 7 of this IS-MND, subsequently adjusted to account for fees paid towards these improvements by the project through the City's Development Impact Fee Program.

c) **No Impact:** No geometric design feature associated with the project would pose a hazard to the public and there would be no incompatible uses. There would be *no impact*.

d) **Less Than Significant Impact:** This project would not result in inadequate emergency access. Emergency access to the site would be via Mooney Blvd, Cartmill Avenue, and

Hillman Street. A network of local roads within the proposed project property provides full access onto and off of the project site. Any impacts related to emergency access would be *less than significant.*

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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:				
i) 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	☐	☐	☐	☑
ii) 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, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☑	☐	☐

Discussion:

a)

(i) **No Impact:** The proposed project is located on a site that has been previously disturbed and most recently used for row crop agriculture. The Project site is within the limits of the City of Tulare and is not 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). Therefore, there is *no impact*.

(ii) **<u>Less Than Significant with Mitigation Incorporated:</u>** The proposed project site has been previously disturbed to use for agriculture, has no record of listing it in any register of historical resources, and is located entirely within the City of Tulare limits. Nonetheless, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measure CUL-1 would ensure that impacts due to discovery of unanticipated cultural resources during excavation would be *less than significant with mitigation incorporated*.

Mitigation Measure CUL-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any potential significant impacts.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☑	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☑	☐
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?	☐	☐	☐	☑
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?				
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☑

According to the Tulare Municipal Service Review (2013), the City would be able to provide the necessary infrastructure services and utility systems required for new development within the General Plan projections for growth within the City limits. Utilities and service systems include wastewater treatment, storm water drainage facilities, water supply, landfill capacity, and solid waste disposal. Wastewater will be collected and treated at the City's wastewater treatment facility, which is located at the intersection Paige Avenue and West Street. Solid waste disposal will be provided by the Tulare County Solid Waste Department, which operates two landfills and six transfer stations within the county. Combined, these landfills receive approximately 300,000 tons of solid waste per day. Water for the proposed development will be provided by the City of Tulare. The City's primary water source is groundwater. Tulare is currently in an agreement with Tulare Irrigation District (TID). The City pumps storm water into canals owned by TID. Storm water is also disposed and detained in storm drainage detention and retention basins throughout the City. Tulare actively improves its storm drainage system to accommodate new urban development.

Discussion:

a) **<u>Less Than Significant Impact</u>:** The City's wastewater treatment facility (WWTF) has two wastewater treatment trains, domestic and industrial WWTT. Both operate in accordance to the Central Valley Regional Water Quality Control Board *Waste Discharge Requirements (WDR) Order NO. R5-2002-0186*. The City's Municipal Service Review (2013) indicates that Tulare's WWTF is at sufficient capacity to accommodate new development, including the proposed medical office and clinic campus, which would tie into existing City sewage lines in the project vicinity. The City of Tulare's existing sewer pipes and lines on Cartmill Avenue would be extended to the project site. The wastewater generated from the proposed development would not exceed the City's wastewater treatment facility of 6.0 MGD, and would not require the construction of new or expansion of existing facilities to treat wastewater. The impact would be *less than significant*.

b) **<u>Less Than Significant Impact:</u>** The City's urban water supply is comprised entirely of groundwater pumped from the underground aquifer by wells located throughout the City. Water service to the agricultural site has been provided by pumping groundwater and future water demand has been planned for through the City's General Plan and Urban Water Management Plan for growth within the city limits. Water will be brought in using water trucks during construction. After construction, operation of the medical office complex would generate demand for water that would not exceed the City's water supply sources, and the project would tie into the existing water lines on Cartmill Avenue.

The projected water demand for the proposed project is based on the City's standard water demand factors, which were applied in the City's Water System Master Plan to calculate projected water demands summarized in Table 3.7 of the Water System Master Plan (2009). The projected water demand for the proposed project is shown in Table 8.

Table 8: Projected Water Demand for the Altura Center for Health-Cartmill Project

Land Use Type	Units	Quantity	Water Demand Factor[(A)]	Average Day Demand, GPD	Annual Water Demand, AFY[(B)]
Community Commercial	Acres	10.01	1,300 gpd/AC[(c)]	13,013	14.6
Note: (A) Water Demand Factors are Provided from Table 3.8 of the City of Tulare Water System Master Plan, July 2009. (B) AFY=Acre-feet Per Year (C) GPD/AC = Gallons Per Day Per Acre					

Source: City of Tulare Water System Master Plan, 2009.

As shown in the table, the total projected annual water demand for the proposed Project is 14.6 AFY. The proposed uses are consistent with the Community Commercial land use and therefore, the Community Commercial demand coefficient (1,300 gpd/acre) has been utilized to calculate the projected annual and daily water demand for the Project.

As described in the City's 2015 UWMP, the City will continue to periodically drill new supply wells in the future. The City continues to examine supply enhancement options, including surface water supply, urban recycled water use, etc., and additional supplies from Tulare Irrigation District (TID).

A comparison of the City's projected water supply and demand is shown in Table 8 for Normal, Single-Dry, and Multiple-Dry Years. The water supply and demand projections are based on the City's projected drought supply conditions as described in the City's 2015 UWMP. The supply-demand comparison in Table 9 indicates that the City will have sufficient water to meet its customers' needs through 2040. Current and ongoing management of these supplies is achieved through both voluntary and state-mandated consumption conservation efforts, and the Sustainable Groundwater Management Act (SGMA). The City has adopted outdoor water use conservation strategies as outlined in the UWMP and Chapter 7.32 of the Tulare Municipal Code.

Tulare General Plan Policy LU-P11.5 requires developers to assure that there is sufficient available water supply to meet projected demand for all new development. The proposed Project is planned to be consistent with the 2015 UWMP, which demonstrates adequate water supply to serve development in the City. Additionally, Tulare General Plan Policy LU-P11.3 requires all new development to be responsible for expansion of existing facilities, such as water systems, made necessary to serve the new development.

Table 9: Projected Water Supply (2020-2040)

Water Supply Source	2020		2025		2030		2035		2040	
	RAV[1]	TR/SY[2]	RAV[1]	TR/SY[2]	RAV[1]	TR/SY[2]	RAV[1]	TR/SY[2]	RAV[1]	TR/SY[2]
Groundwater	6,241.4	6,241.4	7,130.8	7,130.8	8,146.8	8,146.8	9,307.6	9,307.6	10,284.9	10,284.9
Surface Water	--	0	--	0	--	0	--	0	--	0
Recycled Water	4,864.4	0	5,837.3	0	7,004.8	0	8,405.7	0	10,086.9	0
Total	11,105.8	6,241.4	12,968.1	7,130.8	15,151.6	8,146.8	17,713.3	9,307.6	20,371.8	10,284.9

Notes: Unit of measurement is million gallons
[1] RAV=Reasonably Available Volume
[2] TR/SY = Total Right or Safe Yield

Source: City of Tulare Urban Water Management Plan, Table 6-9, 2015.

The Project would extend the existing public water line located along Cartmill Avenue into the property in accordance with City standards.

As described above, the proposed project would be expected to generate an annual water demand of 14.6 AFY. The City of Tulare 2015 UWMP describes that the City would have available water supply for normal year, single-year, and multi-dry year scenarios. The proposed project would generate an annual water demand that would be well within the limits of water demand, as described in the UWMP.

However, as noted previously, the Kaweah Sub basin is one of many in the Central Valley that is critically over-drafted. The City has developed strategies to assure that this source of supply remains available and viable in future years. For example, the City maintains the Water Conservation Ordinance to eliminate waste of water and will continue to periodically drill new supply wells in the future. Additionally, the City has joined the City of Visalia and the TID to form the Mid-Kaweah Joint Powers Authority (MKJPA) in an attempt to create a coordinated plan for the Sub basin. The City has also invested significantly in their detention basins to increase their recharge capacity.

The project would change uses on the site from agricultural row crops to a medical office complex with parking, and would result in a reduction in percolation to the groundwater basin, because the project would create an increase in the amount of paved and impervious surfaces. However, this impact would be greatly reduced by the stormwater basin that will be constructed on the project site. The Project has been reviewed by the City of Tulare Engineer who has determined that the Project will not have a significant impact on the existing water system, and would tie in to the existing water infrastructure for this part of the City. Therefore, the Project would have a *less than significant impact* on groundwater resources.

(iii) **Less Than Significant Impact:** The City of Tulare's existing sewer pipes and lines on Cartmill Avenue would be extended to the project site. The wastewater generated from the proposed development would not exceed the City's wastewater treatment facility of 6.0 MGD, and would not require the construction of new or expansion of existing facilities to treat wastewater. The impact would *be less than significant*.

d) **Less Than Significant Impact:** The proposed project is a commercial project. Based on CalRecycle waste generation estimates, the proposed project is estimated to generate up to 100 pounds of solid waste per gross square feet per day. The proposed project would include the development of up to five medical office buildings on a 10 acre site, consisting of 84,554 square feet of gross building area. Based on the generation estimate rate of 100 pounds of solid waste per gross square feet per day, the project would generate a maximum of 8,455,400 pounds per day or 4,228 tons per day. The project would be required to comply with state and local requirements including those pertaining to solid waste, construction waste diversion, and recycling. For example, a minimum of 50% diversion of construction waste materials are required to be diverted from landfills. The City of Tulare disposes of its solid waste at the Visalia and Teapot Dome landfills within the County. These landfills have sufficient permitted capacity to accommodate the project's solid waste disposal needs. Any impacts would be *less than significant*.

e) **No Impact:** During construction, all solid waste generated by the project would be disposed of at the Visalia landfill or the Teapot Dome landfill. These facilities conform to all applicable statutes and regulations related to solid waste disposal. The proposed project would comply with the adopted policies related to solid waste, including recycling. Therefore, the proposed project would have *no impact* on solid waste regulations.

XX. WILDFIRE

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
c) 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?	☐	☐	☐	☑
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?	☐	☐	☐	☑

a,b, c, d) **No Impact:** The proposed project site is not within or near a state responsibility area or area classified as very high fire hazard severity zone. The proposed project would not impair an adopted emergency response plan or evacuation plan. The proposed project site would not exacerbate wildfire risks, and expose occupants to pollutant concentrations from wildfire. The proposed project would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk. The proposed project site is generally flat and is not near any streams or waterways and would not 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. Therefore, there would be *no impacts* related to wildfire.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☑	☐	☑
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)?	☐	☑	☐	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

Discussion:

a) **Less Than Significant Impact with Mitigation Incorporated:** There are several special status species with a potential to occur on the project site, including Swainson’s hawk, Burrowing Owl, and San Joaquin kit fox. Implementation of Mitigation Measures BIO-

1a, BIO-1b, BIO-1c, BIO-2a, BIO-2b, BIO-2c, BIO-3a, BIO-3b, and BIO-3c, will ensure that impacts to species identified as a candidate, sensitive, or special status will be *less than significant with mitigation incorporated*. There are no known historical resources located within the project area and the soils in the project area have been previously disturbed and were most recently disturbed in the cultivation of agricultural row crops. There would be no excavation in undisturbed soils or in areas with known historical resources. However, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measure CUL-1 would ensure that impacts due to discovery of cultural resources during excavation would be *less than significant with mitigation incorporated*.

b) **<u>Less Than Significant Impact with Mitigation Incorporated</u>:** CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the project and consistency with environmental policies, as well as implementation of mitigation measures TRA-1 through TRA-8 to mitigate impacts to the local transportation system, incremental contributions to impacts are considered less than cumulatively considerable. The proposed project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increased need for housing, increase in traffic, air pollutants, etc). Impacts would be *less than significant with mitigation incorporated*.

c) **<u>Less Than Significant Impact</u>:** The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have a substantial impact on human beings, either directly or indirectly. All potential impacts of the project have been found to be *less than significant*.

SECTION 4:
Supporting Information and Sources

1) *Tulare General Plan, Land Use Element (2014)*
2) *City of Tulare Zoning Ordinance*
3) *Final Program EIR Land Use and Circulation Element Update (SCH 89062606)*
4) *SJVAPCD Regulations and Guidelines*
5) *Tulare General Plan, Housing Element (April 2016)*
6) *Tulare General Plan Seismic-Safety Element*
7) *Tulare County Seismic Element, Volume I and II*
8) FEMA National *Flood Hazard Layers & Mapping Tool*
9) *Tulare General Plan, Circulation Element*
10) *Tulare General Plan, Noise Element*
11) *City of Tulare Sewer Systems Master Plan (July 1991)*
12) *City of Tulare Sewer Systems Master Plan (2009)*
13) *Engineering Standards, City of Tulare*
14) *City of Tulare's Municipal Code*
15) *Tulare Heritage Tree Ordinance*
16) *Tulare County Environmental Resources Management Element*
17) *Source Reduction and Recycling Element*
18) *City of Tulare Urban Water Management Plan (2015)*
19) *City of Tulare Water System Master Plan) (2008)*
20) *City of Tulare Emergency Response Plan*
21) *Tulare Municipal Airport-Mefford Field Master Plan, (February 2005)*
22) *Tulare County Airport Land Use Compatibility Plan*
23) *California Air Resources Board's (CARB's) Air Quality and Land Use Handbook*
24) *2019 California Environmental Quality Act CEQA Guidelines*
25) *The Five County Seismic Safety Element*
26) *California Building Code*
27) *California Stormwater Pollution Prevention Program (SWPPP)*
28) *Government Code Section 65962.5*
29) *California Environmental Protection Agency (CEPA)*
30) *California Department of Conservation*
31) *Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan (2017)*
32) *California Natural Diversity Database Search Tool*
33) *Natural Resource Conservation Service SoilWeb Tool*

City of Tulare
Planning and Building Department
411 East Kern Avenue
Tulare, CA 93274

SECTON 5
List of Preparers

Project Title: Altura Center for Health – Cartmill Project

City of Tulare
Mario A. Anaya, Principal Planner

Appendix A

California Emissions Estimator Model (CalEEMod) Input and Output Sheets for the Altura Center for Health – Cartmill Project

Altura Center for Health - Cartmill (Full Build Out)

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Medical Office Building	84.55	1000sqft	1.94	84,554.00	0
Parking Lot	563.00	Space	5.07	225,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	7			**Operational Year**	2045
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Unit Amounts from Project Site Plan

Off-road Equipment -

Land Use Change -

Sequestration -

Mobile Land Use Mitigation - buildout of sidewalks in this area to allow pedestrian connectivity to residential areas east ansd south of the Project site.

Water Mitigation -

Stationary Sources - Process Boilers -

Construction Phase - Estimated construction schedules provided by applicant

Construction Off-road Equipment Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	27.00
tblConstructionPhase	NumDays	230.00	204.00
tblConstructionPhase	NumDays	10.00	18.00
tblConstructionPhase	NumDays	20.00	36.00
tblConstructionPhase	NumDays	20.00	29.00
tblConstructionPhase	NumDays	10.00	18.00
tblConstructionPhase	NumDays	20.00	36.00
tblConstructionPhase	NumDays	230.00	162.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	20.00	42.00
tblConstructionPhase	NumDays	10.00	18.00
tblConstructionPhase	NumDays	20.00	36.00
tblConstructionPhase	NumDays	230.00	186.00

tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
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tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	12/25/2020	11/4/2020
tblConstructionPhase	PhaseEndDate	10/30/2020	8/29/2020
tblConstructionPhase	PhaseEndDate	12/13/2019	1/4/2020
tblConstructionPhase	PhaseEndDate	11/27/2020	10/2/2020
tblConstructionPhase	PhaseEndDate	11/15/2019	11/23/2019
tblConstructionPhase	PhaseStartDate	11/28/2020	10/5/2020
tblConstructionPhase	PhaseStartDate	12/14/2019	1/6/2020
tblConstructionPhase	PhaseStartDate	11/16/2019	11/25/2019
tblConstructionPhase	PhaseStartDate	10/31/2020	8/31/2020
tblGrading	AcresOfGrading	18.00	10.00

tblLandUse	LandUseSquareFeet	84,550.00	84,554.00
tblSequestration	NumberOfNewTrees	0.00	239.00

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					
2019	0.0822	0.8650	0.4725	8.5000e-004	0.2675	0.0439	0.3114	0.1438	0.0404	0.1842	0.0000	76.3577	76.3577	0.0233	0.0000	76.9405
2020	0.9611	2.9070	2.4875	5.6900e-003	0.1559	0.1331	0.2890	0.0448	0.1250	0.1699	0.0000	507.8483	507.8483	0.0828	0.0000	509.9170
2035	0.8281	1.1859	2.1371	5.7000e-003	0.3962	0.0164	0.4126	0.1814	0.0163	0.1977	0.0000	500.0672	500.0672	0.0199	0.0000	500.5650
2045	0.8287	1.2129	2.2556	6.1500e-003	0.4099	0.0128	0.4227	0.1851	0.0128	0.1979	0.0000	539.6929	539.6929	0.0207	0.0000	540.2102
Maximum	**0.9611**	**2.9070**	**2.4875**	**6.1500e-003**	**0.4099**	**0.1331**	**0.4227**	**0.1851**	**0.1250**	**0.1979**	**0.0000**	**539.6929**	**539.6929**	**0.0828**	**0.0000**	**540.2102**

2.1 Overall Construction

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					
2019	0.0822	0.8650	0.4725	8.5000e-004	0.1221	0.0439	0.1660	0.0652	0.0404	0.1056	0.0000	76.3576	76.3576	0.0233	0.0000	76.9404
2020	0.9611	2.9070	2.4875	5.6900e-003	0.1464	0.1331	0.2795	0.0409	0.1250	0.1659	0.0000	507.8480	507.8480	0.0828	0.0000	509.9167
2035	0.8281	1.1859	2.1371	5.7000e-003	0.2419	0.0164	0.2583	0.0989	0.0163	0.1152	0.0000	500.0668	500.0668	0.0199	0.0000	500.5646
2045	0.8287	1.2129	2.2556	6.1500e-003	0.2556	0.0128	0.2684	0.1026	0.0128	0.1154	0.0000	539.6925	539.6925	0.0207	0.0000	540.2098
Maximum	**0.9611**	**2.9070**	**2.4875**	**6.1500e-003**	**0.2556**	**0.1331**	**0.2795**	**0.1026**	**0.1250**	**0.1659**	**0.0000**	**539.6925**	**539.6925**	**0.0828**	**0.0000**	**540.2098**

	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**	**37.70**	**0.00**	**32.28**	**44.60**	**0.00**	**33.03**	**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	**11-4-2019**	**2-3-2020**	1.3272	1.3272
2	**2-4-2020**	**5-3-2020**	1.1032	1.1032
3	**5-4-2020**	**8-3-2020**	1.1250	1.1250
4	**8-4-2020**	**11-3-2020**	1.1758	1.1758
5	**11-4-2020**	**2-3-2021**	0.0211	0.0211
61	**11-4-2034**	**2-3-2035**	0.1249	0.1249
62	**2-4-2035**	**5-3-2035**	0.3972	0.3972
63	**5-4-2035**	**8-3-2035**	0.4945	0.4945

64	**8-4-2035**	**11-3-2035**	0.4994	0.4994
65	**11-4-2035**	**2-3-2036**	0.4674	0.4674
101	**11-4-2044**	**2-3-2045**	0.1188	0.1188
102	**2-4-2045**	**5-3-2045**	0.3865	0.3865
103	**5-4-2045**	**8-3-2045**	0.4772	0.4772
104	**8-4-2045**	**9-30-2045**	0.3009	0.3009
		Highest	1.3272	1.3272

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	0.4088	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Energy	7.8400e-003	0.0713	0.0599	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	371.2761	371.2761	0.0136	3.9300e-003	372.7878
Mobile	0.2867	4.7342	2.6493	0.0229	1.7157	7.1400e-003	1.7229	0.4604	6.7000e-003	0.4671	0.0000	2,143.4757	2,143.4757	0.1492	0.0000	2,147.2061
Waste						0.0000	0.0000		0.0000	0.0000	185.3592	0.0000	185.3592	10.9544	0.0000	459.2195
Water						0.0000	0.0000		0.0000	0.0000	3.3659	20.5448	23.9107	0.3466	8.3400e-003	35.0594
Total	**0.7034**	**4.8055**	**2.7150**	**0.0234**	**1.7157**	**0.0126**	**1.7283**	**0.4604**	**0.0121**	**0.4725**	**188.7250**	**2,535.3081**	**2,724.0332**	**11.4638**	**0.0123**	**3,014.2851**

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	0.4088	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Energy	7.8400e-003	0.0713	0.0599	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	371.2761	371.2761	0.0136	3.9300e-003	372.7878
Mobile	0.2856	4.7250	2.6295	0.0228	1.6986	7.0800e-003	1.7057	0.4558	6.6500e-003	0.4624	0.0000	2,127.2064	2,127.2064	0.1490	0.0000	2,130.9311
Waste						0.0000	0.0000		0.0000	0.0000	185.3592	0.0000	185.3592	10.9544	0.0000	459.2195
Water						0.0000	0.0000		0.0000	0.0000	3.3659	20.0190	23.3849	0.3465	8.3300e-003	34.5317
Total	**0.7022**	**4.7963**	**2.6953**	**0.0232**	**1.6986**	**0.0125**	**1.7111**	**0.4558**	**0.0121**	**0.4678**	**188.7250**	**2,518.5131**	**2,707.2381**	**11.4636**	**0.0123**	**2,997.4824**

	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	**0.16**	**0.19**	**0.73**	**0.73**	**1.00**	**0.48**	**1.00**	**1.00**	**0.41**	**0.99**	**0.00**	**0.66**	**0.62**	**0.00**	**0.08**	**0.56**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	169.2120
Vegetation Land Change	-62.0620
Total	**107.1500**

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 (Phase 1)	Site Preparation	11/4/2019	11/23/2019	6	18	
2	Grading (Phase 1)	Grading	11/25/2019	1/4/2020	6	36	
3	Building Construction (Phase 1)	Building Construction	1/6/2020	8/29/2020	6	204	
4	Paving (Phase 1)	Paving	8/31/2020	10/2/2020	6	29	
5	Architectural Coating (Phase 1)	Architectural Coating	10/5/2020	11/4/2020	6	27	
6	Site Preparation (Phase 2)	Site Preparation	1/8/2035	1/27/2035	6	18	
7	Grading (Phase 2)	Grading	1/29/2035	3/10/2035	6	36	
8	Building Construction (Phase 2)	Building Construction	3/12/2035	9/15/2035	6	162	
9	Paving (Phase 2)	Paving	9/17/2035	10/20/2035	6	30	
10	Architectural Coating (Phase 2)	Architectural Coating	10/22/2035	12/8/2035	6	42	
11	Site Preparation (Phase 3)	Site Preparation	1/2/2045	1/21/2045	6	18	
12	Grading (Phase 3)	Grading	1/23/2045	3/4/2045	6	36	
13	Building Construction (Phase 3)	Building Construction	3/6/2045	10/7/2045	6	186	
14	Paving (Phase 3)	Paving	10/9/2045	11/4/2045	6	24	
15	Architectural Coating (Phase 3)	Architectural Coating	11/6/2045	12/2/2045	6	24	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 5.07

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 126,831; Non-Residential Outdoor: 42,277; Striped Parking Area: 13,512 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating (Phase 2)	Air Compressors	1	6.00	78	0.48

Architectural Coating (Phase 3)	Air Compressors	1	6.00	78	0.48
Building Construction (Phase 3)	Cranes	1	7.00	231	0.29
Building Construction (Phase 2)	Cranes	1	7.00	231	0.29
Site Preparation (Phase 1)	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation (Phase 1)	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading (Phase 1)	Excavators	1	8.00	158	0.38
Grading (Phase 1)	Graders	1	8.00	187	0.41
Grading (Phase 1)	Rubber Tired Dozers	1	8.00	247	0.40
Grading (Phase 1)	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction (Phase 1)	Cranes	1	7.00	231	0.29
Building Construction (Phase 1)	Forklifts	3	8.00	89	0.20
Building Construction (Phase 1)	Generator Sets	1	8.00	84	0.74
Building Construction (Phase 1)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Phase 1)	Welders	1	8.00	46	0.45
Paving (Phase 1)	Pavers	2	8.00	130	0.42
Paving (Phase 1)	Paving Equipment	2	8.00	132	0.36
Paving (Phase 1)	Rollers	2	8.00	80	0.38
Architectural Coating (Phase 1)	Air Compressors	1	6.00	78	0.48
Grading (Phase 3)	Excavators	1	8.00	158	0.38
Grading (Phase 2)	Excavators	1	8.00	158	0.38
Building Construction (Phase 3)	Forklifts	3	8.00	89	0.20
Building Construction (Phase 2)	Forklifts	3	8.00	89	0.20
Building Construction (Phase 3)	Generator Sets	1	8.00	84	0.74
Building Construction (Phase 2)	Generator Sets	1	8.00	84	0.74
Grading (Phase 3)	Graders	1	8.00	187	0.41
Grading (Phase 2)	Graders	1	8.00	187	0.41
Paving (Phase 3)	Pavers	2	8.00	130	0.42

Paving (Phase 2)	Pavers	2	8.00	130	0.42
Paving (Phase 3)	Paving Equipment	2	8.00	132	0.36
Paving (Phase 2)	Paving Equipment	2	8.00	132	0.36
Paving (Phase 3)	Rollers	2	8.00	80	0.38
Paving (Phase 2)	Rollers	2	8.00	80	0.38
Grading (Phase 3)	Rubber Tired Dozers	1	8.00	247	0.40
Grading (Phase 2)	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation (Phase 3)	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation (Phase 2)	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction (Phase 3)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Phase 2)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading (Phase 3)	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading (Phase 2)	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation (Phase 3)	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation (Phase 2)	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction (Phase 3)	Welders	1	8.00	46	0.45
Building Construction (Phase 2)	Welders	1	8.00	46	0.45

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
Architectural Coating (Phase 2)	1	24.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation (Phase 1)	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading (Phase 1)	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Phase 1)	9	122.00	51.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Phase 1)	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating (Phase 1)	1	24.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating (Phase 3)	1	24.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Phase 3)	9	122.00	51.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Phase 2)	9	122.00	51.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading (Phase 3)	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading (Phase 2)	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Phase 3)	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Phase 2)	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation (Phase 3)	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation (Phase 2)	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation (Phase 1) - 2019

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					0.1626	0.0000	0.1626	0.0894	0.0000	0.0894	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0390	0.4102	0.1986	3.4000e-004		0.0215	0.0215		0.0198	0.0198	0.0000	30.7518	30.7518	9.7300e-003	0.0000	30.9951
Total	**0.0390**	**0.4102**	**0.1986**	**3.4000e-004**	**0.1626**	**0.0215**	**0.1841**	**0.0894**	**0.0198**	**0.1092**	**0.0000**	**30.7518**	**30.7518**	**9.7300e-003**	**0.0000**	**30.9951**

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	5.3000e-004	5.3200e-003	1.0000e-005	1.3000e-003	1.0000e-005	1.3000e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.2002	1.2002	4.0000e-005	0.0000	1.2012
Total	**7.5000e-004**	**5.3000e-004**	**5.3200e-003**	**1.0000e-005**	**1.3000e-003**	**1.0000e-005**	**1.3000e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.2002**	**1.2002**	**4.0000e-005**	**0.0000**	**1.2012**

3.2 Site Preparation (Phase 1) - 2019

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					0.0732	0.0000	0.0732	0.0402	0.0000	0.0402	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0390	0.4102	0.1986	3.4000e-004		0.0215	0.0215		0.0198	0.0198	0.0000	30.7518	30.7518	9.7300e-003	0.0000	30.9950
Total	**0.0390**	**0.4102**	**0.1986**	**3.4000e-004**	**0.0732**	**0.0215**	**0.0947**	**0.0402**	**0.0198**	**0.0600**	**0.0000**	**30.7518**	**30.7518**	**9.7300e-003**	**0.0000**	**30.9950**

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	5.3000e-004	5.3200e-003	1.0000e-005	1.3000e-003	1.0000e-005	1.3000e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.2002	1.2002	4.0000e-005	0.0000	1.2012
Total	**7.5000e-004**	**5.3000e-004**	**5.3200e-003**	**1.0000e-005**	**1.3000e-003**	**1.0000e-005**	**1.3000e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.2002**	**1.2002**	**4.0000e-005**	**0.0000**	**1.2012**

3.3 Grading (Phase 1) - 2019

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					0.1017	0.0000	0.1017	0.0535	0.0000	0.0535	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0413	0.4536	0.2607	4.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	42.6276	42.6276	0.0135	0.0000	42.9648
Total	**0.0413**	**0.4536**	**0.2607**	**4.7000e-004**	**0.1017**	**0.0224**	**0.1240**	**0.0535**	**0.0206**	**0.0741**	**0.0000**	**42.6276**	**42.6276**	**0.0135**	**0.0000**	**42.9648**

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	1.1200e-003	7.8000e-004	7.8800e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.7781	1.7781	6.0000e-005	0.0000	1.7795
Total	**1.1200e-003**	**7.8000e-004**	**7.8800e-003**	**2.0000e-005**	**1.9200e-003**	**1.0000e-005**	**1.9300e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.7781**	**1.7781**	**6.0000e-005**	**0.0000**	**1.7795**

3.3 Grading (Phase 1) - 2019

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					0.0458	0.0000	0.0458	0.0241	0.0000	0.0241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0413	0.4536	0.2607	4.7000e-004		0.0224	0.0224		0.0206	0.0206	0.0000	42.6276	42.6276	0.0135	0.0000	42.9647
Total	**0.0413**	**0.4536**	**0.2607**	**4.7000e-004**	**0.0458**	**0.0224**	**0.0681**	**0.0241**	**0.0206**	**0.0447**	**0.0000**	**42.6276**	**42.6276**	**0.0135**	**0.0000**	**42.9647**

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	1.1200e-003	7.8000e-004	7.8800e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.7781	1.7781	6.0000e-005	0.0000	1.7795
Total	**1.1200e-003**	**7.8000e-004**	**7.8800e-003**	**2.0000e-005**	**1.9200e-003**	**1.0000e-005**	**1.9300e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.7781**	**1.7781**	**6.0000e-005**	**0.0000**	**1.7795**

3.3 Grading (Phase 1) - 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					0.0174	0.0000	0.0174	7.1900e-003	0.0000	7.1900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8600e-003	0.0528	0.0321	6.0000e-005		2.5500e-003	2.5500e-003		2.3400e-003	2.3400e-003	0.0000	5.2118	5.2118	1.6900e-003	0.0000	5.2539
Total	**4.8600e-003**	**0.0528**	**0.0321**	**6.0000e-005**	**0.0174**	**2.5500e-003**	**0.0199**	**7.1900e-003**	**2.3400e-003**	**9.5300e-003**	**0.0000**	**5.2118**	**5.2118**	**1.6900e-003**	**0.0000**	**5.2539**

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	1.3000e-004	9.0000e-005	8.7000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005	0.0000	0.2154	0.2154	1.0000e-005	0.0000	0.2155
Total	**1.3000e-004**	**9.0000e-005**	**8.7000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2154**	**0.2154**	**1.0000e-005**	**0.0000**	**0.2155**

3.3 Grading (Phase 1) - 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	tons/yr										MT/yr					
Fugitive Dust					7.8100e-003	0.0000	7.8100e-003	3.2400e-003	0.0000	3.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8600e-003	0.0528	0.0321	6.0000e-005		2.5500e-003	2.5500e-003		2.3400e-003	2.3400e-003	0.0000	5.2117	5.2117	1.6900e-003	0.0000	5.2539
Total	**4.8600e-003**	**0.0528**	**0.0321**	**6.0000e-005**	**7.8100e-003**	**2.5500e-003**	**0.0104**	**3.2400e-003**	**2.3400e-003**	**5.5800e-003**	**0.0000**	**5.2117**	**5.2117**	**1.6900e-003**	**0.0000**	**5.2539**

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	1.3000e-004	9.0000e-005	8.7000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005	0.0000	0.2154	0.2154	1.0000e-005	0.0000	0.2155
Total	**1.3000e-004**	**9.0000e-005**	**8.7000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2154**	**0.2154**	**1.0000e-005**	**0.0000**	**0.2155**

3.4 Building Construction (Phase 1) - 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	0.2162	1.9570	1.7186	2.7500e-003		0.1139	0.1139		0.1071	0.1071	0.0000	236.2422	236.2422	0.0576	0.0000	237.6831
Total	**0.2162**	**1.9570**	**1.7186**	**2.7500e-003**		**0.1139**	**0.1139**		**0.1071**	**0.1071**	**0.0000**	**236.2422**	**236.2422**	**0.0576**	**0.0000**	**237.6831**

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	0.0206	0.6332	0.1201	1.4800e-003	0.0345	3.4900e-003	0.0380	9.9600e-003	3.3400e-003	0.0133	0.0000	140.4643	140.4643	0.0111	0.0000	140.7415
Worker	0.0526	0.0357	0.3629	9.9000e-004	0.0995	7.1000e-004	0.1002	0.0264	6.5000e-004	0.0271	0.0000	89.3393	89.3393	2.5600e-003	0.0000	89.4033
Total	**0.0732**	**0.6689**	**0.4830**	**2.4700e-003**	**0.1340**	**4.2000e-003**	**0.1382**	**0.0364**	**3.9900e-003**	**0.0404**	**0.0000**	**229.8036**	**229.8036**	**0.0137**	**0.0000**	**230.1448**

3.4 Building Construction (Phase 1) - 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	tons/yr										MT/yr					
Off-Road	0.2162	1.9570	1.7185	2.7500e-003		0.1139	0.1139		0.1071	0.1071	0.0000	236.2419	236.2419	0.0576	0.0000	237.6828
Total	**0.2162**	**1.9570**	**1.7185**	**2.7500e-003**		**0.1139**	**0.1139**		**0.1071**	**0.1071**	**0.0000**	**236.2419**	**236.2419**	**0.0576**	**0.0000**	**237.6828**

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	0.0206	0.6332	0.1201	1.4800e-003	0.0345	3.4900e-003	0.0380	9.9600e-003	3.3400e-003	0.0133	0.0000	140.4643	140.4643	0.0111	0.0000	140.7415
Worker	0.0526	0.0357	0.3629	9.9000e-004	0.0995	7.1000e-004	0.1002	0.0264	6.5000e-004	0.0271	0.0000	89.3393	89.3393	2.5600e-003	0.0000	89.4033
Total	**0.0732**	**0.6689**	**0.4830**	**2.4700e-003**	**0.1340**	**4.2000e-003**	**0.1382**	**0.0364**	**3.9900e-003**	**0.0404**	**0.0000**	**229.8036**	**229.8036**	**0.0137**	**0.0000**	**230.1448**

3.5 Paving (Phase 1) - 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	0.0197	0.2040	0.2125	3.3000e-004		0.0109	0.0109		0.0100	0.0100	0.0000	29.0409	29.0409	9.3900e-003	0.0000	29.2757
Paving	6.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0263**	**0.2040**	**0.2125**	**3.3000e-004**		**0.0109**	**0.0109**		**0.0100**	**0.0100**	**0.0000**	**29.0409**	**29.0409**	**9.3900e-003**	**0.0000**	**29.2757**

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	9.2000e-004	6.2000e-004	6.3400e-003	2.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5615	1.5615	4.0000e-005	0.0000	1.5626
Total	**9.2000e-004**	**6.2000e-004**	**6.3400e-003**	**2.0000e-005**	**1.7400e-003**	**1.0000e-005**	**1.7500e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**1.5615**	**1.5615**	**4.0000e-005**	**0.0000**	**1.5626**

3.5 Paving (Phase 1) - 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	tons/yr										MT/yr					
Off-Road	0.0197	0.2040	0.2125	3.3000e-004		0.0109	0.0109		0.0100	0.0100	0.0000	29.0409	29.0409	9.3900e-003	0.0000	29.2757
Paving	6.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0263**	**0.2040**	**0.2125**	**3.3000e-004**		**0.0109**	**0.0109**		**0.0100**	**0.0100**	**0.0000**	**29.0409**	**29.0409**	**9.3900e-003**	**0.0000**	**29.2757**

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	9.2000e-004	6.2000e-004	6.3400e-003	2.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.5615	1.5615	4.0000e-005	0.0000	1.5626
Total	**9.2000e-004**	**6.2000e-004**	**6.3400e-003**	**2.0000e-005**	**1.7400e-003**	**1.0000e-005**	**1.7500e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**1.5615**	**1.5615**	**4.0000e-005**	**0.0000**	**1.5626**

3.6 Architectural Coating (Phase 1) - 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					
Archit. Coating	0.6348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2700e-003	0.0227	0.0247	4.0000e-005		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	3.4469	3.4469	2.7000e-004	0.0000	3.4536
Total	**0.6381**	**0.0227**	**0.0247**	**4.0000e-005**		**1.5000e-003**	**1.5000e-003**		**1.5000e-003**	**1.5000e-003**	**0.0000**	**3.4469**	**3.4469**	**2.7000e-004**	**0.0000**	**3.4536**

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	1.3700e-003	9.3000e-004	9.4500e-003	3.0000e-005	2.5900e-003	2.0000e-005	2.6100e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.3261	2.3261	7.0000e-005	0.0000	2.3278
Total	**1.3700e-003**	**9.3000e-004**	**9.4500e-003**	**3.0000e-005**	**2.5900e-003**	**2.0000e-005**	**2.6100e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.3261**	**2.3261**	**7.0000e-005**	**0.0000**	**2.3278**

3.6 Architectural Coating (Phase 1) - 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	tons/yr										MT/yr					
Archit. Coating	0.6348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2700e-003	0.0227	0.0247	4.0000e-005		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	3.4469	3.4469	2.7000e-004	0.0000	3.4536
Total	**0.6381**	**0.0227**	**0.0247**	**4.0000e-005**		**1.5000e-003**	**1.5000e-003**		**1.5000e-003**	**1.5000e-003**	**0.0000**	**3.4469**	**3.4469**	**2.7000e-004**	**0.0000**	**3.4536**

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	1.3700e-003	9.3000e-004	9.4500e-003	3.0000e-005	2.5900e-003	2.0000e-005	2.6100e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.3261	2.3261	7.0000e-005	0.0000	2.3278
Total	**1.3700e-003**	**9.3000e-004**	**9.4500e-003**	**3.0000e-005**	**2.5900e-003**	**2.0000e-005**	**2.6100e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.3261**	**2.3261**	**7.0000e-005**	**0.0000**	**2.3278**

3.7 Site Preparation (Phase 2) - 2035

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					0.1626	0.0000	0.1626	0.0894	0.0000	0.0894	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0193	0.0913	0.1438	4.2000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	36.0042	36.0042	1.5400e-003	0.0000	36.0427
Total	**0.0193**	**0.0913**	**0.1438**	**4.2000e-004**	**0.1626**	**2.6200e-003**	**0.1652**	**0.0894**	**2.6200e-003**	**0.0920**	**0.0000**	**36.0042**	**36.0042**	**1.5400e-003**	**0.0000**	**36.0427**

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	2.3000e-004	1.2000e-004	1.5900e-003	1.0000e-005	1.3000e-003	0.0000	1.3000e-003	3.4000e-004	0.0000	3.5000e-004	0.0000	0.7505	0.7505	1.0000e-005	0.0000	0.7507
Total	**2.3000e-004**	**1.2000e-004**	**1.5900e-003**	**1.0000e-005**	**1.3000e-003**	**0.0000**	**1.3000e-003**	**3.4000e-004**	**0.0000**	**3.5000e-004**	**0.0000**	**0.7505**	**0.7505**	**1.0000e-005**	**0.0000**	**0.7507**

3.7 Site Preparation (Phase 2) - 2035

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					0.0732	0.0000	0.0732	0.0402	0.0000	0.0402	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0193	0.0913	0.1438	4.2000e-004		2.6200e-003	2.6200e-003		2.6200e-003	2.6200e-003	0.0000	36.0041	36.0041	1.5400e-003	0.0000	36.0427
Total	**0.0193**	**0.0913**	**0.1438**	**4.2000e-004**	**0.0732**	**2.6200e-003**	**0.0758**	**0.0402**	**2.6200e-003**	**0.0428**	**0.0000**	**36.0041**	**36.0041**	**1.5400e-003**	**0.0000**	**36.0427**

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	2.3000e-004	1.2000e-004	1.5900e-003	1.0000e-005	1.3000e-003	0.0000	1.3000e-003	3.4000e-004	0.0000	3.5000e-004	0.0000	0.7505	0.7505	1.0000e-005	0.0000	0.7507
Total	**2.3000e-004**	**1.2000e-004**	**1.5900e-003**	**1.0000e-005**	**1.3000e-003**	**0.0000**	**1.3000e-003**	**3.4000e-004**	**0.0000**	**3.5000e-004**	**0.0000**	**0.7505**	**0.7505**	**1.0000e-005**	**0.0000**	**0.7507**

3.8 Grading (Phase 2) - 2035

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					0.1179	0.0000	0.1179	0.0606	0.0000	0.0606	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0263	0.1077	0.2579	6.5000e-004		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	56.1683	56.1683	2.0900e-003	0.0000	56.2207
Total	**0.0263**	**0.1077**	**0.2579**	**6.5000e-004**	**0.1179**	**2.8000e-003**	**0.1207**	**0.0606**	**2.8000e-003**	**0.0634**	**0.0000**	**56.1683**	**56.1683**	**2.0900e-003**	**0.0000**	**56.2207**

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	3.8000e-004	1.9000e-004	2.6500e-003	1.0000e-005	2.1600e-003	1.0000e-005	2.1700e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.2508	1.2508	1.0000e-005	0.0000	1.2511
Total	**3.8000e-004**	**1.9000e-004**	**2.6500e-003**	**1.0000e-005**	**2.1600e-003**	**1.0000e-005**	**2.1700e-003**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**1.2508**	**1.2508**	**1.0000e-005**	**0.0000**	**1.2511**

3.8 Grading (Phase 2) - 2035

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					0.0531	0.0000	0.0531	0.0273	0.0000	0.0273	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0263	0.1077	0.2579	6.5000e-004		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	56.1682	56.1682	2.0900e-003	0.0000	56.2206
Total	**0.0263**	**0.1077**	**0.2579**	**6.5000e-004**	**0.0531**	**2.8000e-003**	**0.0559**	**0.0273**	**2.8000e-003**	**0.0301**	**0.0000**	**56.1682**	**56.1682**	**2.0900e-003**	**0.0000**	**56.2206**

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	3.8000e-004	1.9000e-004	2.6500e-003	1.0000e-005	2.1600e-003	1.0000e-005	2.1700e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.2508	1.2508	1.0000e-005	0.0000	1.2511
Total	**3.8000e-004**	**1.9000e-004**	**2.6500e-003**	**1.0000e-005**	**2.1600e-003**	**1.0000e-005**	**2.1700e-003**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**1.2508**	**1.2508**	**1.0000e-005**	**0.0000**	**1.2511**

3.9 Building Construction (Phase 2) - 2035

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	0.0986	0.5801	1.3055	2.5100e-003		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	212.9174	212.9174	7.9300e-003	0.0000	213.1157
Total	**0.0986**	**0.5801**	**1.3055**	**2.5100e-003**		**7.3200e-003**	**7.3200e-003**		**7.3200e-003**	**7.3200e-003**	**0.0000**	**212.9174**	**212.9174**	**7.9300e-003**	**0.0000**	**213.1157**

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	7.2000e-003	0.3100	0.0464	1.0800e-003	0.0274	2.9000e-004	0.0277	7.9100e-003	2.8000e-004	8.1900e-003	0.0000	102.3092	102.3092	6.2200e-003	0.0000	102.4647
Worker	0.0140	7.0300e-003	0.0971	5.1000e-004	0.0790	2.6000e-004	0.0793	0.0210	2.4000e-004	0.0212	0.0000	45.7786	45.7786	4.8000e-004	0.0000	45.7906
Total	**0.0212**	**0.3170**	**0.1435**	**1.5900e-003**	**0.1064**	**5.5000e-004**	**0.1069**	**0.0289**	**5.2000e-004**	**0.0294**	**0.0000**	**148.0878**	**148.0878**	**6.7000e-003**	**0.0000**	**148.2553**

3.9 Building Construction (Phase 2) - 2035

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	0.0986	0.5801	1.3055	2.5100e-003		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003	0.0000	212.9172	212.9172	7.9300e-003	0.0000	213.1154
Total	**0.0986**	**0.5801**	**1.3055**	**2.5100e-003**		**7.3200e-003**	**7.3200e-003**		**7.3200e-003**	**7.3200e-003**	**0.0000**	**212.9172**	**212.9172**	**7.9300e-003**	**0.0000**	**213.1154**

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	7.2000e-003	0.3100	0.0464	1.0800e-003	0.0274	2.9000e-004	0.0277	7.9100e-003	2.8000e-004	8.1900e-003	0.0000	102.3092	102.3092	6.2200e-003	0.0000	102.4647
Worker	0.0140	7.0300e-003	0.0971	5.1000e-004	0.0790	2.6000e-004	0.0793	0.0210	2.4000e-004	0.0212	0.0000	45.7786	45.7786	4.8000e-004	0.0000	45.7906
Total	**0.0212**	**0.3170**	**0.1435**	**1.5900e-003**	**0.1064**	**5.5000e-004**	**0.1069**	**0.0289**	**5.2000e-004**	**0.0294**	**0.0000**	**148.0878**	**148.0878**	**6.7000e-003**	**0.0000**	**148.2553**

3.10 Paving (Phase 2) - 2035

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	0.0171	0.0731	0.2373	4.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	36.1493	36.1493	1.3900e-003	0.0000	36.1841
Paving	6.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0238**	**0.0731**	**0.2373**	**4.2000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**	**0.0000**	**36.1493**	**36.1493**	**1.3900e-003**	**0.0000**	**36.1841**

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	3.2000e-004	1.6000e-004	2.2100e-003	1.0000e-005	1.8000e-003	1.0000e-005	1.8000e-003	4.8000e-004	1.0000e-005	4.8000e-004	0.0000	1.0423	1.0423	1.0000e-005	0.0000	1.0426
Total	**3.2000e-004**	**1.6000e-004**	**2.2100e-003**	**1.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8000e-003**	**4.8000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.0423**	**1.0423**	**1.0000e-005**	**0.0000**	**1.0426**

3.10 Paving (Phase 2) - 2035

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	0.0171	0.0731	0.2373	4.2000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	36.1492	36.1492	1.3900e-003	0.0000	36.1840
Paving	6.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0238**	**0.0731**	**0.2373**	**4.2000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**	**0.0000**	**36.1492**	**36.1492**	**1.3900e-003**	**0.0000**	**36.1840**

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	3.2000e-004	1.6000e-004	2.2100e-003	1.0000e-005	1.8000e-003	1.0000e-005	1.8000e-003	4.8000e-004	1.0000e-005	4.8000e-004	0.0000	1.0423	1.0423	1.0000e-005	0.0000	1.0426
Total	**3.2000e-004**	**1.6000e-004**	**2.2100e-003**	**1.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8000e-003**	**4.8000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.0423**	**1.0423**	**1.0000e-005**	**0.0000**	**1.0426**

3.11 Architectural Coating (Phase 2) - 2035

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	0.6348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4800e-003	0.0159	0.0377	6.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	5.3618	5.3618	2.0000e-004	0.0000	5.3668
Total	**0.6373**	**0.0159**	**0.0377**	**6.0000e-005**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**5.3618**	**5.3618**	**2.0000e-004**	**0.0000**	**5.3668**

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	7.1000e-004	3.6000e-004	4.9500e-003	3.0000e-005	4.0300e-003	1.0000e-005	4.0400e-003	1.0700e-003	1.0000e-005	1.0800e-003	0.0000	2.3348	2.3348	2.0000e-005	0.0000	2.3354
Total	**7.1000e-004**	**3.6000e-004**	**4.9500e-003**	**3.0000e-005**	**4.0300e-003**	**1.0000e-005**	**4.0400e-003**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**0.0000**	**2.3348**	**2.3348**	**2.0000e-005**	**0.0000**	**2.3354**

3.11 Architectural Coating (Phase 2) - 2035

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	0.6348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4800e-003	0.0159	0.0377	6.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	5.3618	5.3618	2.0000e-004	0.0000	5.3668
Total	**0.6373**	**0.0159**	**0.0377**	**6.0000e-005**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**5.3618**	**5.3618**	**2.0000e-004**	**0.0000**	**5.3668**

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	7.1000e-004	3.6000e-004	4.9500e-003	3.0000e-005	4.0300e-003	1.0000e-005	4.0400e-003	1.0700e-003	1.0000e-005	1.0800e-003	0.0000	2.3348	2.3348	2.0000e-005	0.0000	2.3354
Total	**7.1000e-004**	**3.6000e-004**	**4.9500e-003**	**3.0000e-005**	**4.0300e-003**	**1.0000e-005**	**4.0400e-003**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**0.0000**	**2.3348**	**2.3348**	**2.0000e-005**	**0.0000**	**2.3354**

3.12 Site Preparation (Phase 3) - 2045

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					0.1626	0.0000	0.1626	0.0894	0.0000	0.0894	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0177	0.0720	0.1420	4.2000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	36.0042	36.0042	1.3900e-003	0.0000	36.0390
Total	**0.0177**	**0.0720**	**0.1420**	**4.2000e-004**	**0.1626**	**1.8200e-003**	**0.1644**	**0.0894**	**1.8200e-003**	**0.0912**	**0.0000**	**36.0042**	**36.0042**	**1.3900e-003**	**0.0000**	**36.0390**

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	1.5000e-004	9.0000e-005	1.2500e-003	1.0000e-005	1.3000e-003	0.0000	1.3000e-003	3.4000e-004	0.0000	3.5000e-004	0.0000	0.7056	0.7056	1.0000e-005	0.0000	0.7057
Total	**1.5000e-004**	**9.0000e-005**	**1.2500e-003**	**1.0000e-005**	**1.3000e-003**	**0.0000**	**1.3000e-003**	**3.4000e-004**	**0.0000**	**3.5000e-004**	**0.0000**	**0.7056**	**0.7056**	**1.0000e-005**	**0.0000**	**0.7057**

3.12 Site Preparation (Phase 3) - 2045

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					0.0732	0.0000	0.0732	0.0402	0.0000	0.0402	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0177	0.0720	0.1420	4.2000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	36.0041	36.0041	1.3900e-003	0.0000	36.0390
Total	**0.0177**	**0.0720**	**0.1420**	**4.2000e-004**	**0.0732**	**1.8200e-003**	**0.0750**	**0.0402**	**1.8200e-003**	**0.0420**	**0.0000**	**36.0041**	**36.0041**	**1.3900e-003**	**0.0000**	**36.0390**

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	1.5000e-004	9.0000e-005	1.2500e-003	1.0000e-005	1.3000e-003	0.0000	1.3000e-003	3.4000e-004	0.0000	3.5000e-004	0.0000	0.7056	0.7056	1.0000e-005	0.0000	0.7057
Total	**1.5000e-004**	**9.0000e-005**	**1.2500e-003**	**1.0000e-005**	**1.3000e-003**	**0.0000**	**1.3000e-003**	**3.4000e-004**	**0.0000**	**3.5000e-004**	**0.0000**	**0.7056**	**0.7056**	**1.0000e-005**	**0.0000**	**0.7057**

3.13 Grading (Phase 3) - 2045

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					0.1179	0.0000	0.1179	0.0606	0.0000	0.0606	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0249	0.0909	0.2567	6.5000e-004		2.0800e-003	2.0800e-003		2.0800e-003	2.0800e-003	0.0000	56.1683	56.1683	1.9800e-003	0.0000	56.2178
Total	**0.0249**	**0.0909**	**0.2567**	**6.5000e-004**	**0.1179**	**2.0800e-003**	**0.1200**	**0.0606**	**2.0800e-003**	**0.0627**	**0.0000**	**56.1683**	**56.1683**	**1.9800e-003**	**0.0000**	**56.2178**

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	2.6000e-004	1.5000e-004	2.0800e-003	1.0000e-005	2.1600e-003	0.0000	2.1600e-003	5.7000e-004	0.0000	5.8000e-004	0.0000	1.1760	1.1760	1.0000e-005	0.0000	1.1762
Total	**2.6000e-004**	**1.5000e-004**	**2.0800e-003**	**1.0000e-005**	**2.1600e-003**	**0.0000**	**2.1600e-003**	**5.7000e-004**	**0.0000**	**5.8000e-004**	**0.0000**	**1.1760**	**1.1760**	**1.0000e-005**	**0.0000**	**1.1762**

3.13 Grading (Phase 3) - 2045

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					0.0531	0.0000	0.0531	0.0273	0.0000	0.0273	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0249	0.0909	0.2567	6.5000e-004		2.0800e-003	2.0800e-003		2.0800e-003	2.0800e-003	0.0000	56.1682	56.1682	1.9800e-003	0.0000	56.2177
Total	**0.0249**	**0.0909**	**0.2567**	**6.5000e-004**	**0.0531**	**2.0800e-003**	**0.0552**	**0.0273**	**2.0800e-003**	**0.0294**	**0.0000**	**56.1682**	**56.1682**	**1.9800e-003**	**0.0000**	**56.2177**

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	2.6000e-004	1.5000e-004	2.0800e-003	1.0000e-005	2.1600e-003	0.0000	2.1600e-003	5.7000e-004	0.0000	5.8000e-004	0.0000	1.1760	1.1760	1.0000e-005	0.0000	1.1762
Total	**2.6000e-004**	**1.5000e-004**	**2.0800e-003**	**1.0000e-005**	**2.1600e-003**	**0.0000**	**2.1600e-003**	**5.7000e-004**	**0.0000**	**5.8000e-004**	**0.0000**	**1.1760**	**1.1760**	**1.0000e-005**	**0.0000**	**1.1762**

3.14 Building Construction (Phase 3) - 2045

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	0.1113	0.6408	1.4990	2.8800e-003		6.8600e-003	6.8600e-003		6.8600e-003	6.8600e-003	0.0000	244.4608	244.4608	8.7900e-003	0.0000	244.6804
Total	**0.1113**	**0.6408**	**1.4990**	**2.8800e-003**		**6.8600e-003**	**6.8600e-003**		**6.8600e-003**	**6.8600e-003**	**0.0000**	**244.4608**	**244.4608**	**8.7900e-003**	**0.0000**	**244.6804**

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	8.2000e-003	0.3501	0.0523	1.2400e-003	0.0315	3.3000e-004	0.0318	9.0900e-003	3.1000e-004	9.4000e-003	0.0000	117.7401	117.7401	7.0400e-003	0.0000	117.9160
Worker	0.0107	6.1100e-003	0.0874	5.4000e-004	0.0907	2.0000e-004	0.0909	0.0241	1.8000e-004	0.0243	0.0000	49.4164	49.4164	3.9000e-004	0.0000	49.4261
Total	**0.0189**	**0.3562**	**0.1397**	**1.7800e-003**	**0.1222**	**5.3000e-004**	**0.1227**	**0.0332**	**4.9000e-004**	**0.0337**	**0.0000**	**167.1565**	**167.1565**	**7.4300e-003**	**0.0000**	**167.3421**

3.14 Building Construction (Phase 3) - 2045

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	0.1113	0.6408	1.4990	2.8800e-003		6.8600e-003	6.8600e-003		6.8600e-003	6.8600e-003	0.0000	244.4605	244.4605	8.7900e-003	0.0000	244.6801
Total	**0.1113**	**0.6408**	**1.4990**	**2.8800e-003**		**6.8600e-003**	**6.8600e-003**		**6.8600e-003**	**6.8600e-003**	**0.0000**	**244.4605**	**244.4605**	**8.7900e-003**	**0.0000**	**244.6801**

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	8.2000e-003	0.3501	0.0523	1.2400e-003	0.0315	3.3000e-004	0.0318	9.0900e-003	3.1000e-004	9.4000e-003	0.0000	117.7401	117.7401	7.0400e-003	0.0000	117.9160
Worker	0.0107	6.1100e-003	0.0874	5.4000e-004	0.0907	2.0000e-004	0.0909	0.0241	1.8000e-004	0.0243	0.0000	49.4164	49.4164	3.9000e-004	0.0000	49.4261
Total	**0.0189**	**0.3562**	**0.1397**	**1.7800e-003**	**0.1222**	**5.3000e-004**	**0.1227**	**0.0332**	**4.9000e-004**	**0.0337**	**0.0000**	**167.1565**	**167.1565**	**7.4300e-003**	**0.0000**	**167.3421**

3.15 Paving (Phase 3) - 2045

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	0.0121	0.0439	0.1898	3.4000e-004		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003	0.0000	28.9194	28.9194	9.7000e-004	0.0000	28.9437
Paving	6.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0188**	**0.0439**	**0.1898**	**3.4000e-004**		**1.4000e-003**	**1.4000e-003**		**1.4000e-003**	**1.4000e-003**	**0.0000**	**28.9194**	**28.9194**	**9.7000e-004**	**0.0000**	**28.9437**

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	1.7000e-004	1.0000e-004	1.3900e-003	1.0000e-005	1.4400e-003	0.0000	1.4400e-003	3.8000e-004	0.0000	3.9000e-004	0.0000	0.7840	0.7840	1.0000e-005	0.0000	0.7841
Total	**1.7000e-004**	**1.0000e-004**	**1.3900e-003**	**1.0000e-005**	**1.4400e-003**	**0.0000**	**1.4400e-003**	**3.8000e-004**	**0.0000**	**3.9000e-004**	**0.0000**	**0.7840**	**0.7840**	**1.0000e-005**	**0.0000**	**0.7841**

3.15 Paving (Phase 3) - 2045

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	0.0121	0.0439	0.1898	3.4000e-004		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003	0.0000	28.9194	28.9194	9.7000e-004	0.0000	28.9437
Paving	6.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0188**	**0.0439**	**0.1898**	**3.4000e-004**		**1.4000e-003**	**1.4000e-003**		**1.4000e-003**	**1.4000e-003**	**0.0000**	**28.9194**	**28.9194**	**9.7000e-004**	**0.0000**	**28.9437**

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	1.7000e-004	1.0000e-004	1.3900e-003	1.0000e-005	1.4400e-003	0.0000	1.4400e-003	3.8000e-004	0.0000	3.9000e-004	0.0000	0.7840	0.7840	1.0000e-005	0.0000	0.7841
Total	**1.7000e-004**	**1.0000e-004**	**1.3900e-003**	**1.0000e-005**	**1.4400e-003**	**0.0000**	**1.4400e-003**	**3.8000e-004**	**0.0000**	**3.9000e-004**	**0.0000**	**0.7840**	**0.7840**	**1.0000e-005**	**0.0000**	**0.7841**

3.16 Architectural Coating (Phase 3) - 2045

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	0.6348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3800e-003	8.7200e-003	0.0215	4.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	3.0639	3.0639	1.1000e-004	0.0000	3.0666
Total	**0.6362**	**8.7200e-003**	**0.0215**	**4.0000e-005**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**3.0639**	**3.0639**	**1.1000e-004**	**0.0000**	**3.0666**

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	2.7000e-004	1.6000e-004	2.2200e-003	1.0000e-005	2.3000e-003	1.0000e-005	2.3100e-003	6.1000e-004	0.0000	6.2000e-004	0.0000	1.2544	1.2544	1.0000e-005	0.0000	1.2546
Total	**2.7000e-004**	**1.6000e-004**	**2.2200e-003**	**1.0000e-005**	**2.3000e-003**	**1.0000e-005**	**2.3100e-003**	**6.1000e-004**	**0.0000**	**6.2000e-004**	**0.0000**	**1.2544**	**1.2544**	**1.0000e-005**	**0.0000**	**1.2546**

3.16 Architectural Coating (Phase 3) - 2045

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	0.6348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3800e-003	8.7200e-003	0.0215	4.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	3.0639	3.0639	1.1000e-004	0.0000	3.0666
Total	**0.6362**	**8.7200e-003**	**0.0215**	**4.0000e-005**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**3.0639**	**3.0639**	**1.1000e-004**	**0.0000**	**3.0666**

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	2.7000e-004	1.6000e-004	2.2200e-003	1.0000e-005	2.3000e-003	1.0000e-005	2.3100e-003	6.1000e-004	0.0000	6.2000e-004	0.0000	1.2544	1.2544	1.0000e-005	0.0000	1.2546
Total	**2.7000e-004**	**1.6000e-004**	**2.2200e-003**	**1.0000e-005**	**2.3000e-003**	**1.0000e-005**	**2.3100e-003**	**6.1000e-004**	**0.0000**	**6.2000e-004**	**0.0000**	**1.2544**	**1.2544**	**1.0000e-005**	**0.0000**	**1.2546**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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	0.2856	4.7250	2.6295	0.0228	1.6986	7.0800e-003	1.7057	0.4558	6.6500e-003	0.4624	0.0000	2,127.2064	2,127.2064	0.1490	0.0000	2,130.9311
Unmitigated	0.2867	4.7342	2.6493	0.0229	1.7157	7.1400e-003	1.7229	0.4604	6.7000e-003	0.4671	0.0000	2,143.4757	2,143.4757	0.1492	0.0000	2,147.2061

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Medical Office Building	3,054.79	757.57	131.05	4,519,172	4,473,980
Parking Lot	0.00	0.00	0.00		
Total	3,054.79	757.57	131.05	4,519,172	4,473,980

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
Medical Office Building	9.50	7.30	7.30	29.60	51.40	19.00	60	30	10
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Medical Office Building	0.552909	0.029159	0.181217	0.090876	0.007822	0.003401	0.019016	0.106927	0.001693	0.001123	0.004720	0.000714	0.000424
Parking Lot	0.552909	0.029159	0.181217	0.090876	0.007822	0.003401	0.019016	0.106927	0.001693	0.001123	0.004720	0.000714	0.000424

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures 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	293.7127	293.7127	0.0121	2.5100e-003	294.7634
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	293.7127	293.7127	0.0121	2.5100e-003	294.7634
NaturalGas Mitigated	7.8400e-003	0.0713	0.0599	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	77.5634	77.5634	1.4900e-003	1.4200e-003	78.0243
NaturalGas Unmitigated	7.8400e-003	0.0713	0.0599	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	77.5634	77.5634	1.4900e-003	1.4200e-003	78.0243

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					
Medical Office Building	1.45348e+006	7.8400e-003	0.0713	0.0599	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	77.5634	77.5634	1.4900e-003	1.4200e-003	78.0243
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
Total		**7.8400e-003**	**0.0713**	**0.0599**	**4.3000e-004**		**5.4100e-003**	**5.4100e-003**		**5.4100e-003**	**5.4100e-003**	**0.0000**	**77.5634**	**77.5634**	**1.4900e-003**	**1.4200e-003**	**78.0243**

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					
Medical Office Building	1.45348e+006	7.8400e-003	0.0713	0.0599	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	77.5634	77.5634	1.4900e-003	1.4200e-003	78.0243
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
Total		**7.8400e-003**	**0.0713**	**0.0599**	**4.3000e-004**		**5.4100e-003**	**5.4100e-003**		**5.4100e-003**	**5.4100e-003**	**0.0000**	**77.5634**	**77.5634**	**1.4900e-003**	**1.4200e-003**	**78.0243**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Medical Office Building	843003	268.5989	0.0111	2.2900e-003	269.5599
Parking Lot	78820	25.1137	1.0400e-003	2.1000e-004	25.2036
Total		**293.7127**	**0.0121**	**2.5000e-003**	**294.7635**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Medical Office Building	843003	268.5989	0.0111	2.2900e-003	269.5599
Parking Lot	78820	25.1137	1.0400e-003	2.1000e-004	25.2036
Total		**293.7127**	**0.0121**	**2.5000e-003**	**294.7635**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	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	0.4088	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Unmitigated	0.4088	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123

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	0.0635					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3448					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4000e-004	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Total	**0.4088**	**5.0000e-005**	**5.9100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0116**	**0.0116**	**3.0000e-005**	**0.0000**	**0.0123**

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	0.0635					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3448					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4000e-004	5.0000e-005	5.9100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0116	0.0116	3.0000e-005	0.0000	0.0123
Total	**0.4088**	**5.0000e-005**	**5.9100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0116**	**0.0116**	**3.0000e-005**	**0.0000**	**0.0123**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	23.3849	0.3465	8.3300e-003	34.5317
Unmitigated	23.9107	0.3466	8.3400e-003	35.0594

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Medical Office Building	10.6094 / 2.02083	23.9107	0.3466	8.3400e-003	35.0594
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**23.9107**	**0.3466**	**8.3400e-003**	**35.0594**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Medical Office Building	10.6094 / 1.54937	23.3849	0.3465	8.3300e-003	34.5317
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**23.3849**	**0.3465**	**8.3300e-003**	**34.5317**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	185.3592	10.9544	0.0000	459.2195
Unmitigated	185.3592	10.9544	0.0000	459.2195

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Medical Office Building	913.14	185.3592	10.9544	0.0000	459.2195
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**185.3592**	**10.9544**	**0.0000**	**459.2195**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Medical Office Building	913.14	185.3592	10.9544	0.0000	459.2195
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**185.3592**	**10.9544**	**0.0000**	**459.2195**

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	107.1500	0.0000	0.0000	107.1500

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	10.01 / 0	-62.0620	0.0000	0.0000	-62.0620
Total		**-62.0620**	**0.0000**	**0.0000**	**-62.0620**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	239	169.2120	0.0000	0.0000	169.2120
Total		**169.2120**	**0.0000**	**0.0000**	**169.2120**

Appendix B

Traffic Impact Analysis for the

Altura Center for Health – Cartmill Project

Updated Traffic Impact Analysis

Altura Centers for Health

Located at the Northeast Corner of Hillman Street and Cartmill Avenue

In the City of Tulare, CA

Prepared For:

Altura Centers for Health
1201 North Cherry Street
Tulare, CA 93274

April 18, 2019

Project No.: 037-003

JLB Traffic Engineering, Inc.

Traffic Engineering, Transportation Planning, & Parking Solutions
1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Phone: (559) 570-8991
www.JLBtraffic.com

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Traffic Engineering, Transportation Planning, & Parking Solutions

Updated Traffic Impact Analysis

Altura Centers for Health Located at the Northeast Corner of Hillman Street and Cartmill Avenue

In the City of Tulare, CA

April 18, 2019

This Updated Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein, and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions, and decisions are based.

Prepared By:

Jose Luis Benavides, P.E., T.E.

President

REGISTERED PROFESSIONAL ENGINEER
JOSE LUIS BENAVIDES
No.T 2328
Exp:06/30/19
TRAFFIC
STATE OF CALIFORNIA

JLB Traffic Engineering, Inc.

Traffic Engineering, Transportation Planning, & Parking Solutions

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Phone: (559) 570-8991
www.JLBtraffic.com

Table of Contents

List of Figures

List of Tables

List of Appendices

Introduction and Summary

Introduction

This report describes a Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for the proposed Altura Centers for Health (Project). The TIA report has been updated to include: 1) the analysis of the Project under Phase I and Buildout, 2) the analysis of Near Term Projects projected to be built in concurrence with Phase I of the Project, and 3) the Cartmill Avenue Street Improvements Capital Improvement Project (CIP). The Project proposes to develop 10.01 gross acres with five (5) Medical Building Complexes to be constructed in three (3) phases. Phase I proposes to construct two (2) new single-story medical office buildings (14,886 square feet and 14,836 square feet) and one (1) new single-story administration building (12,160 square feet) by the year 2020. Phase II proposes to construct one (1) new single-story dental building (12,672 square feet) by the year 2035. Finally, Phase III proposes to construct one (1) new two-story medical office building (30,000 square feet) by the year 2045. Although the Project will be constructed in the detailed phases, this updated TIA presents the effects of Phase I and Buildout. Based on information provided to JLB, the Project is consistent with the City of Tulare 2035 General Plan. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of this TIA is to evaluate the potential onsite and offsite traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures, and identify any critical traffic issues that should be addressed in the ongoing planning process. The study primarily focused on evaluating traffic conditions at study intersections that may be impacted by the proposed Project. The scope of work was prepared via consultation with City of Tulare, County of Tulare and Caltrans staff.

Summary

The potential impacts of the proposed Project were evaluated in accordance with the standards set forth by the level of service (LOS) policies of the City of Tulare, County of Tulare and Caltrans.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project (Phase I) Traffic Conditions

- JLB analyzed the location of the proposed access points relative to the existing local roads and driveways in the Project's vicinity. A review of the Project driveways to be constructed under Phase I indicates that they are located at points that minimize traffic operational impacts to the existing roadway network.
- The proposed Project under Phase I is estimated to generate a maximum of 1,171 daily trips, 105 AM peak hour trips and 124 PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Existing plus Project (Buildout) Traffic Conditions

- JLB analyzed the location of the proposed access point relative to the existing local roads and driveways in the vicinity of the Project's vicinity. A review of the Project driveway to be constructed under Buildout indicates that it is located at a point that minimizes traffic operational impacts to the existing roadway network.
- The proposed Project under Buildout is estimated to generate a maximum of 2,656 daily trips, 223 AM peak hour trips and 271 PM peak hour trips.
- It is recommended that the Project retain the existing Class II bike lane along its frontage to Hillman Street.
- Under this scenario, the intersection of De La Vina Street and Cartmill Avenue is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended De La Vina Street be restriped to accommodate a northbound left-turn lane and a northbound right-turn lane while retaining its traffic control mechanism. Additional details as to the recommended lane geometrics and traffic controls for these intersections under this scenario are found within the body of this Report.

Near Term plus Project (Phase I) Traffic Conditions

- The total trip generation for the Near Term Projects is 3,628 daily trips, 275 AM peak hour trips, and 362 PM peak hour trips.
- Under this scenario, all study intersections are projected to operate an acceptable LOS during both peak periods.

Near Term plus Project (Buildout) Traffic Conditions

- The total trip generation for the Near Term Projects is 43,989 daily trips, 1,853 AM peak hour trips, and 4,294 PM peak hour trips.
- Under this scenario, the intersections of De La Vina Street and Cartmill Avenue and Mooney Boulevard and Cartmill Avenue are projected to exceed their LOS threshold during both peak periods. To improve the LOS at these intersections, various measures such as the addition of lanes and modification of traffic control mechanisms are recommended. Additional details as to the recommended lane geometrics and traffic controls for these intersections under this scenario are found within the body of this Report.

Cumulative Year 2035 plus Project (Buildout) Traffic Conditions

- Under this scenario, the intersections of De La Vina Street and Cartmill Avenue and Mooney Boulevard and Cartmill Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, various measures such as the addition of lanes and modification of traffic control mechanisms are recommended. Additional details as to the recommended lane geometrics and traffic controls for these intersections under this scenario are found within the body of this Report.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Project Equitable Fair Share Impact Analysis

- It is recommended that the Project contribute its equitable fair share as presented in Table XII.

TIA Scope of Work

The study focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On July 6, 2018, a Draft Scope of Work for the preparation of a TIA for this Project was provided to the City of Tulare, County of Tulare and Caltrans for their review and comment. The Draft Scope of Work was prepared based on communication with City of Tulare staff. Any comments to the proposed Scope of Work were to be provided by July 27, 2018.

On July 24, 2108, Caltrans responded to the Draft Scope of Work and requested that the intersection of Mooney Boulevard (State Route 63) and Cartmill Avenue be added to the analysis. Caltrans also provided JLB will Near Term project data. On July 31, 2018, the County of Tulare and City of Tulare approved the Draft Scope of Work as presented.

Based on the comments received, this TIA includes the analysis of the additional intersection requested by Caltrans. The Draft Scope of Work and the comments received from the lead agency and responsible agencies are included in Appendix A.

Study Facilities

The study focused on evaluating traffic conditions at the existing study intersections that may potentially be impacted by the proposed Project. Traffic counts were collected for the study intersections in August 2018. All counts were collected while schools in the vicinity of the proposed Project were in session. The traffic counts for the existing study facilities are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics, and traffic controls are illustrated in Figure 2.

Study Intersections

1. Retherford Street / Cartmill Avenue
2. Hillman Street / Cartmill Avenue
3. De La Vina Street / Cartmill Avenue
4. Mooney Boulevard / Cartmill Avenue

Study Scenarios

Existing Traffic Conditions

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in the base year 2018.

Existing plus Project (Phase I) Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project (Phase I) Traffic Conditions. The Existing plus Project (Phase I) traffic volumes were obtained by adding the Project Only Trips (Phase I) to the Existing Traffic Conditions scenario. The Project Only Trips (Phase I) to the study facilities were developed based on existing travel patterns, the Tulare County Association of Governments (TCAG) Project Select Zone, the existing roadway network, engineering judgement, existing residential and commercial densities, and the City of Tulare 2035 General Plan Transportation and Circulation Element in the vicinity of the Project. The TCAG Models for the Project Select Zone are contained in Appendix C.

Existing plus Project (Buildout) Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project (Buildout) Traffic Conditions. The Existing plus Project (Buildout) traffic volumes were obtained by adding the Project Only Trips (Buildout) to the Existing Traffic Conditions scenario. The Project Only Trips (Buildout) to the study facilities were developed based on existing travel patterns, the Tulare County Association of Governments (TCAG) Project Select Zone, the existing roadway network, engineering judgement, existing residential and commercial densities, and the City of Tulare 2035 General Plan Transportation and Circulation Element in the vicinity of the Project. The TCAG Models for the Project Select Zone are contained in Appendix C.

Near Term plus Project (Phase I) Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project (Phase I) Traffic Conditions. The Near Term plus Project (Phase I) traffic volumes were obtained by adding the Near Term related trips – estimated to be built out by the end of 2020 – to the Existing plus Project (Phase I) Traffic Conditions scenario.

Near Term plus Project (Buildout) Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project (Buildout) Traffic Conditions. The Near Term plus Project (Buildout) traffic volumes were obtained by adding the Near Term related trips to the Existing plus Project (Buildout) Traffic Conditions scenario.

Cumulative Year 2035 plus Project (Buildout) Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2035 plus Project (Buildout) Traffic Conditions. The Cumulative Year 2035 plus Project (Buildout) traffic volumes were obtained from the TCAG traffic model runs (Base Year 2018 and Cumulative Year 2035) and existing traffic counts. For those locations where the TCAG model showed little to no growth, JLB expanded the existing traffic volumes by a minimum average annual growth rate of one (1) percent. Under this scenario, the higher of the increment method, and the expansion of the existing traffic counts by an average annual growth rate of one percent was utilized to determine the Cumulative Year 2035 plus Project (Buildout) traffic volumes. The TCAG Models are contained in Appendix C. It should be noted that this scenario assumes that De La Vina Street will extend north of Cartmill Avenue by the year 2035, resulting in changes in travel patterns and volumes in the vicinity of the intersection of Cartmill Avenue and De La Vina Street.

Level of Service Analysis Methodology

Level of Service (LOS) is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from "A" to "F", with "A" indicating no congestion of any kind, and "F" indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The 2010 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. U-turn movements were analyzed using HCM 2000 methodologies and would yield more accurate results for the reason that HCM 2010 methodologies do not allow the analysis of U-turns. Synchro software was used to define LOS in this study. Details regarding these calculations are in Appendix D.

Criteria of Significance

The City of Tulare 2035 General Plan Circulation Element has established LOS D as the acceptable level of traffic congestion on most major streets. Therefore, the LOS D threshold was utilized to evaluate the potential significance of LOS impacts to City of Tulare roadway facilities.

The County of Tulare has established LOS D as the acceptable level of traffic congestion on county roads. Therefore, LOS D is used to evaluate the potential significance of LOS impacts to Tulare County intersections. In this case, since the LOS threshold for the City and County is the same, LOS D was utilized as the criteria of significance for this TIA.

Caltrans endeavors to maintain a target LOS at the transition between LOS C and D on State highway facilities consistent with the Caltrans Guide for the Preparation of Traffic Impact Studies dated December 2002. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. Furthermore, the State Route 63 Transportation Concept Report has established LOS C as the concept LOS for State Route 63 within the City of Tulare. In this TIA, the study facilities fall within both the City of Tulare and Caltrans' jurisdiction. Since the LOS threshold for Caltrans is higher, the Caltrans LOS C threshold was utilized as the criteria of significance for those intersections under Caltrans jurisdiction.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- Yellow time of 3.2 seconds for left-turn phases
- Yellow time consistent with the California Manual of Uniform Traffic Control Devices (CA MUTCD) based on approach speeds
- All-red clearance intervals of 1.0 second for all phases
- Walk intervals of 7.0 seconds
- Flashing Don't Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added
- An average of 3 pedestrian calls per hour at signalized intersections
- All new or modified signals utilize protective left-turn phasing
- A 3 percent heavy vehicle factor
- At existing intersections, the observed approach Peak Hour Factor (PHF) is utilized in the Existing, Existing plus Project and Near Term plus Project scenarios
- A PHF of 0.92 (or the Existing PHF if higher) is utilized for all study intersections in the Cumulative Year 2035 plus Project scenario

Existing Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project site are discussed below.

Cartmill Avenue is an existing east-west two-lane undivided roadway adjacent to the proposed Project site. Cartmill Avenue extends beyond the City limits to the west and the east. The City of Tulare 2035 General Plan Transportation and Circulation Element designates Cartmill Avenue as a four-lane divided major arterial between West Street and Mooney Boulevard and a four-lane arterial east of Mooney Boulevard through the eastern city limit.

Retherford Street is an existing north-south two-lane undivided roadway in the vicinity of the proposed Project site. In this area, Retherford Street extends south of Cartmill Avenue and extends southeast to connect to Leland Avenue. The City of Tulare 2035 General Plan Transportation and Circulation Element designates Retherford Street as a minor arterial between Cartmill Avenue and Leland Avenue.

Hillman Street is an existing north-south four-lane divided arterial adjacent to the proposed Project site. In this area, Hillman Avenue is a four-lane divided arterial between Oakdale Avenue and Cartmill Avenue, a six-lane divided major arterial between Cartmill Avenue and Prosperity Avenue, and a two-lane divided roadway south of Prosperity Avenue before becoming the northbound ramps to State Route 99. The City of Tulare 2035 General Plan Transportation and Circulation Element designates Hillman Street as a four-lane divided arterial between Oakdale Avenue and Cartmill Avenue and a six-lane divided major arterial between Cartmill Avenue and Prosperity Avenue.

De La Vina Street is a two-lane undivided local street in the vicinity of the proposed Project site. In this area, De La Vina Street south of Cartmill Avenue and connects to Corvina Avenue to the south. The City of Tulare 2035 General Plan Transportation and Circulation Element designates De La Vina Street as a local street between Cartmill Avenue and Bella Oaks Drive and a collector between Bella Oaks Drive and Corvina Avenue.

Mooney Boulevard (State Route 63) is an existing north-south four-lane highway in the vicinity of the proposed Project site. Mooney Boulevard extends north of Foster Drive beyond the northern city limit. The City of Tulare 2035 General Plan Transportation and Circulation Element designates Mooney Boulevard as a divided major arterial north of Foster Drive beyond the northern city limit. The Transportation Concept Report (TCR) for State Route 63 designates the segment of State Route 63 (Mooney Boulevard) between State Route 137 (Tulare Avenue) and Oakdale Avenue as a six-lane conventional highway.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Existing Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the unsignalized study intersection of Retherford Street and Cartmill Avenue satisfies the peak hour signal warrant during the PM peak period only. Based on the signal warrants, the intersection operational analysis and engineering judgement, signalization of this intersection is not recommended under this scenario, especially since this intersection is projected to operate at an acceptable LOS during both peak periods.

Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix E. Table I presents a summary of the Existing peak hour LOS at the study intersections.

At present, all study intersections operate at an acceptable LOS during both peak periods.

Table I: Existing Intersection LOS Results

ID	Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Retherford Street / Cartmill Avenue	One-Way Stop	22.6	C	24.9	C
2	Hillman Street / Cartmill Avenue	Signalized	47.0	D	38.8	D
3	De La Vina Street / Cartmill Avenue	One-Way Stop	18.3	C	13.2	B
4	Mooney Boulevard / Cartmill Avenue	Signalized	24.3	C	23.9	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

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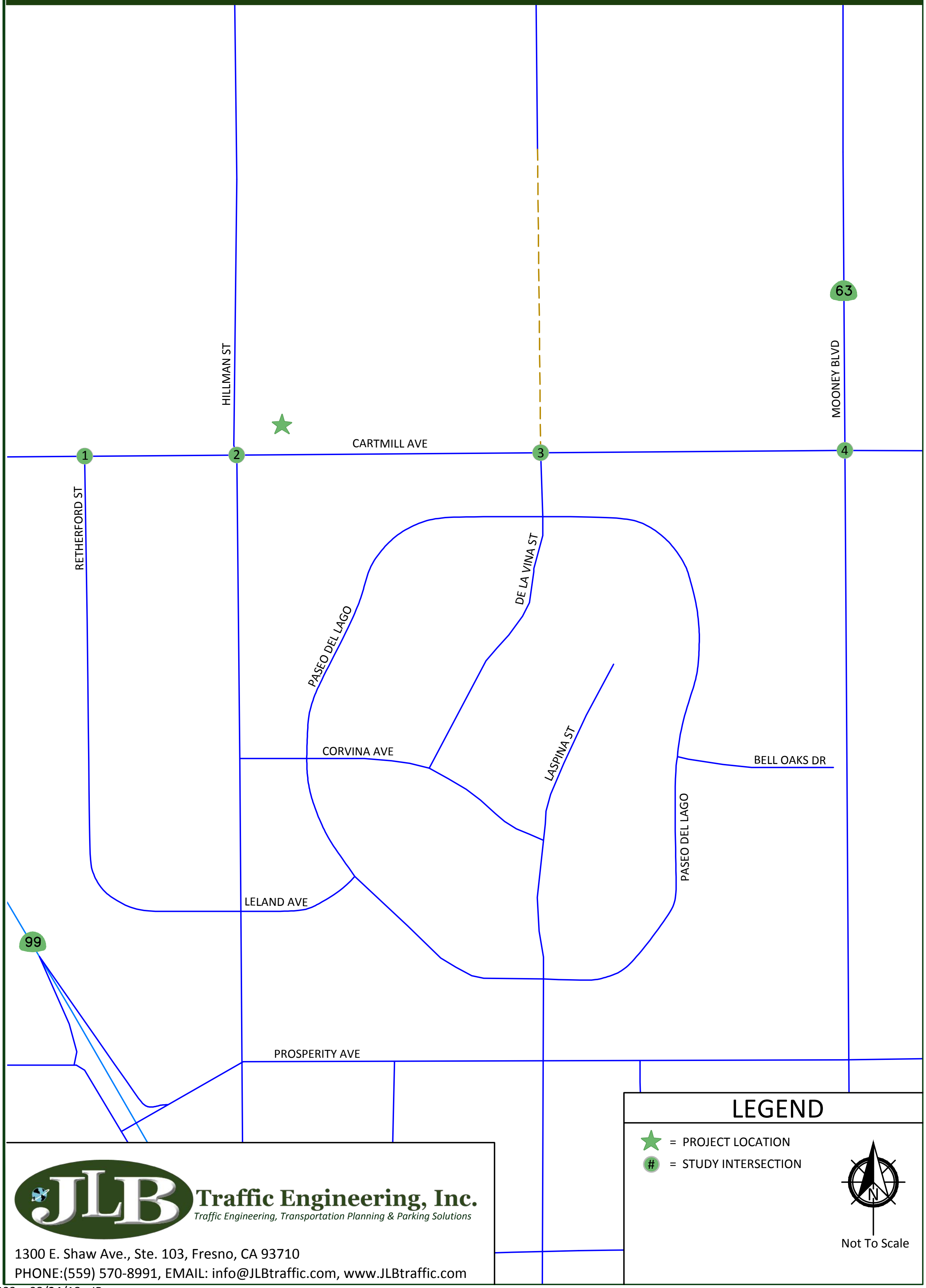
Vicinity Map

Figure 1



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Traffic Engineering, Transportation Planning & Parking Solutions
1300 E. Shaw Ave., Ste. 103, Fresno, CA 93710
PHONE:(559) 570-8991, EMAIL: info@JLBtraffic.com, www.JLBtraffic.com

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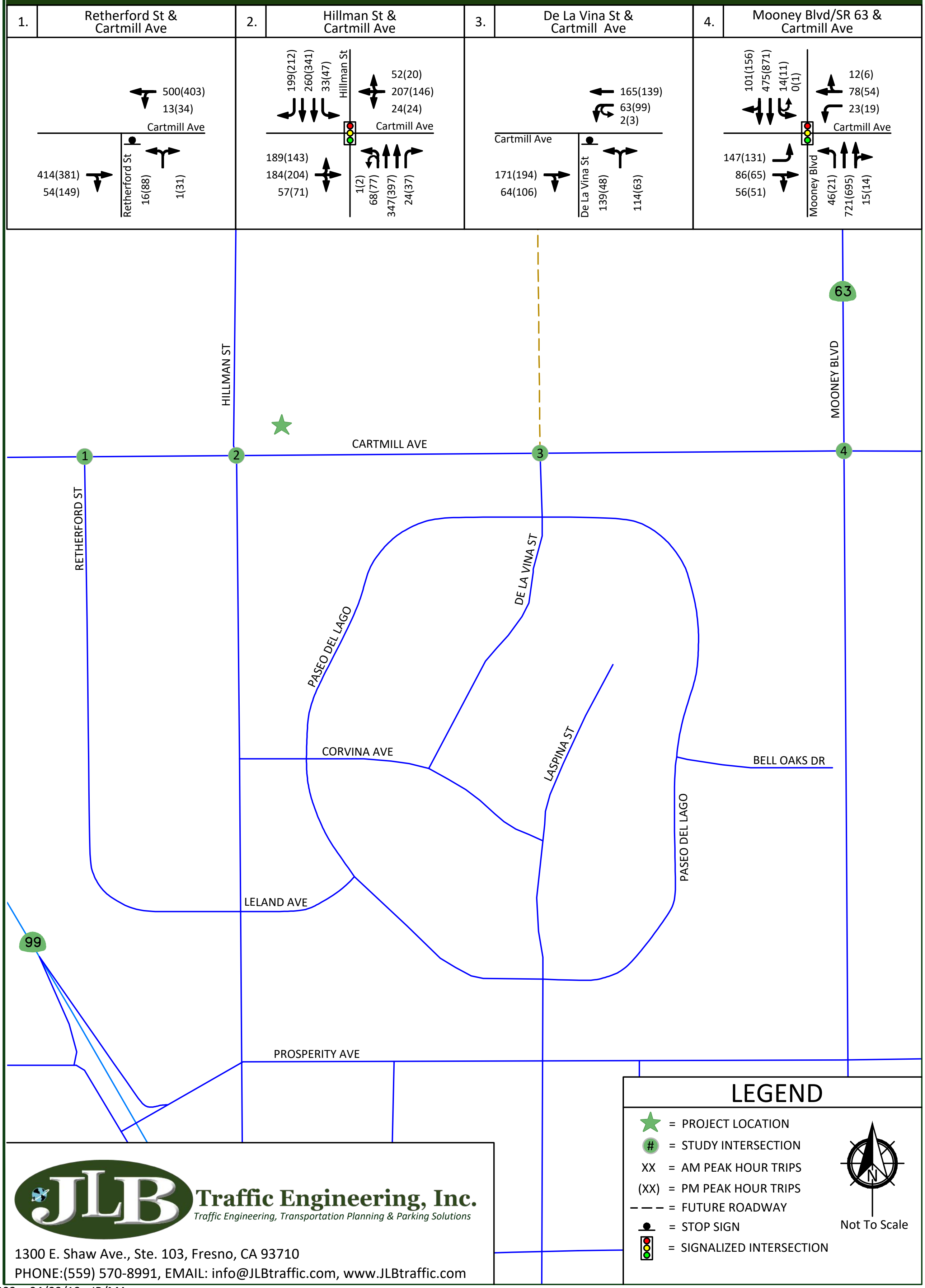
Altura Centers for Health - City of Tulare
Existing - Volumes, Geometrics and Controls

Figure 2



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Traffic Engineering, Transportation Planning & Parking Solutions

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Existing plus Project (Phase I) Traffic Conditions

Project Description (Phase I)

Phase I of the Project proposes to construct two (2) new single-story medical office buildings (14,886 square feet and 14,836 square feet) and one (1) new single-story administration building (12,160 square feet) by the year 2020. The Project (Phase I) is located on the eastern portion of the Project site. Figure 3 illustrates the latest Project Site Plan.

Project Access (Phase I)

Based on the latest Project Site Plan, access to and from the Project site under Phase I will be from three (3) points. One (1) access point is proposed along the north side of Cartmill Avenue while the remaining access points are proposed along the west side of a future local street located on the eastern Project site boundary. The access point located along the north side of Cartmill Avenue is located approximately 1,110 feet east of Hillman Street and is proposed as a full access. The access points located along the west side of the future local street are located approximately 125 feet and 300 feet north of Cartmill Avenue and are also proposed as full access. JLB analyzed the location of the proposed access points relative to the existing local roads and driveways in the Project's vicinity. A review of the Project driveways to be constructed under Phase I indicates that they are located at points that minimize traffic operational impacts to the existing roadway network.

Project Trip Generation (Phase I)

Trip generation rates for the proposed Project under Phase I were obtained from the 10th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Table II presents the trip generation for the proposed Project (Phase I) with trip generation rates for Medical-Dental Office Building and Single-Tenant Office Building. The proposed Project under Phase I is estimated to generate a maximum of 1,171 daily trips, 105 AM peak hour trips and 124 PM peak hour trips.

Table II: Project Trip Generation (Phase I)

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*(7-9) AM Peak Hour*						*(4-6) PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	29.722	k.s.f.	34.80	1,034	2.78	78	22	65	18	83	3.46	28	72	29	74	103
Single-Tenant Office Building (715)	12.160	k.s.f.	11.25	137	1.78	89	11	20	2	22	1.71	15	85	3	18	21
Total Project Trips				**1,171**				**85**	**20**	**105**				**32**	**92**	**124**

Note: k.s.f. = Thousand Square Feet

Project Trip Distribution (Phase I)

The trip distribution assumptions for the Project under Phase I were developed based on existing travel patterns, the Tulare County Association of Governments (Tulare CAG) Project Select Zone, the existing roadway network, engineering judgement, existing residential and commercial densities, and the City of Tulare 2035 General Plan Transportation and Circulation Element in the vicinity of the Project. Figure 4 illustrates the Project Only Trips to the study intersections under Phase I.

Traffic Signal Warrants

The peak hour traffic signal warrant was prepared for the unsignalized study intersection in the Existing plus Project (Phase I) Traffic Conditions scenario. This warrant is found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the unsignalized study intersection of Cartmill Avenue and De La Vina is not projected to satisfy the peak hour signal warrant.

Roadway Network

The Existing plus Project (Phase I) Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing Traffic Conditions scenario with one exception. This scenario assumes that the Cartmill Avenue Street Improvements CIP will modify the traffic controls and lane geometrics west of De La Vina Street. Namely, this scenario assumes that the intersection of Retherford Street and Cartmill Avenue is signalized and that the intersections of Retherford Street and Cartmill Avenue, Hillman Street and Cartmill Avenue, and De La Vina Street and Cartmill Avenue are modified to accommodate the addition of lanes and a raised median island along Cartmill Avenue. Figure 5 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Results of Existing plus Project (Phase I) Level of Service Analysis

The Existing plus Project (Phase I) Traffic Conditions scenario assumes that the intersection of Retherford Street and Cartmill Avenue is signalized and that the intersections of Retherford Street and Cartmill Avenue, Hillman Street and Cartmill Avenue, and De La Vina Street and Cartmill Avenue are modified to accommodate the addition of lanes and a raised median island along Cartmill Avenue. Figure 5 illustrates the Existing plus Project (Phase I) turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project (Phase I) Traffic Conditions scenario are provided in Appendix F. Table III presents a summary of the Existing plus Project (Phase I) peak hour LOS at the study intersections.

Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

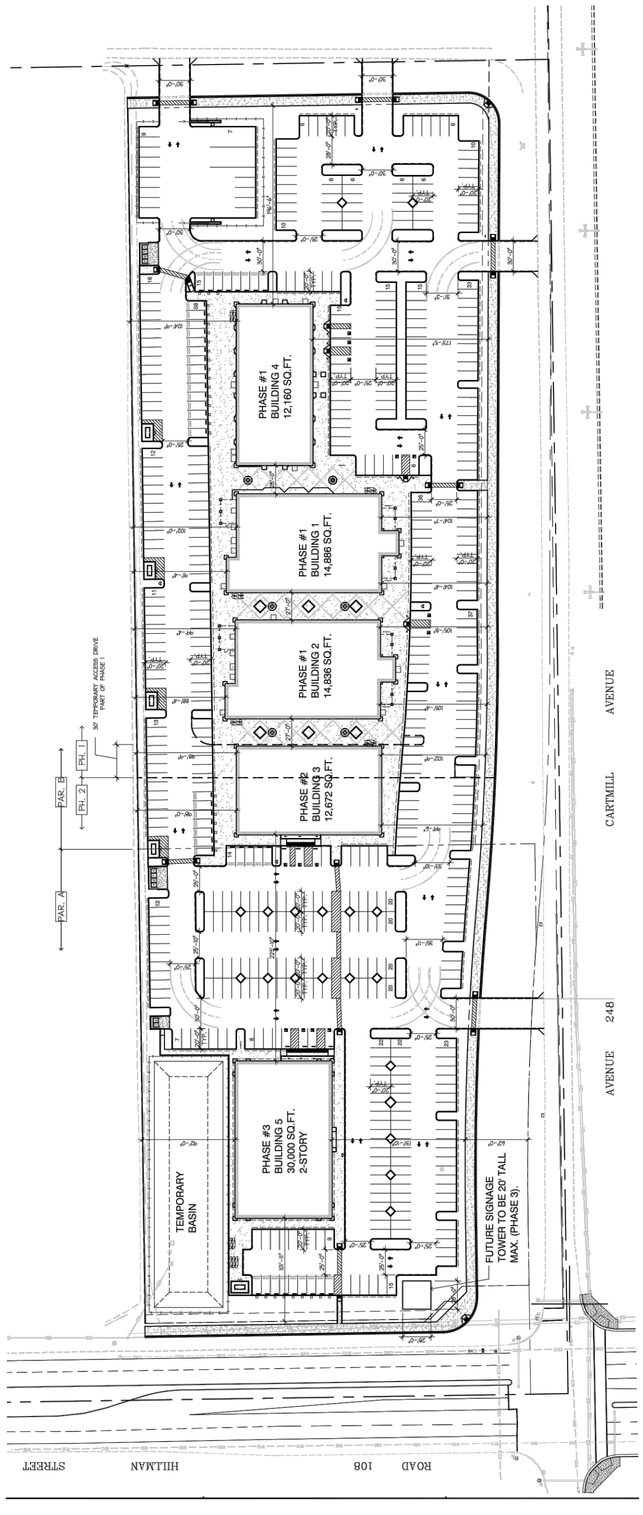
Table III: Existing plus Project (Phase I) Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*(7-9) AM Peak Hour*		*(4-6) PM Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Retherford Street / Cartmill Avenue	Signalized	6.4	A	15.3	B
2	Hillman Street / Cartmill Avenue	Signalized	22.1	C	21.1	C
3	De La Vina Street / Cartmill Avenue	One-Way Stop	23.1	C	13.5	B
4	Mooney Boulevard / Cartmill Avenue	Signalized	26.0	C	25.4	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Altura Centers for Health - City of Tulare
Project Site Plan

Figure 3



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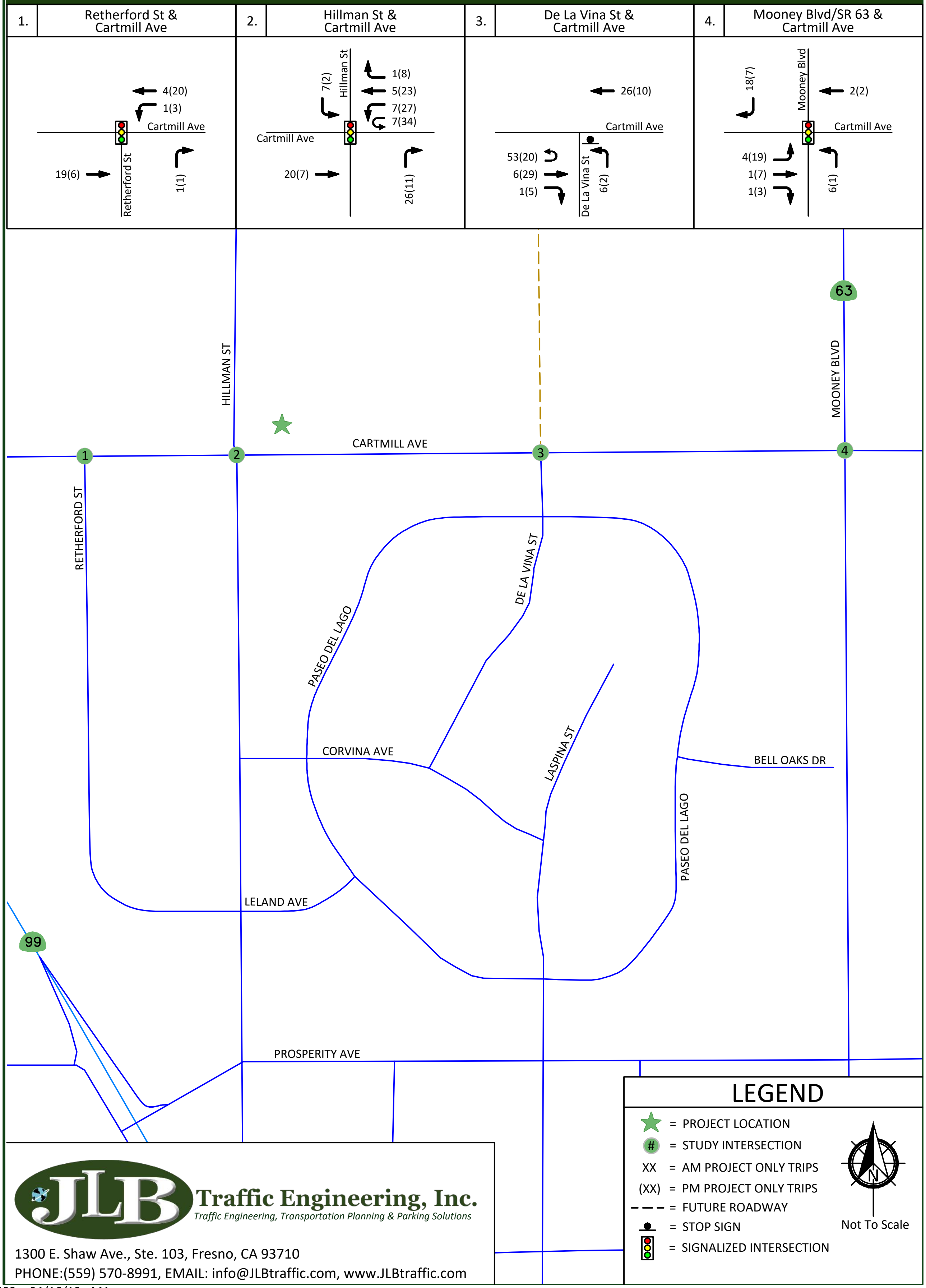
Altura Centers for Health - City of Tulare
Project Only Trips (Phase 1)

Figure 4



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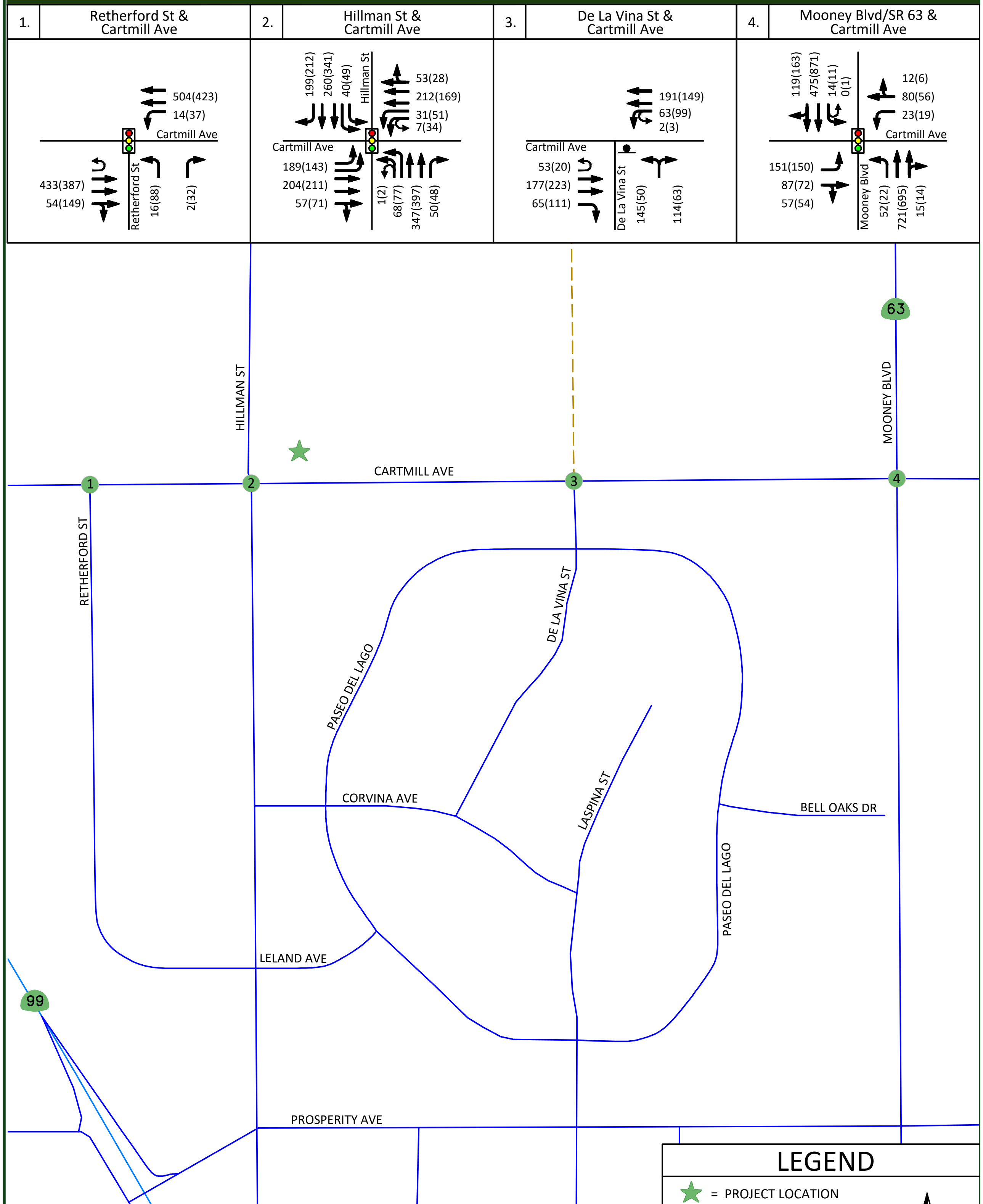
Existing plus Project (Phase I) - Volumes, Geometrics and Controls

Figure 5



LEGEND

- = PROJECT LOCATION
- # = STUDY INTERSECTION
- XX = AM PEAK HOUR TRIPS
- (XX) = PM PEAK HOUR TRIPS
- – – – = FUTURE ROADWAY
- = STOP SIGN
- = SIGNALIZED INTERSECTION

N

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1300 E. Shaw Ave., Ste. 103, Fresno, CA 93710
PHONE:(559) 570-8991, EMAIL: info@JLBtraffic.com, www.JLBtraffic.com

Existing plus Project (Buildout) Traffic Conditions

Project Description (Buildout)

The Project proposes to develop 10.01 gross acres with five (5) Medical Building Complexes to be constructed in three (3) phases. Phase I proposes to construct two (2) new single-story medical office buildings (14,886 square feet and 14,836 square feet) and one (1) new single-story administration building (12,160 square feet) by the year 2020. Phase II proposes to construct one (1) new single-story dental building (12,672 square feet) by the year 2035. Finally, Phase III proposes to construct one (1) new two-story medical office building (30,000 square feet) by the year 2045. Based on information provided to JLB, the Project is consistent with the City of Tulare 2035 General Plan.

Project Access (Buildout)

Based on the latest Project Site Plan, access to and from the Project site under Buildout will be from four (4) points. In addition to the proposed access points described under Phase I, the Project proposed to have a second access point to Cartmill Drive. This access point is located along the north side of Cartmill Drive approximately 300 feet east of Hillman Street and is proposed as full access. JLB analyzed the location of the proposed access point relative to the existing local roads and driveways in the vicinity of the Project's vicinity. A review of the Project driveway to be constructed under Buildout indicates that it is located at a point that minimizes traffic operational impacts to the existing roadway network.

Project Trip Generation (Buildout)

Trip generation rates for the proposed Project under Buildout were obtained from the 10th Edition of the Trip Generation Manual published by the ITE. Table VI presents the trip generation for the proposed Project (Buildout) with trip generation rates for Medical-Dental Office Building and Single-Tenant Office Building. The proposed Project under Buildout is estimated to generate a maximum of 2,656 daily trips, 223 AM peak hour trips and 271 PM peak hour trips.

Table IV: Project Trip Generation (Buildout)

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*(7-9) AM Peak Hour*						*(4-6) PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	72.394	k.s.f.	34.80	2,519	2.78	78	22	157	44	201	3.46	28	72	70	180	250
Single-Tenant Office Building (715)	12.160	k.s.f.	11.25	137	1.78	89	11	20	2	22	1.71	15	85	3	18	21
Total Project Trips				**2,656**				**177**	**46**	**223**				**73**	**198**	**271**

Note: k.s.f. = Thousand Square Feet

Project Trip Distribution (Buildout)

The trip distribution assumptions for the Project under Buildout were developed based on existing travel patterns, the Tulare County Association of Governments (Tulare CAG) Project Select Zone, the existing roadway network, engineering judgement, existing residential and commercial densities, and the City of Tulare 2035 General Plan Transportation and Circulation Element in the vicinity of the Project. Figure 6 illustrates the Project Only Trips to the study intersections under Buildout.

Bikeways

Currently, Class II Bike Lanes exist adjacent to the proposed Project site along Hillman Street. The 2035 General Plan Transportation and Circulation Element states that "[t]he City shall promote the development of a comprehensive and safe system of recreational and commuter bicycle routes that provide connections between the city's major employment and housing areas, between its existing and planned bikeways, and between schools, parks, retail shopping, and residential neighborhoods." Therefore, it is recommended that the Project retain the existing Class II bike lane along its frontage to Hillman Street.

Transit

Tulare InterModal Express (TIME) is the transit operator in the City of Tulare. At present, there are no TIME transit routes that operate in the vicinity of the proposed Project. The closest is TIME Route 4 and runs on Hillman Street, approximately 0.75 miles to the south of the proposed Project. Route 4 operates at 30-minute intervals between 6:15 AM and 8:45 PM on Monday through Saturday and 60-minute intervals between 8:45 AM and 5:45 PM on Sunday. Its nearest stop to the Project site is located on the east side of Hillman Street approximately 450 feet south of Leland Avenue. This route provides a direct connection to Tulare Outlet Mall, Walmart, Target, CVS Pharmacy, Tulare Medical Center, and Vallarta Supermarkets. Retention of the existing and expansion of future transit routes is dependent on transit ridership demand and available funding.

Traffic Signal Warrants

The peak hour traffic signal warrant was prepared for the unsignalized study intersection in the Existing plus Project (Buildout) Traffic Conditions scenario. This warrant is found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the unsignalized study intersection of De La Vina and Cartmill Avenue is not projected to satisfy the peak hour signal warrant.

Results of Existing plus Project (Buildout) Level of Service Analysis

The Existing plus Project (Buildout) Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing plus Project (Phase I) Traffic Conditions scenario. Figure 7 illustrates the Existing plus Project (Buildout) turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project (Buildout) Traffic Conditions scenario are provided in Appendix G. Table V presents a summary of the Existing plus Project (Buildout) peak hour LOS at the study intersections.

Under this scenario, the intersection of De La Vina Street and Cartmill Avenue is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that De La Vina be restriped to include the following.

- De La Vina Street / Cartmill Avenue
  - Reduce the width of the receiving southbound through lane on De La Vina Street to 11-feet;
  - Add a northbound left-turn lane with an 11-foot width; and
  - Modify the northbound left-right lane to a right-turn lane with an 11-foot width.

Table V: Existing plus Project (Buildout) Intersection LOS Results

ID	Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Retherford Street / Cartmill Avenue	Signalized	6.6	A	14.7	B
2	Hillman Street / Cartmill Avenue	Signalized	22.0	C	21.0	C
3	De La Vina Street / Cartmill Avenue	One-Way Stop	**46.4**	**E**	15.4	C
		One-Way Stop (Mitigated)	28.5	D	14.0	B
4	Mooney Boulevard / Cartmill Avenue	Signalized	26.6	C	27.0	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

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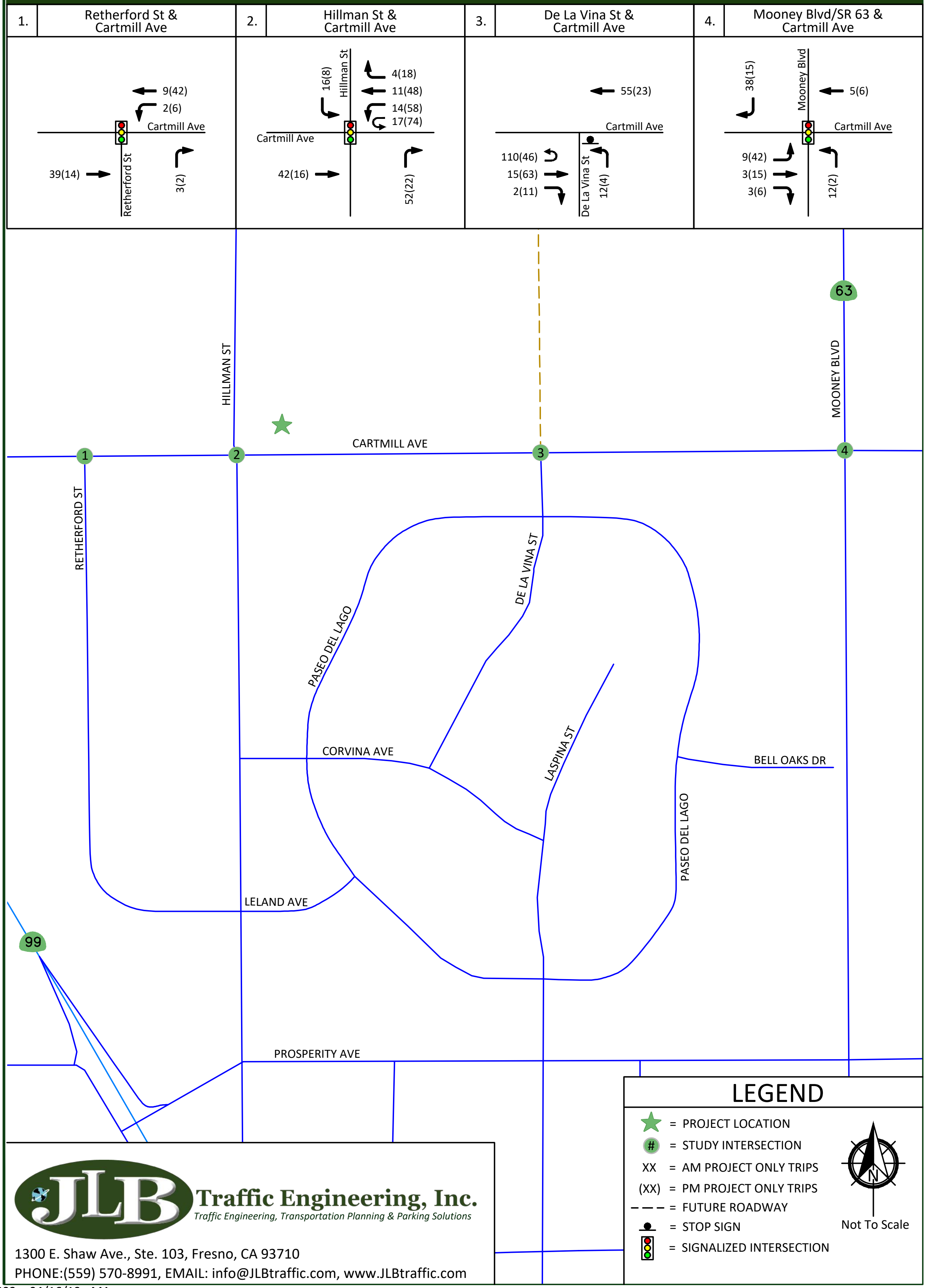
Project Only Trips (Buildout)

Figure 6



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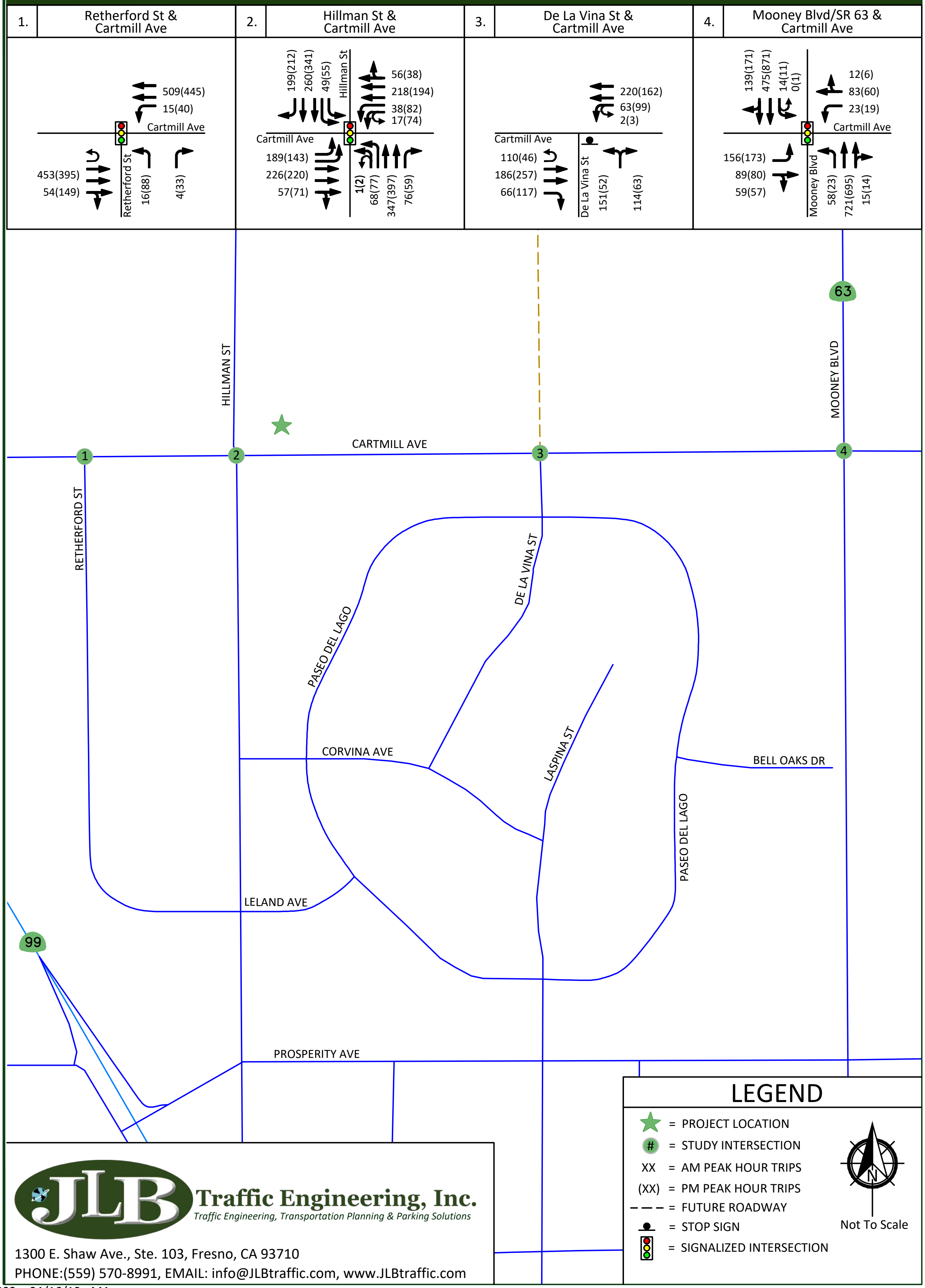
Altura Centers for Health - City of Tulare
Existing plus Project (Buildout) - Volumes, Geometrics and Controls

Figure 7



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Near Term plus Project (Phase I) Traffic Conditions

Description of Approved and Pipeline Projects

Approved and Pipeline Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. City of Tulare, County of Tulare and Caltrans staff were consulted throughout the preparation of this TIA regarding approved and/or known of projects that could potentially impact the study intersections. JLB staff conducted a reconnaissance of the surrounding area to confirm the Near Term Projects listed in Table VI were the only projects that could potentially impact the study intersections analyzed in the Near Term plus Project (Phase I) Traffic Conditions. Therefore, the projects listed in Table VI were the only projects approved, near approval, or in the pipeline within the proximity of the Project site.

The trip generation listed in Table VI is that which is anticipated to be added to the streets and highways by these projects between the time of the preparation of this report and build-out of the Project (Phase I). As shown in Table VI, the total trip generation for the Near Term Projects is 3,628 daily trips, 275 AM peak hour trips and 362 PM peak hour trips. Figure 8 illustrates the location of the approved, near approval, or pipeline projects and their combined trip assignment to the study intersections under the Near Term plus Project (Phase I) Traffic Conditions scenario.

Table VI: Year 2020 Near Term Projects' Trip Generation

Approved Project Location	*Approved or Pipeline Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	Eastgate Hotel[1]	0	0	0
B	Senior Living[1]	0	0	0
C	Bethel/Harmony Development Project[1]	0	0	0
D	Senior Living Apartments[1]	0	0	0
E	Ventana[1]	0	0	0
F	Oak Tree Estates[1]	0	0	0
G	Kensington Estates[1]	1,265	99	133
H	Willow Glen[1]	1,576	124	165
I	Tulare Apartments[1]	586	37	45
J	Commercial Development[1]	0	0	0
K	Tesori[1]	113	9	12
L	Apartments[1]	88	6	7
Total Near Term Project Trips		**3,628**	**275**	**362**

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information

Traffic Signal Warrants

The peak hour traffic signal warrant was prepared for the unsignalized study intersection in the Near Term plus Project (Phase I) Traffic Conditions scenario. This warrant is found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the unsignalized study intersection of De La Vina Street and Cartmill Avenue is not projected to satisfy the peak hour signal warrant.

Results of Near Term plus Project (Phase I) Level of Service Analysis

The Near Term plus Project (Phase I) Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing plus Project (Phase I) Traffic Conditions scenario. Figure 9 illustrates the Near Term plus Project (Phase I) turning movement volumes, intersection geometrics and traffic controls. LOS worksheets from the Near Term plus Project (Phase I) Traffic Conditions scenario are provided in the Appendix H. Table VII presents a summary of the Near Term plus Project (Phase I) peak hour LOS at the study intersections.

Under this scenario, all study intersections are projected to operate an acceptable LOS during both peak periods.

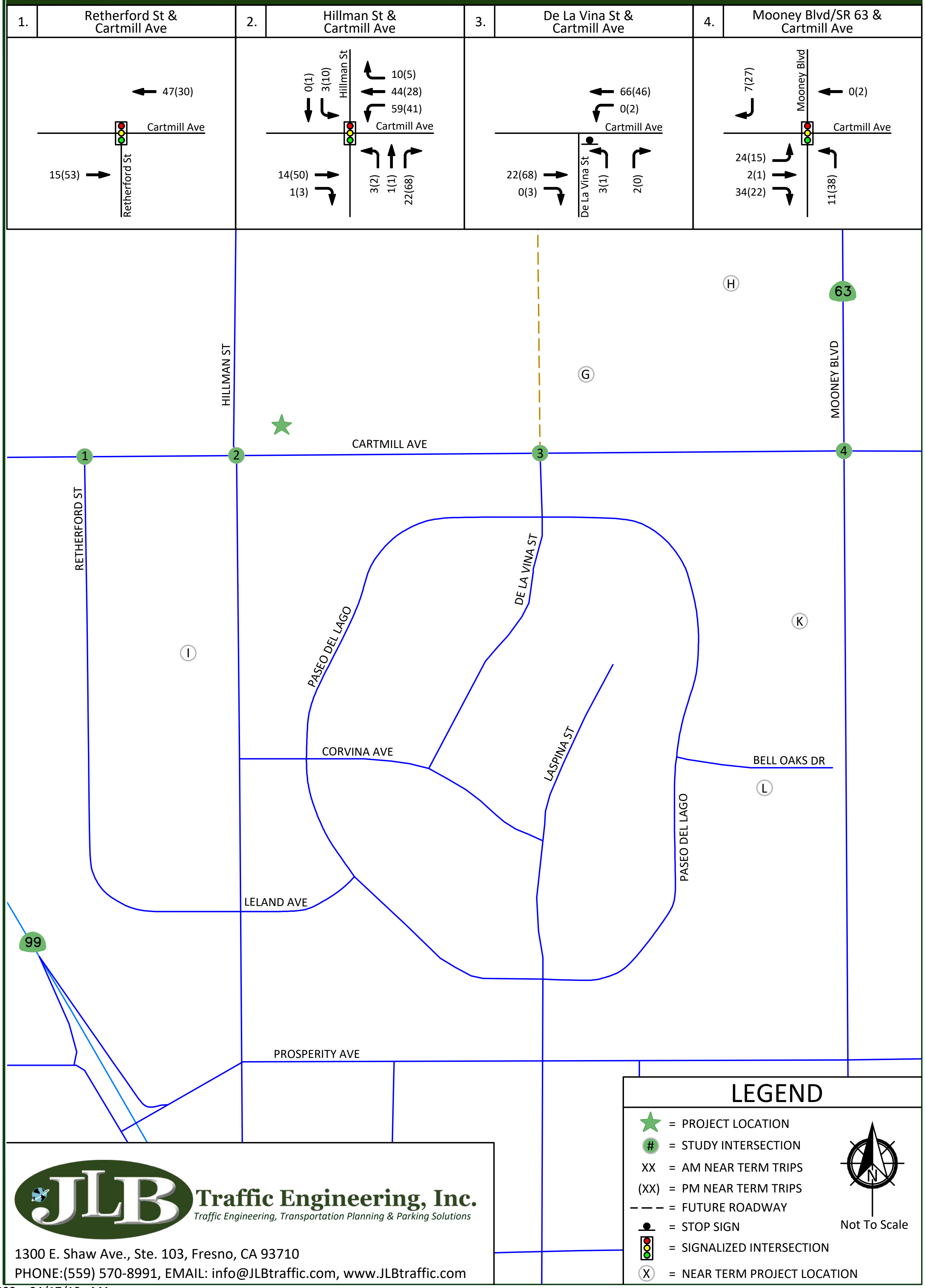
Table VII: Near Term plus Project (Phase I) Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*(7-9) AM Peak Hour*		*(4-6) PM Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Retherford Street / Cartmill Avenue	Signalized	6.4	A	14.8	B
2	Hillman Street / Cartmill Avenue	Signalized	22.3	C	21.4	C
3	De La Vina Street / Cartmill Avenue	One-Way Stop	28.4	D	15.3	C
4	Mooney Boulevard / Cartmill Avenue	Signalized	25.8	C	26.3	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Altura Centers for Health - City of Tulare
Phase I - Near Term Projects' Trip Assignment

Figure 8



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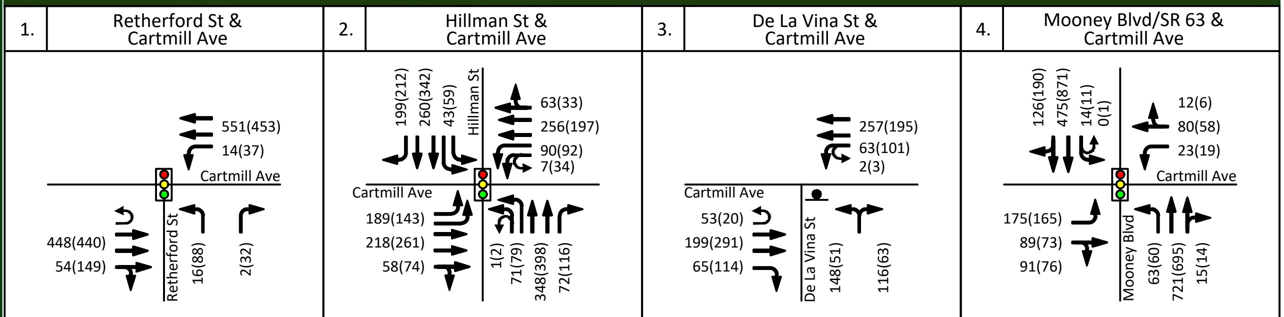
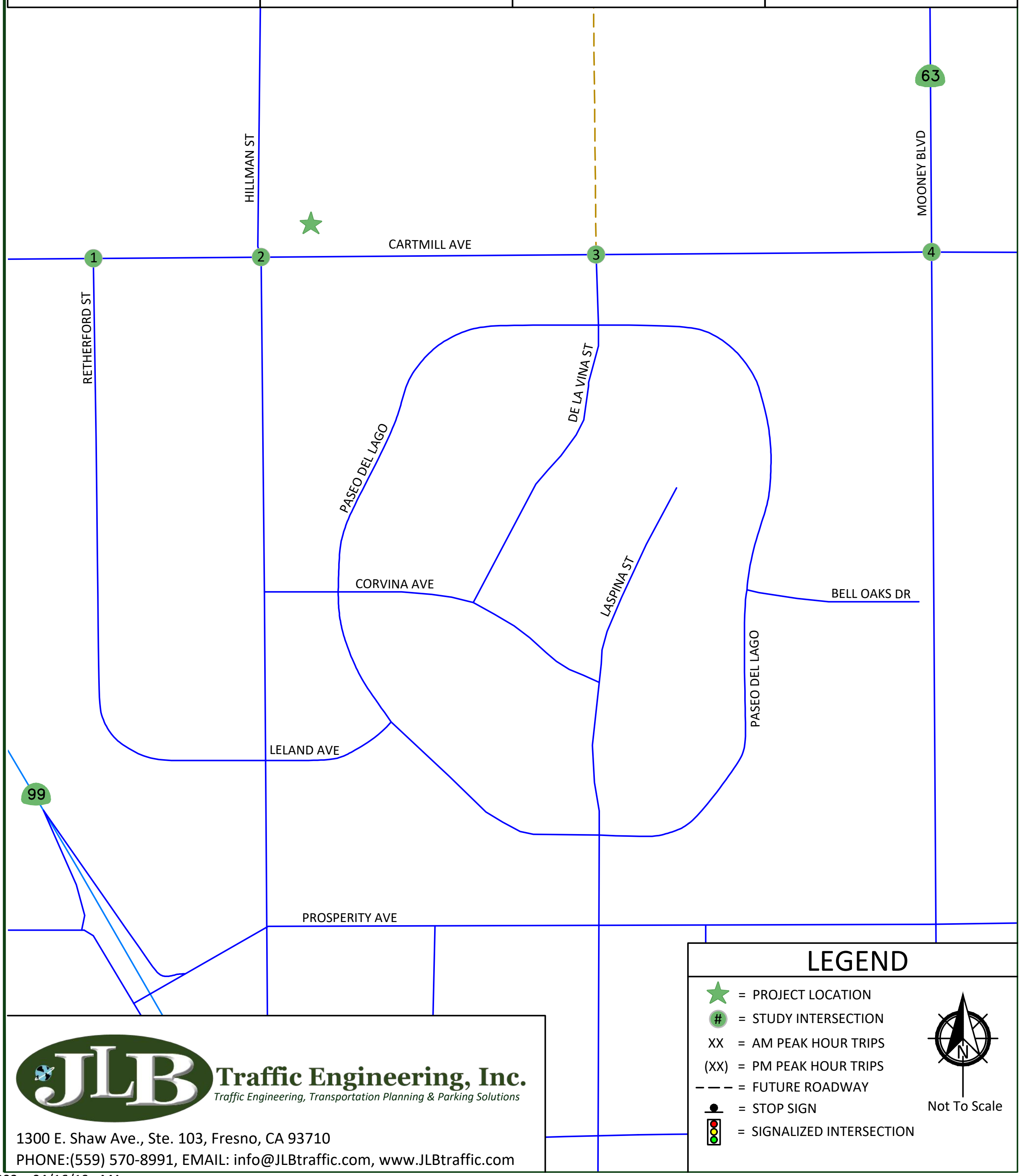
Near Term plus Project (Phase 1) - Volumes, Geometrics and Controls

Figure 9





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Traffic Engineering, Transportation Planning & Parking Solutions
1300 E. Shaw Ave., Ste. 103, Fresno, CA 93710
PHONE:(559) 570-8991, EMAIL: info@JLBtraffic.com, www.JLBtraffic.com

037-003 - 04/16/19 - MA

Near Term plus Project (Buildout) Traffic Conditions

Description of Approved and Pipeline Projects

The trip generation listed in Table VIII is that which is anticipated to be added to the streets and highways by these projects between the time of the preparation of this report and five (5) years after Buildout of the Project. As shown in Table VIII, the total trip generation for the Near Term Projects is 43,989 daily trips, 1,853 AM peak hour trips and 4,294 PM peak hour trips. Figure 10 illustrates the location of the approved, near approval, or pipeline projects and their combined trip assignment to the study intersections under the Near Term plus Project (Buildout) Traffic Conditions scenario.

Table VIII: Buildout Near Term Projects' Trip Generation

Approved Project Location	*Approved or Pipeline Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	Eastgate Hotel[1]	1,363	178	187
B	Senior Living[1]	522	32	44
C	Bethel/Harmony Development Project[1]	1,999	95	103
D	Senior Living Apartments[1]	370	20	26
E	Ventana[1]	3,591	287	317
F	Oak Tree Estates[1]	12,242	330	1,229
G	Kensington Estates[1]	1,265	99	133
H	Willow Glen[1]	20,404	688	2,060
I	Tulare Apartments[1]	1,230	77	94
J	Commercial Development[1]	575	14	58
K	Tesori[1]	340	27	36
L	Apartments[1]	88	6	7
Total Near Term Project Trips		**43,989**	**1,853**	**4,294**

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information

Traffic Signal Warrants

The peak hour traffic signal warrant was prepared for the unsignalized study intersection in the Near Term plus Project (Buildout) Traffic Conditions scenario. This warrant is found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of De La Vina Street and Cartmill Avenue is projected to satisfy the peak hour signal warrant during both peak periods. Based on the signal warrant, the intersection operational analysis and engineering judgement, signalization of this intersection is recommended.

Results of Near Term plus Project (Buildout) Level of Service Analysis

The Near Term plus Project (Buildout) Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing plus Project (Phase I) Traffic Conditions scenario. Figure 11 illustrates the Near Term plus Project (Buildout) turning movement volumes, intersection geometrics and traffic controls. LOS worksheets from the Near Term plus Project Traffic Conditions scenario are provided in the Appendix I. Table IX presents a summary of the Near Term plus Project (Buildout) peak hour LOS at the study intersections.

Under this scenario, the intersections of De La Vina Street and Cartmill Avenue and Mooney Boulevard and Cartmill Avenue are projected to exceed their LOS threshold during both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be implemented.

- De La Vina Street / Cartmill Avenue
  - Signalize the intersection with protective left-turn phasing.
- Mooney Boulevard / Cartmill Avenue
  - Add a second eastbound left-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add an eastbound right-turn lane;
  - Modify the northbound through-right lane to a through lane;
  - Add a northbound right-turn lane;
  - Modify the southbound through-right lane to a through lane;
  - Add a third southbound through lane with a receiving lane south of Cartmill Avenue;
  - Add a southbound right-turn lane; and
  - Modify the traffic signals as needed to accommodate the modified lane geometrics.

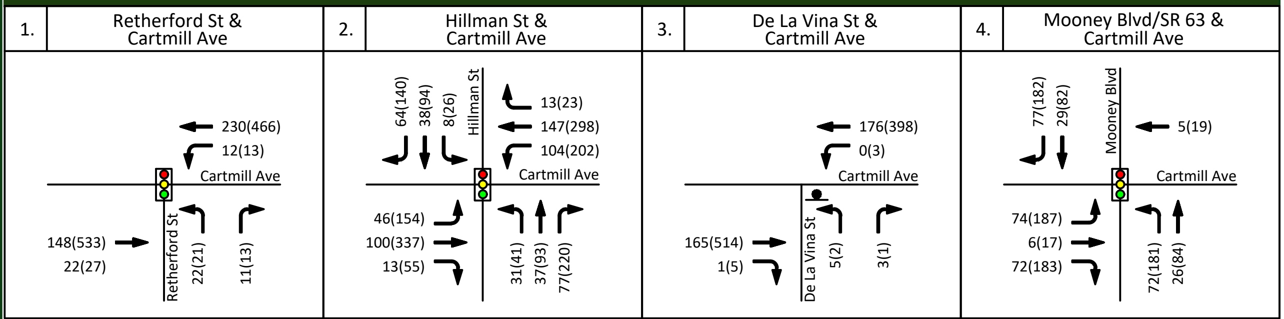
Table IX: Near Term plus Project (Buildout) Intersection LOS Results

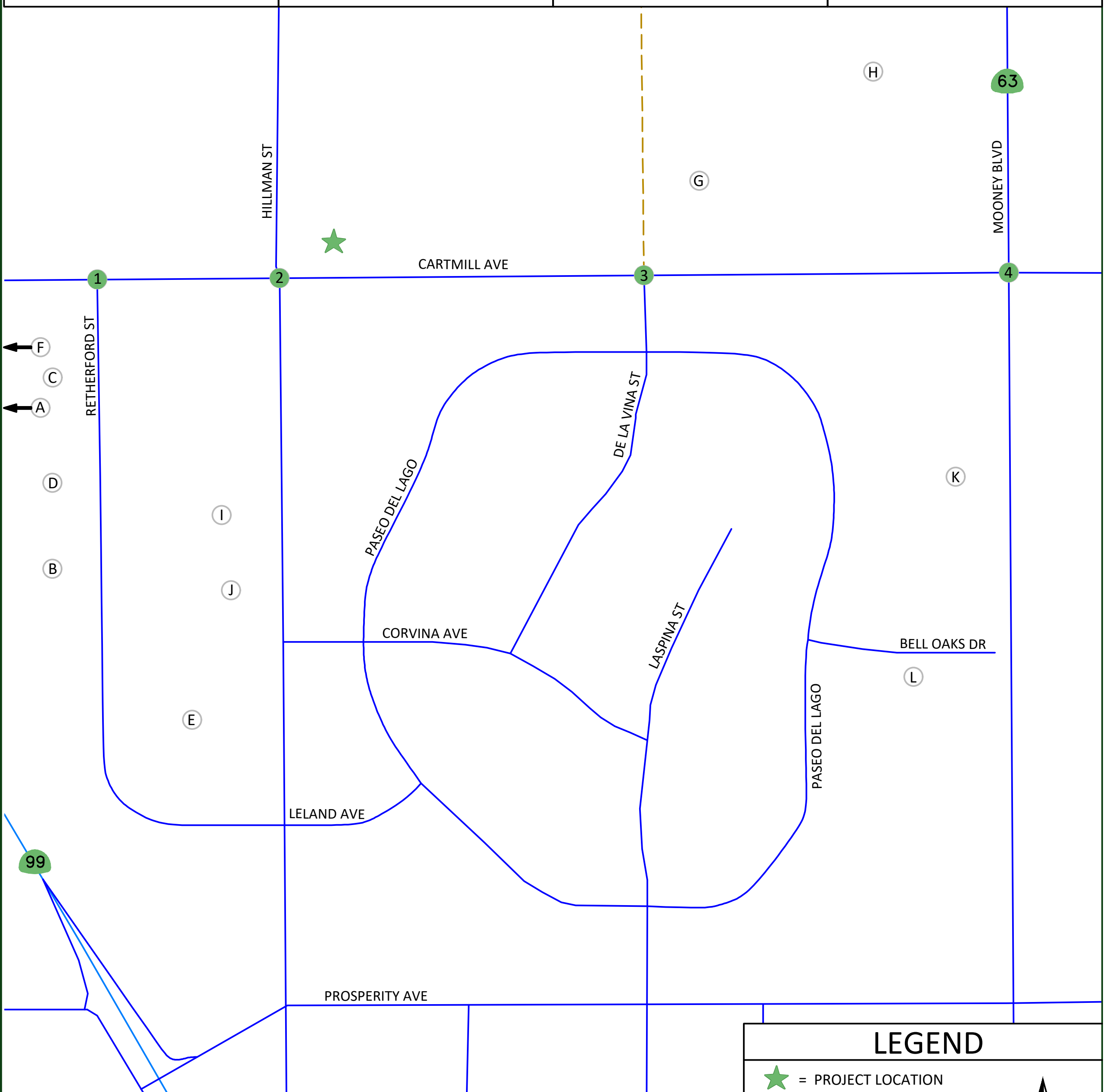
ID	Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Retherford Street / Cartmill Avenue	Signalized	9.1	A	9.0	A
2	Hillman Street / Cartmill Avenue	Signalized	24.0	C	30.9	C
3	De La Vina Street / Cartmill Avenue	One-Way Stop	**>120.0**	**F**	**110.0**	**F**
		Signalized (Mitigated)	13.7	B	10.2	B
4	Mooney Boulevard / Cartmill Avenue	Signalized	**35.7**	**D**	**93.3**	**F**
		Signalized (Mitigated)	22.3	C	29.5	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Altura Centers for Health - City of Tulare
Buildout - Near Term Projects' Trip Assignment

Figure 10





LEGEND

- = PROJECT LOCATION
- # = STUDY INTERSECTION
- XX = AM NEAR TERM TRIPS
- (XX) = PM NEAR TERM TRIPS
- = FUTURE ROADWAY
- = STOP SIGN
- = SIGNALIZED INTERSECTION
- (X) = NEAR TERM PROJECT LOCATION

N
Not To Scale

JLB Traffic Engineering, Inc.
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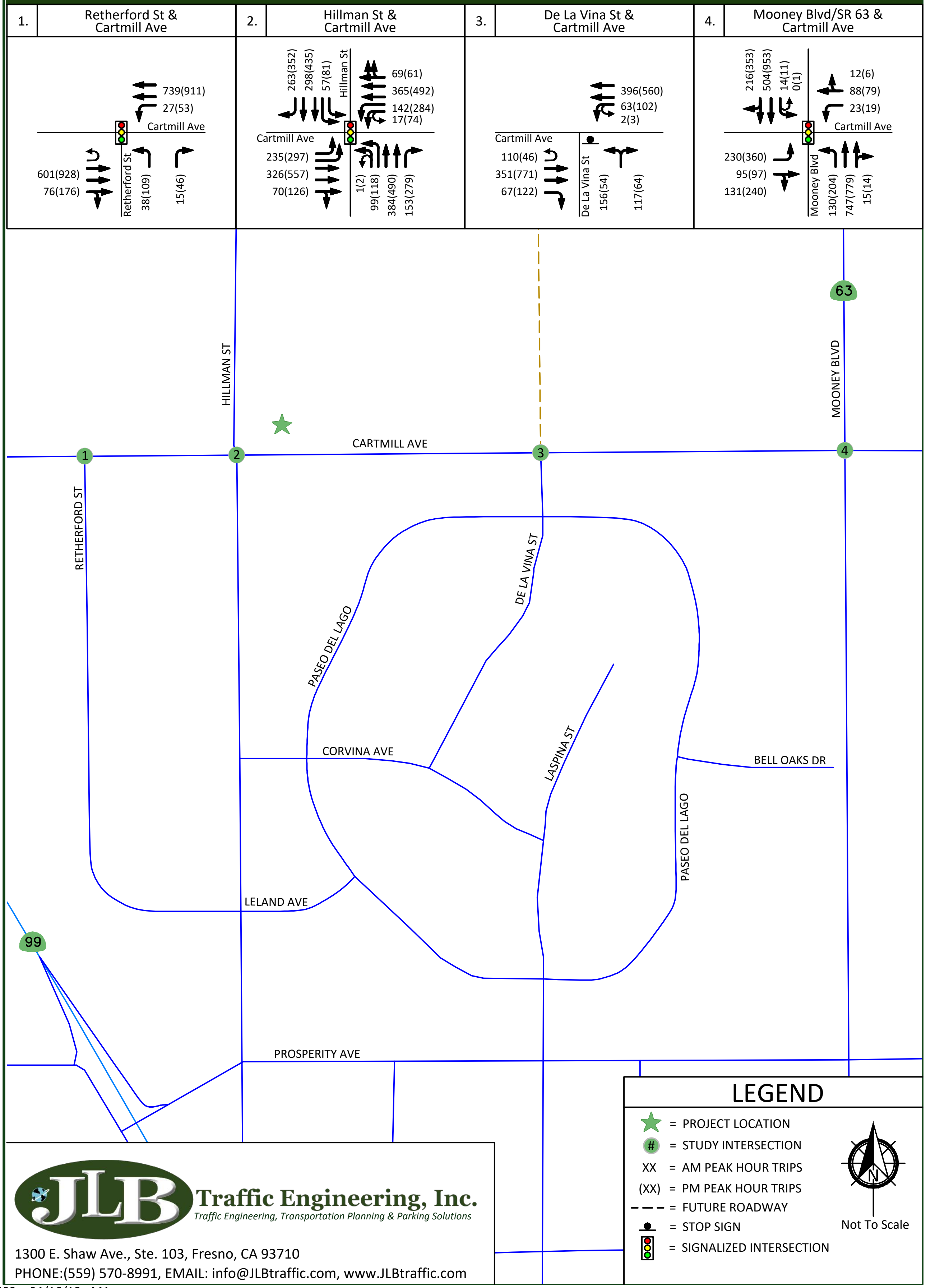
Altura Centers for Health - City of Tulare
Figure 11
Near Term plus Project (Buildout) - Volumes, Geometrics and Controls



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037-003 - 04/16/18 - MA

Cumulative Year 2035 plus Project (Buildout) Traffic Conditions

Traffic Signal Warrants

The peak hour traffic signal warrant was prepared for the unsignalized study intersection in the Cumulative Year 2035 plus Project (Buildout) Traffic Conditions scenario. This warrant is found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the unsignalized study intersection of De La Vina Street and Cartmill Avenue is projected to satisfy the peak hour signal warrant during both peak periods. Based on the signal warrant, the intersection operational analysis and engineering judgement, signalization of this intersection is recommended.

Results of Cumulative Year 2035 plus Project (Buildout) Level of Service Analysis

The Cumulative Year 2035 plus Project (Buildout) Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as those assumed in the Existing plus Project (Phase I) Traffic Conditions scenario with one exception. This scenario also assumes that De La Vina Street will exist north of Cartmill Avenue by the year 2035, resulting in changes in travel patterns and volumes. For purposes of this TIA, it is assumed that the intersection of De La Vina Street and Cartmill Avenue is controlled by a two-way stop on De La Vina and contains a single left-through-right lane in the southbound approach. Figure 12 illustrates the Cumulative Year 2035 plus Project (Buildout) turning movement volumes, intersection geometrics and traffic controls. LOS worksheets from the Cumulative Year 2035 plus Project (Buildout) Traffic Conditions scenario are provided in the Appendix J. Table X presents a summary of the Cumulative Year 2035 plus Project (Buildout) peak hour LOS at the study intersections.

Under this scenario, the intersections of De La Vina Street and Cartmill Avenue and Mooney Boulevard and Cartmill Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be implemented.

- De La Vina Street / Cartmill Avenue
  - Reduce the width of the receiving southbound through lane on De La Vina Street to 11-feet;
  - Add a northbound left-turn lane with an 11-foot width;
  - Modify the northbound left-right lane to a right-turn lane with an 11-foot width;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through-right lane to a through-right lane; and
  - Signalize the intersection with protective left-turn phasing.

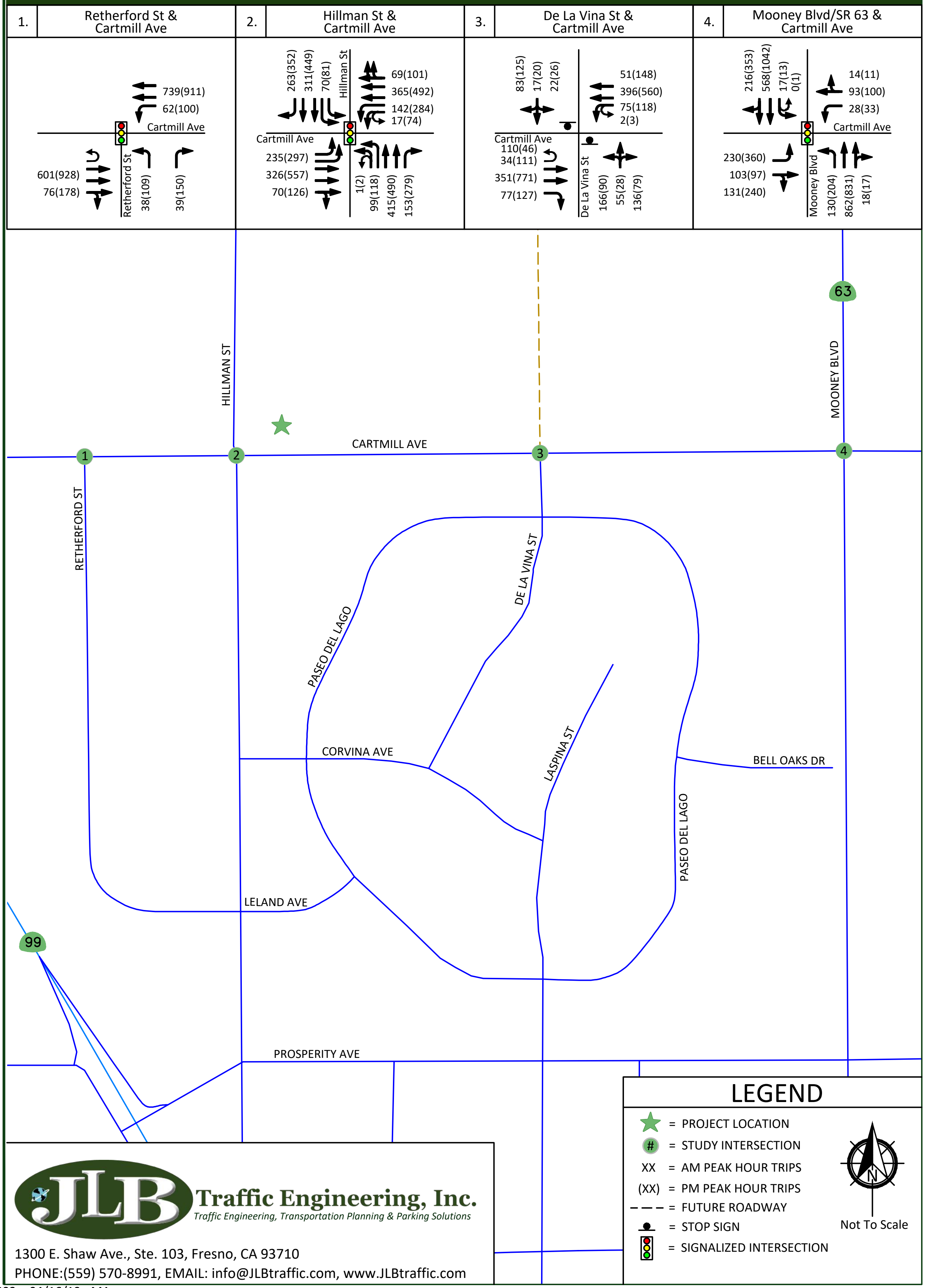
- Mooney Boulevard / Cartmill Avenue
  - Add a second eastbound left-turn lane;
  - Modify the eastbound through-right lane to a through lane;
  - Add an eastbound right-turn lane;
  - Modify the northbound through-right lane to a through lane;
  - Add a northbound right-turn lane;
  - Modify the southbound through-right lane to a through lane;
  - Add a third southbound through lane with a receiving lane south of Cartmill Avenue;
  - Add a southbound right-turn lane; and
  - Modify the traffic signals as needed to accommodate the modified lane geometrics.

Table X: Cumulative Year 2035 plus Project (Buildout) Intersection LOS Results

ID	Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Retherford Street / Cartmill Avenue	Signalized	8.1	A	10.1	B
2	Hillman Street / Cartmill Avenue	Signalized	23.6	C	31.3	C
3	De La Vina Street / Cartmill Avenue	Two-Way Stop	**>120.0**	**F**	**>120.0**	**F**
		Signalized (Mitigated)	26.4	C	24.3	C
4	Mooney Boulevard / Cartmill Avenue	Signalized	32.2	C	**105.3**	**F**
		Signalized (Mitigated)	32.6	C	32.2	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Altura Centers for Health - City of Tulare
Figure 12
Cumulative Year 2035 plus Project (Buildout) - Volumes, Geometrics and Controls



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037-003 - 04/16/19 - MA

Queuing Analysis

Table XI provides a queue length summary for left-turn and right-turn lanes for all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix D contains the methodologies used to evaluate these intersections.

Queuing analyses were completed using Sim Traffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). Per the Synchro manual, "the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes." The queues shown on Table XI are the 95th percentile queue lengths for the respective lane movements.

The Highway Design Manual (HDM) provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. Per the HDM criteria, "tapers for right-turn lanes are usually unnecessary since the main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane." Therefore, a bay taper length pursuant to the Caltrans HDM would need to be added, as necessary, to the recommended storage lengths presented below.

Based on the Synchro output files and traffic engineering judgement, it is recommended that the storage capacity for the following be considered for the Cumulative Year 2035 plus Project (Buildout) Traffic Conditions. At the remaining approaches to the study intersections, the existing capacity will be sufficient to accommodate the maximum queue.

- Hillman Street / Cartmill Avenue
    - The projected storage capacity of the eastbound dual left-turn lane is anticipated to exceed that available during the PM peak period in the Cumulative Year 2035 plus Project Traffic Conditions. While there are no constraints to increasing the storage capacity of this movement, it is recommended that this movement be monitored.
    - The projected storage capacity of the southbound right-turn lane is anticipated to exceed that available during the PM peak period in the Cumulative Year 2035 plus Project Traffic Conditions. While there are no constraints to increasing the storage capacity of this movement, it is recommended that this movement be monitored.
- De La Vina Street / Cartmill Avenue
    - The projected storage capacity of the eastbound left-turn lane is anticipated to exceed that available during the PM peak period in the Cumulative Year 2035 plus Project Traffic Conditions. While there are no constraints to increasing the storage capacity of this movement, it is recommended that this movement be monitored.
    - Consider setting the storage capacity of the northbound left-turn lane to 150 feet.
    - Consider setting the storage capacity of the southbound left-turn lane to 150 feet.

- Mooney Boulevard / Cartmill Avenue
  - Consider setting the storage capacity of the eastbound dual left-turn lanes to 200 feet.
  - Consider setting the storage capacity of the eastbound right-turn lane to 125 feet.
  - Consider setting the storage capacity of the northbound right-turn lane to 75 feet.
  - Consider setting the storage capacity of the southbound right-turn lane to 150 feet.

Table XI: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project (Phase I)		Existing plus Project (Buildout)	
				AM	PM	AM	PM	AM	PM
1	Retherford Street & Cartmill Avenue	EB Left	245	*	*	0	0	0	0
		WB Left	240	*	*	26	42	45	60
		NB Left	240	*	*	30	60	29	65
		NB Right	>500	*	*	7	36	18	33
2	Hillman Street & Cartmill Avenue	EB Dual Lefts	245	*	*	99	75	91	75
		WB Dual Lefts	240	*	*	31	45	44	81
		NB Left	250	138	112	*	*	*	*
		NB Dual Lefts	230	*	*	54	53	51	55
		NB Right	>500	39	38	34	35	45	50
		SB Left	340	65	71	*	*	*	*
		SB Dual Lefts	250	*	*	39	43	50	61
		SB Right	175	76	109	96	85	78	79
3	De La Vina Street & Cartmill Avenue	EB Left	250	*	*	29	10	46	23
		EB Right	>500	*	*	0	13	0	6
		WB Left	230	28	45	47	49	24	79
		NB Left	*	*	*	*	*	89	59
		NB Right	>500	*	*	*	*	52	46
		SB Left	*	*	*	*	*	*	*
4	Mooney Boulevard & Cartmill Avenue	EB Left	150	134	125	122	137	117	162
		EB Dual Lefts	*	*	*	*	*	*	*
		EB Right	*	*	*	*	*	*	*
		WB Left	150	44	42	39	51	54	37
		NB Left	480	61	40	79	48	72	40
		NB Right	*	*	*	*	*	*	*
		SB Left	480	46	27	32	42	36	27
		SB Right	*	*	*	*	*	*	*

Note: * = Does not exist or is not projected to exist

Table XI: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Near Term plus Project (Phase I)		Near Term plus Project (Buildout)		Cumulative Year 2035 plus Project (Buildout)	
				AM	PM	AM	PM	AM	PM
1	Retherford Street & Cartmill Avenue	EB Left	245	0	0	0	0	0	0
		WB Left	240	27	60	37	68	68	103
		NB Left	240	34	60	46	98	56	102
		NB Right	>500	12	35	27	48	37	66
2	Hillman Street & Cartmill Avenue	EB Dual Lefts	245	96	78	119	167	123	313
		WB Dual Lefts	240	60	67	85	401	82	227
		NB Left	250	*	*	*	*	*	*
		NB Dual Lefts	230	46	65	69	93	70	79
		NB Right	>500	45	52	80	106	61	105
		SB Left	340	*	*	*	*	*	*
		SB Dual Lefts	250	50	53	52	67	66	60
		SB Right	175	77	72	106	160	98	189
3	De La Vina Street & Cartmill Avenue	EB Left	250	23	11	109	68	136	388
		EB Right	>500	*	*	50	71	44	64
		WB Left	230	37	77	72	84	112	143
		NB Left	*	*	*	*	*	143	96
		NB Right	>500	*	*	*	*	*	*
		SB Left	*	*	*	*	*	55	41
4	Mooney Boulevard & Cartmill Avenue	EB Left	150	173	141	*	*	*	*
		EB Dual Lefts	*	*	*	101	162	109	179
		EB Right	*	*	*	47	84	71	113
		WB Left	150	46	41	37	39	50	53
		NB Left	480	92	88	132	242	203	198
		NB Right	*	*	*	9	10	15	17
		SB Left	480	28	26	43	36	45	31
		SB Right	*	*	*	79	135	110	134

Note: * = Does not exist or is not projected to exist

Project's Pro-Rata Fair Share of Future Transportation Improvements

The Project's equitable fair share percentage impacts to future improvements that are not fully funded by existing impact fee programs or grant funding are provided in Table XII. The Project's equitable fair share percentage impacts were calculated pursuant to the Caltrans guidelines for the Preparation of Traffic Impact Studies. The Project's pro-rata fair shares were calculated utilizing the Existing volumes, Project Only Trips (Buildout), and the Cumulative Year 2035 plus Project (Buildout) volumes. Figure 2 illustrates the Existing volumes, Figure 6 illustrates the Project Only Trips (Buildout), and Figure 12 illustrates the Cumulative Year 2035 plus Project (Buildout) traffic volumes. Since the critical peak period for the study facilities was determined to be during the PM peak, the PM peak volumes are utilized to determine the Project's pro-rata fair share.

It is recommended that the Project contribute its equitable fair share as listed in Table XII for the future improvements necessary to maintain an acceptable LOS or turn lane storage capacity. However, fair share contributions should only be made for those facilities, or portion thereof, currently not funded by the responsible agencies' roadway impact fee program(s) or grant funding, as appropriate. For those improvements not presently covered by local and regional roadway impact fee programs or grant funding, it is recommended that the Project contribute its equitable fair share. Payment of the Project's equitable fair share, in addition to the local and regional impact fee programs would satisfy the Project's traffic mitigation measures.

This study does not provide construction costs for the recommended mitigation measures; therefore, if the recommended mitigation measures are implemented, it is recommended that the developer work with the City of Tulare, and/or responsible agency, to develop the estimated construction costs.

Table XII: Project's Fair of Share of Future Roadway Improvements

ID	*Intersection*	*Existing Traffic Volumes (PM Peak)*	*Cumulative Year 2035 plus Project (Buildout) Traffic Volumes (PM Peak)*	*Project Only Trips (Buildout) (PM Peak)*	*Project's Fair Share (%)*
3	De La Vina Street / Cartmill Avenue	652	2,252	147	9.19
4	Mooney Boulevard / Cartmill Avenue	2,095	3,302	86	7.13

Note: Project Fair Share = ((Project Only Trips (Buildout)) / (Year 2035 + Project (Buildout) Traffic Volumes - Existing Traffic Volumes)) x 100

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are provided below.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project (Phase I) Traffic Conditions

- JLB analyzed the location of the proposed access points relative to the existing local roads and driveways in the Project's vicinity. A review of the Project driveways to be constructed under Phase I indicates that they are located at points that minimize traffic operational impacts to the existing roadway network.
- The proposed Project under Phase I is estimated to generate a maximum of 1,171 daily trips, 105 AM peak hour trips and 124 PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Existing plus Project (Buildout) Traffic Conditions

- JLB analyzed the location of the proposed access point relative to the existing local roads and driveways in the vicinity of the Project's vicinity. A review of the Project driveway to be constructed under Buildout indicates that it is located at a point that minimizes traffic operational impacts to the existing roadway network.
- The proposed Project under Buildout is estimated to generate a maximum of 2,656 daily trips, 223 AM peak hour trips and 271 PM peak hour trips.
- It is recommended that the Project retain the existing Class II bike lane along its frontage to Hillman Street.
- Under this scenario, the intersection of De La Vina Street and Cartmill Avenue is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that De La Vina Street be restriped to include the following improvements.
    - De La Vina Street / Cartmill Avenue
        - Reduce the width of the receiving southbound through lane on De La Vina Street to 11-feet;
        - Add a northbound left-turn lane with an 11-foot width; and
        - Modify the northbound left-right lane to a right-turn lane with an 11-foot width.

Near Term plus Project (Phase I) Traffic Conditions

- The total trip generation for the Near Term Projects is 3,628 daily trips, 275 AM peak hour trips, and 362 PM peak hour trips.
- Under this scenario, all study intersections are projected to operate an acceptable LOS during both peak periods.

Near Term plus Project (Buildout) Traffic Conditions

- The total trip generation for the Near Term Projects is 43,989 daily trips, 1,853 AM peak hour trips, and 4,294 PM peak hour trips.
- Under this scenario, the intersections of De La Vina Street and Cartmill Avenue and Mooney Boulevard and Cartmill Avenue are projected to exceed their LOS threshold during both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be implemented.
    - De La Vina Street / Cartmill Avenue
        - Signalize the intersection with protective left-turn phasing.
    - Mooney Boulevard / Cartmill Avenue
        - Add a second eastbound left-turn lane;
        - Modify the eastbound through-right lane to a through lane;
        - Add an eastbound right-turn lane;
        - Modify the northbound through-right lane to a through lane;
        - Add a northbound right-turn lane;
        - Modify the southbound through-right lane to a through lane;
        - Add a third southbound through lane with a receiving lane south of Cartmill Avenue;
        - Add a southbound right-turn lane; and
        - Modify the traffic signals as needed to accommodate the modified lane geometrics.

Cumulative Year 2035 plus Project (Buildout) Traffic Conditions

- Under this scenario, the intersections of De La Vina Street and Cartmill Avenue and Mooney Boulevard and Cartmill Avenue are projected to exceed their LOS threshold during one or both peak periods. To improve the LOS at these intersections, it is recommended that the following improvements be implemented.
    - De La Vina Street / Cartmill Avenue
        - Reduce the width of the receiving southbound through lane on De La Vina Street to 11-feet;
        - Add a northbound left-turn lane with an 11-foot width;
        - Modify the northbound left-right lane to a right-turn lane with an 11-foot width;
        - Add a southbound left-turn lane;
        - Modify the southbound left-through-right lane to a through-right lane; and
        - Signalize the intersection with protective left-turn phasing.
    - Mooney Boulevard / Cartmill Avenue
        - Add a second eastbound left-turn lane;
        - Modify the eastbound through-right lane to a through lane;
        - Add an eastbound right-turn lane;
        - Modify the northbound through-right lane to a through lane;
        - Add a northbound right-turn lane;
        - Modify the southbound through-right lane to a through lane;
        - Add a third southbound through lane with a receiving lane south of Cartmill Avenue;
        - Add a southbound right-turn lane; and
        - Modify the traffic signals as needed to accommodate the modified lane geometrics.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Project Equitable Fair Share Impact Analysis

- It is recommended that the Project contribute its equitable fair share as presented in Table XII.

Study Participants

JLB Traffic Engineering, Inc. Personnel:

Jose Luis Benavides, PE, TE	Project Manager
Susana Maciel, EIT	Engineering I/II
Matthew Arndt, EIT	Engineer I/II
Jove Alcazar	Engineer I/II
Javier Rios	Engineer I/II
Veronica Benavides	Clerical

Persons Consulted:

Michael W. Miller, PE	City of Tulare
Steven Sopp	City of Tulare
Mario A. Anaya	City of Tulare
Hector Guerra	County of Tulare
David Deel	Caltrans District 6
Dawn Wells	Altura Centers for Health

References

1. *Trip Generation,* 10th Edition, Washington D.C., Institute of Transportation Engineers, 2017
2. City of Tulare, *2035 General Plan*
3. *County of Tulare, 2030 General Plan*
4. *2014 California Manual on Uniform Traffic Control Devices*, Caltrans, November 7, 2014
5. Guide for the Preparation of Traffic Impact Studies, Caltrans, dated December 2002.
6. Transportation Concept Report, State Route 63, Caltrans, District 06, dated December 2014.

Appendix A: Scope of Work

July 6, 2018

Michael W. Miller, PE
City Engineer
City of Tulare
411 East Kern Avenue
Tulare, CA 93274

Via E-mail Only: mmiller@tulare.ca.gov

Subject: Draft Scope of Work for the Preparation of a Traffic Impact Analysis in Support of the Altura Centers for Health at the Northeast Corner of Cartmill Avenue and Hillman Street in the City of Tulare (JLB Project 037-003)

Dear Mr. Miller,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis (TIA) for the Project described below. The Project proposes to develop 10.01 gross acres with five (5) Building Medical Complex to be constructed in three (3) phases. Phase 1 consists of two new single story medical office buildings and one new single-story administration office building (building 1: 14,886 s.f.; building 2: 14,836 s.f. building 4: 12,160 s.f.). Phase 2 consists of one new single story dental building (building 3: +/- 12,672 s.f.). Phase 3 consists of one new two story medical office building (building 5: +/- 30,000 s.f.). Based on information provided to JLB, the Project is consistent with the City of Tulare General Plan.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process. To evaluate the on- and off-site traffic impacts of the proposed Project, JLB proposes the following Draft Scope of Work.

Scope of Work

- Request from the Tulare County Association of Governments (Tulare CAG) traffic forecast model runs for the Base Year 2018 and Cumulative Year 2035 scenarios. Based on these two model networks, the annual growth rate in traffic will be calculated and this growth rate will be subsequently utilized to expand existing traffic volumes for each of the future year scenarios.
- JLB will obtain recent or schedule and conduct new traffic counts at the study facility(ies) as necessary. Should recent historical counts not be readily available, JLB proposes to collect counts during the summer months and subsequently expand these by a factor to reflect additional traffic volumes associated with school related traffic.
- JLB will coordinate with the City of Tulare staff to determine the appropriate expansion factor to be utilized.

- JLB will perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions including intersection geometrics and traffic controls will be verified.
- JLB will qualitatively analyze existing and planned transit routes in the vicinity of the Project.
- JLB will qualitatively analyze existing and planned bikeways in the vicinity of the Project.
- JLB will forecast trip distribution based on turn count information and knowledge of the existing and planned circulation network in the vicinity of the Project.
- JLB will evaluate existing and forecasted levels of service (LOS) at the study intersection(s). JLB will use HCM 2010 methodologies within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.
- JLB will evaluate on-site circulation and provide recommendations as necessary to improve circulation to and within the Project site.
- JLB will prepare California Manual on Uniform Traffic Control Devices (CA MUTCD) peak hour signal warrants for unsignalized study intersections.

Study Scenarios:

1. Existing Traffic Conditions with proposed improvement measures (if any)
2. Existing plus Project Buildout Traffic Conditions with proposed mitigation measures (if any)
3. Near Term (include pending and approved projects) plus Project Traffic Conditions with proposed mitigation measures (if any)
4. Cumulative Year 2035 plus Project Traffic Conditions with proposed mitigation measures (if any)

Weekday peak hours to be analyzed:

1. 7 - 9 AM peak hour
2. 4 - 6 PM peak hour

Study Intersections:

1. Cartmill Avenue / Retherford Street
2. Cartmill Avenue / Hillman Street
3. Cartmill Avenue / De La Vina Street

Queuing analysis is included in the proposed scope of work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left- and right-turn lanes at all study intersections.

Study Segments:

1. None

Project Only Trip Assignment to State Facilities:

1. SR 63 at Cartmill Avenue intersection

Project Only Trip Generation

Table I presents the trip generation for the proposed Project pursuant to the 10th Edition of the Trip Generation Manual with trip generation rates for Medical-Dental Office Building. At build-out, the Project is estimated to generate a maximum of 2,942 daily trips, 235 AM peak hour trips and 293 PM peak hour trips.

Table I: Project Only Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	84.554	k.s.f.	34.8	2,942	2.78	78	22	183	52	235	3.46	28	72	82	211	293
Total Project Trips				**2,942**				**183**	**52**	**235**				**82**	**211**	**293**

Note: k.s.f = kilo-Square Feet

Access to the Project

The Project proposes to add access to and from the Project site from four (4) points. The Project proposes two access points to the south to Cartmill Avenue and two access points to a future local street to the east end of the project. Additional Project details are found in Exhibit B.

Near Term Projects to be Included

JLB is unaware of other projects in the vicinity of the proposed Project that have the ability to impact traffic operations in the Near Term and Cumulative Year 2035 scenarios. However, JLB will include in the Near Term and Cumulative Year 2035 scenarios near term projects provided to us by other responsible agencies. These would include near term projects that the City of Tulare, County of Tulare or Caltrans has knowledge of and for which it is anticipated that said project(s) is/are projected to be whole or partially built by the near term project year 2022, and for which the City of Tulare, County of Tulare or Caltrans, as appropriate, provides JLB with near term project details. Near term project details include project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

The above scope of work is based on our understanding of this Project and our experience with similar Traffic Impact Analysis Projects. In the absence of comments by July 27, 2018, it will be assumed that the above scope of work is acceptable to the agency(ies) that have not submitted any comments to the proposed TIA Scope of Work.

If you have any questions or require additional information, please contact me by phone at (559) 570-8991 or by e-mail at amiao@JLBtraffic.com.

Sincerely,

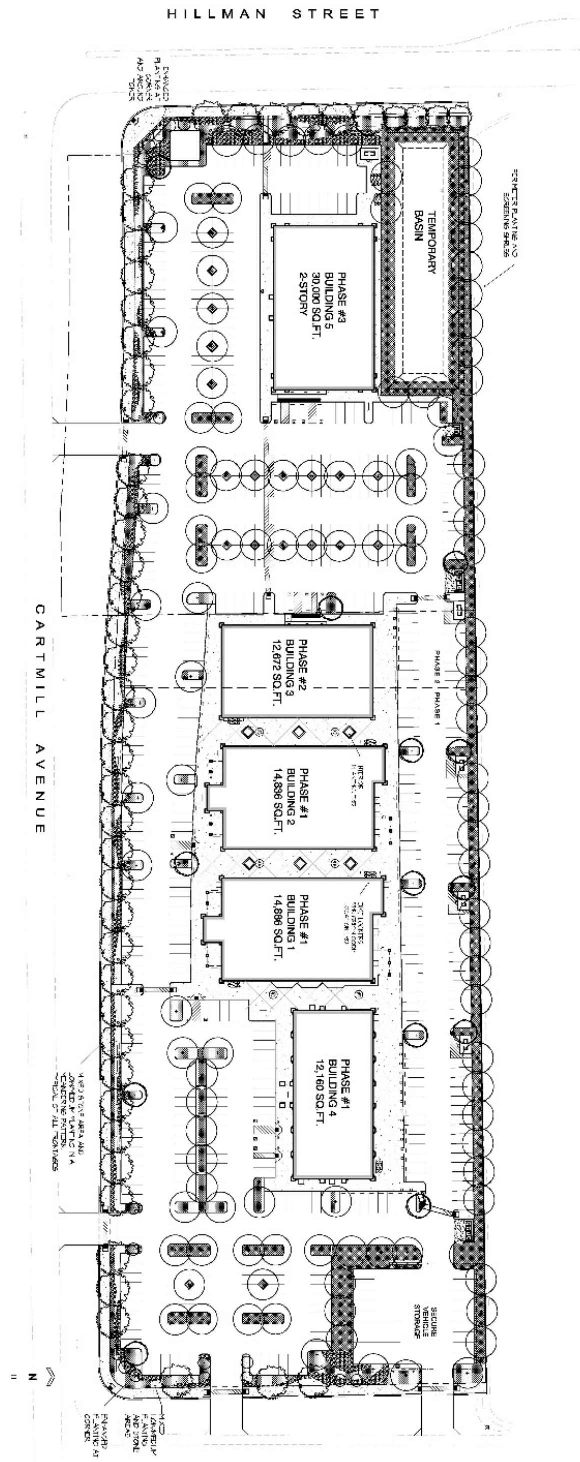
Alan Miao, EIT
Engineer I/II

cc: Hector Guerra, County of Tulare
David Deel, Caltrans District 6
Jose Luis Benavides, JLB Traffic Engineering, Inc.

Z:\01 Projects\037 Tulare\037-003 Altura Health TIA\DSOW\L07032018 Draft Scope of Work.docx

Exhibt A – Aerial

Exhibt B – Site Plan



Jose Benavides

From: Deel, David@DOT <david.deel@dot.ca.gov>
Sent: Tuesday, July 24, 2018 11:58 AM
To: Alan Miao; Michael Miller
Cc: Jose Benavides; HGuerra@co.tulare.ca.us; Thanas, Ilda@DOT; Navarro, Michael@DOT
Subject: RE: Altura Centers for Health Draft Scope of Work

Michael & Alan –

Caltrans has completed review of the TIS Scope of work and provides the following comments:

The Project proposes to develop approximately 10 acres with five medical complex buildings to be constructed in three phases.
Phase 1 consists of two (2) single-story *medical* buildings (14,886 square-feet (sf) and 14,836 sf) and one (1) single-story *administration* office building (12,160 sf).
Phase 2 consists of one (1) single-story *dental* building (12,672 sf).
Phase 3 consists of one (1) two-story *medical* office building (30,000 sf).
The Project is located on the northeast corner of Cartmill Avenue and Hillman Street, in the City of Tulare; approximately 4000 feet east of the State Route (SR) 99 /Cartmill Avenue Interchange (IC) and 1 mile west of the SR 63 /Cartmill Avenue intersection.

The scope of work, prepared by JLB Traffic Engineering, Inc., appears to be satisfactory.
The scope indicated that "project only trip assignment to State facilities" would be done at SR 63 and Cartmill Avenue intersection
However, our office recommends that a full level-of-service (LOS) analysis and queuing analysis should be performed for the SR 63/Cartmill Avenue intersection.
The interchange at SR 99 and Cartmill Avenue was recently reconstructed to accommodate the projected traffic demand and to improve the safety and operations of the interchange.

Our office is aware of Willow Glen subdivision project and Kensington Estate project, located on the northwest corner of the SR 63/Cartmill Avenue intersection.
Kensington Estates had planned for an increase of 72 lots for the area that was previously for 63 lots under Willow Glenn subdivision project.
These two projects located in the vicinity of the proposed Altura Centers for Health will have the ability to impact traffic operations in the Near Term and Cumulative Year 2035 scenarios of the analysis.
Therefore, the traffic expected to be generated by them should be included in the analysis.
The City and County of Tulare should be consulted regarding additional projects that would impact the Near Term and Cumulative Year 2035 analyses.

If you have further questions, please contact me.

DAVID DEEL | Associate Transportation Planner
Desk: 559.488.7396

Office of Planning & Local Assistance – North Section
IGR & Transit Representative – Tulare County
Training Coordinator – Planning Unit

CALTRANS – District 6
1352 W. Olive Avenue (P.O. Box 12616)
Fresno, CA 93778-2616

Caltrans Mission: Provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability.
Caltrans Vision: A performance-driven, transparent, and accountable organization that values its people, resources and partners, and meets new challenges through leadership, innovation, and teamwork.

From: Alan Miao [mailto:amiao@jlbtraffic.com]
Sent: Friday, July 06, 2018 1:48 PM
To: Michael Miller <mmiller@tulare.ca.gov>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; HGuerra@co.tulare.ca.us; Deel, David@DOT <david.deel@dot.ca.gov>
Subject: Altura Centers for Health Draft Scope of Work

Good afternoon,

Attached you will find the Draft Scope of Work for the Altura Centers for Health. Please carefully review and send your comments to me.
In the absence of comments by July 27, 2018, it will be assumed that the Scope of Work is acceptable to the agency(ies) that have not submitted comments. Thank you.

Sincerely,

Alan Miao, EIT
Engineer I/II

JLB Traffic Engineering Inc.
1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Office: (559) 570-8991
www.JLBtraffic.com

Jose Benavides

From: Hector Guerra <HGuerra@co.tulare.ca.us>
Sent: Tuesday, July 31, 2018 11:38 AM
To: Jose Benavides; Michael Miller
Cc: Alan Miao
Subject: RE: Altura Centers for Health Draft Scope of Work

The County has no comments regarding the Scope of Work for the above noted project.

>>> "Jose Benavides" <jbenavides@jlbtraffic.com> 7/31/2018 9:16 AM
>>>
Good Morning Michael and Hector,

We are following up with the both of you to inquire if your agency has any comments to the attached draft scope of work for the preparation of a TIA which was previously provided to you on July 6?

Since then, Caltrans has provided comments to the draft scope of work.
Caltrans provided input on two near term projects and also requested that we analyze the intersection of SR 63 and Cartmill.

If additional time is needed or if your agency finds the proposed draft scope of work acceptable as presented let us know as well.

Thank you for your time and feedback.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

[cid:image001.png@01D428AF.25F3F5C0]
Traffic Engineering, Transportation Planning and Parking Solutions Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Office: (559) 570-8991
Cell: (559) 694-6000
www.JLBtraffic.com<https://urldefense.proofpoint.com/v2/url?u=http-3A__www.jlbtraffic.com_&d=DwIFAg&c=LlH32oy6OBtmot7tcUOx1EUIJYTUxwihlBYC0z2BYZI&r=1WHtYLc0_7PCM87OJlia18ttu1KXtfBnui-D4wkj21I&m=29yA-nlTKJnvFfnYr3D26xOq1l8sgsuO0npyJ0kEVXM&s=35mLeWY_zCazGR8lI-I4sYhvjePsVaI6Gl7e_Vogx7k&e=>

From: Alan Miao
Sent: Friday, July 6, 2018 1:48 PM
To: Michael Miller <mmiller@tulare.ca.gov>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; HGuerra@co.tulare.ca.us; david.deel@dot.ca.gov
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www.JLBtraffic.com<https://urldefense.proofpoint.com/v2/url?u=http-3A__www.JLBtraffic.com&d=DwIFAg&c=LlH32oy6OBtmot7tcUOx1EUIJYTUxwihlBYC0z2BYZI&r=1WHtYLc0_7PCM87OJlia18ttu1KXtfBnui-D4wkj21I&m=29yA-nlTKJnvFfnYr3D26xOq1l8sgsuO0npyJ0kEVXM&s=kqSGFwq18g5_z3VXeylzH43RpBBQXkKmbdXTOUR0tv8&e=>

Jose Benavides

From: Michael Miller <mmiller@tulare.ca.gov>
Sent: Tuesday, July 31, 2018 2:05 PM
To: Jose Benavides; HGuerra@co.tulare.ca.us
Cc: Alan Miao
Subject: RE: Altura Centers for Health Draft Scope of Work

Jose and Alan,

The Draft Scope of Work looks good to me.

Sincerely,

Michael W. Miller | City of Tulare
City Engineer
O: 559-684-4207
F: 559-685-5631
City of Tulare
411 East Kern
Tulare, CA 93274
mmiller@tulare.ca.gov

From: Jose Benavides [mailto:jbenavides@jlbtraffic.com]
Sent: Tuesday, July 31, 2018 9:16 AM
To: Michael Miller <mmiller@tulare.ca.gov>; HGuerra@co.tulare.ca.us
Cc: Alan Miao <amiao@jlbtraffic.com>
Subject: RE: Altura Centers for Health Draft Scope of Work

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President

JLB Traffic Engineering, Inc.

Traffic Engineering, Transportation Planning and Parking Solutions
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Sincerely,

Alan Miao, EIT
Engineer I/II

JLB Traffic Engineering Inc.
1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Office: (559) 570-8991
www.JLBtraffic.com

Appendix B: Traffic Counts

Prepared by National Data & Surveying Services

Retherford St & Cartmill Ave

Peak Hour Turning Movement Count

ID: 18-02088-001
City: TULARE

Day: Tuesday
Date: 08/14/2018

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Retherford St — SOUTHBOUND

					Exit
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
Lanes	0	0	0	0	

Cartmill Ave — EASTBOUND

	AM	NOON	PM	Lanes
Exit	517	0	491	
U-turn	1	0	0	0
Left	0	0	0	0
Through	414	0	381	1
Right	54	0	149	0

Cartmill Ave — WESTBOUND

	PM	NOON	AM	Lanes
U-turn	0	0	0	0
Through	403	0	500	1
Right	34	0	13	0
	0	0	0	0
Exit	412	0	415	

Retherford St — NORTHBOUND

	Exit	U-turn	Left	Through	Right
Lanes		0	0	1	0
PM	183	0	88	0	31
NOON	0	0	0	0	0
AM	67	0	16	0	1

CONTROL

1-Way Stop(NB)

	AM	NOON	PM
TEV	999	0	1086
PHF	0.85		0.94

Total Vehicles (AM)

- Southbound: 0, 0, 0
- Eastbound: 0, 414, 54
- Westbound: 0, 500, 13
- Northbound: 16, 0, 1

Total Vehicles (Noon)

- Southbound: N/A, N/A, N/A
- Eastbound: N/A, N/A, N/A
- Westbound: N/A, N/A, N/A
- Northbound: N/A, N/A, N/A

Total Vehicles (PM)

- Southbound: 0, 0, 0
- Eastbound: 0, 381, 149
- Westbound: 0, 403, 34
- Northbound: 88, 0, 31

Bikes (AM)

- Southbound: 0, 0, 0
- Eastbound: 0, 0, 0
- Westbound: 0, 0, 0
- Northbound: 0, 0, 0

Bikes (NOON)

- Southbound: N/A, N/A, N/A
- Eastbound: N/A, N/A, N/A
- Westbound: N/A, N/A, N/A
- Northbound: N/A, N/A, N/A

Bikes (PM)

- Southbound: 0, 0, 0
- Eastbound: 0, 1, 0
- Westbound: 0, 1, 0
- Northbound: 0, 0, 0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg (westward)	0	0	0
North leg (eastward)	0	0	0
West leg (southward)	0	0	0
West leg (northward)	0	0	0
East leg (southward)	0	0	0
East leg (northward)	0	0	0
South leg (eastward)	0	0	0
South leg (westward)	0	0	0
NW corner (diagonal)	0	0	0
NE corner (diagonal)	0	0	0
SW corner (diagonal)	0	0	0
SE corner (diagonal)	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Retherford St & Cartmill Ave
City: TULARE
Control: 1-Way Stop(NB)

Project ID: 18-02088-001
Date: 8/14/2018

Total

NS/EW Streets:	Retherford St				Retherford St				Cartmill Ave				Cartmill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	0	0	0	0	0	0	0	56	11	0	2	66	0	0	137
7:15 AM	1	0	0	0	0	0	0	0	0	74	2	1	0	103	0	0	181
7:30 AM	9	0	0	0	0	0	0	0	0	118	9	0	1	140	0	0	277
7:45 AM	1	0	1	0	0	0	0	0	0	131	20	0	8	132	0	0	293
8:00 AM	5	0	0	0	0	0	0	0	0	91	23	0	4	125	0	0	248
8:15 AM	9	0	0	0	0	0	0	0	0	85	13	0	1	72	0	0	180
8:30 AM	4	0	1	0	0	0	0	0	0	83	13	0	1	59	0	0	161
8:45 AM	4	0	0	0	0	0	0	0	0	67	14	0	1	46	0	0	132
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	0	2	0	0	0	0	0	0	705	105	1	18	743	0	0	1609
APPROACH %'s :	94.59%	0.00%	5.41%	0.00%					0.00%	86.93%	12.95%	0.12%	2.37%	97.63%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	16	0	1	0	0	0	0	0	0	414	54	1	13	500	0	0	999
PEAK HR FACTOR :	0.444	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.790	0.587	0.250	0.406	0.893	0.000	0.000	0.852
	0.472								0.776				0.910				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	22	0	10	0	0	0	0	0	0	89	26	0	6	86	0	0	239
4:15 PM	25	0	8	0	0	0	0	0	0	83	31	0	11	72	0	0	230
4:30 PM	22	0	4	0	0	0	0	0	0	95	33	0	9	75	0	0	238
4:45 PM	15	0	6	0	0	0	0	0	0	98	39	0	9	82	0	0	249
5:00 PM	23	0	11	0	0	0	0	0	0	102	40	0	8	97	0	0	281
5:15 PM	22	0	8	0	0	0	0	0	0	83	40	0	8	127	0	0	288
5:30 PM	28	0	6	0	0	0	0	0	0	98	30	0	9	97	0	0	268
5:45 PM	16	0	8	0	0	0	0	0	0	90	29	0	12	90	0	0	245
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	173	0	61	0	0	0	0	0	0	738	268	0	72	726	0	0	2038
APPROACH %'s :	73.93%	0.00%	26.07%	0.00%					0.00%	73.36%	26.64%	0.00%	9.02%	90.98%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	88	0	31	0	0	0	0	0	0	381	149	0	34	403	0	0	1086
PEAK HR FACTOR :	0.786	0.000	0.705	0.000	0.000	0.000	0.000	0.000	0.000	0.934	0.931	0.000	0.944	0.793	0.000	0.000	0.943
	0.875								0.933				0.809				

Prepared by National Data & Surveying Services

Hillman St & Cartmill Ave

Peak Hour Turning Movement Count

ID: 18-02088-002
City: TULARE

Day: Tuesday
Date: 08/14/2018

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Hillman St — SOUTHBOUND

	Right	Through	Left	U-Turn	Out
AM	199	260	33	0	588
NOON	0	0	0	0	0
PM	212	341	47	0	560
Lanes	1	2	1	0	

Cartmill Ave — EASTBOUND

	Lanes	AM	NOON	PM
Out		474	0	435
U-Turn	0	0	0	0
Left	0	189	0	143
Through	1	184	0	204
Right	0	57	0	71

Cartmill Ave — WESTBOUND

	Lanes	PM	NOON	AM
Right	0	20	0	52
Through	1	146	0	207
Left	0	24	0	24
U-Turn	0	0	0	0
Out		288	0	241

Hillman St — NORTHBOUND

	Out	U-Turn	Left	Through	Right
Lanes		0	1	2	1
PM	438	2	77	397	37
NOON	0	0	0	0	0
AM	342	1	68	347	24

CONTROL

Signalized

	AM	NOON	PM
TEV	1645	0	1721
PHF	0.86		0.94

Total Vehicles (AM)

Approach	Right	Through	Left
Southbound	199	260	33
Eastbound	57	184	189
Westbound	52	207	24
Northbound	24	347	68

Total Vehicles (Noon)

Approach	Right	Through	Left
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Right	Through	Left
Southbound	212	341	47
Eastbound	71	204	143
Westbound	20	146	24
Northbound	37	397	77

Bikes (AM)

Approach	Right	Through	Left
Southbound	0	2	0
Eastbound	0	0	0
Westbound	0	1	0
Northbound	0	0	0

Bikes (NOON)

Approach	Right	Through	Left
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

Approach	Right	Through	Left
Southbound	1	0	0
Eastbound	0	0	1
Westbound	0	1	0
Northbound	0	0	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North	0	0	0
South	0	0	0
East	0	0	0
West	0	0	0
Diagonals	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Hillman St & Cartmill Ave
City: TULARE
Control: Signalized

Project ID: 18-02088-002
Date: 8/14/2018

Total

NS/EW Streets:	Hillman St				Hillman St				Cartmill Ave				Cartmill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	15	44	2	0	7	47	28	0	23	26	8	0	4	30	4	0	238
7:15 AM	10	60	4	0	7	51	38	0	34	33	5	0	1	54	5	0	302
7:30 AM	23	80	8	1	14	57	52	0	49	50	12	0	3	63	9	0	421
7:45 AM	15	98	5	0	9	77	60	0	65	50	9	0	8	66	18	0	480
8:00 AM	21	93	5	0	4	73	57	0	41	50	16	0	9	51	15	0	435
8:15 AM	9	76	6	0	6	53	30	0	34	34	20	0	4	27	10	0	309
8:30 AM	11	73	2	0	5	43	28	0	41	29	13	0	5	23	12	0	285
8:45 AM	10	56	1	0	3	44	21	0	28	27	11	0	1	17	5	0	224
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	114	580	33	1	55	445	314	0	315	299	94	0	35	331	78	0	2694
APPROACH %'s :	15.66%	79.67%	4.53%	0.14%	6.76%	54.67%	38.57%	0.00%	44.49%	42.23%	13.28%	0.00%	7.88%	74.55%	17.57%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	68	347	24	1	33	260	199	0	189	184	57	0	24	207	52	0	1645
PEAK HR FACTOR :	0.739	0.885	0.750	0.250	0.589	0.844	0.829	0.000	0.727	0.920	0.713	0.000	0.667	0.784	0.722	0.000	0.857
		0.924				0.842				0.867				0.769			

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	2	1	0	1	2	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	14	88	16	0	10	77	44	0	39	49	16	0	10	36	7	0	406
4:15 PM	13	79	9	1	9	77	43	0	35	39	15	0	12	23	4	0	359
4:30 PM	14	98	10	0	6	82	46	0	35	50	16	0	11	28	6	0	402
4:45 PM	16	88	6	0	10	74	36	0	28	48	24	0	9	36	3	0	378
5:00 PM	22	118	15	1	19	79	50	0	40	55	20	0	2	33	4	0	458
5:15 PM	25	97	6	1	13	81	61	0	33	55	11	0	7	44	3	0	437
5:30 PM	14	94	10	0	5	107	65	0	42	46	16	0	6	33	10	0	448
5:45 PM	22	77	9	0	12	69	41	1	34	45	17	0	3	35	5	0	370
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	140	739	81	3	84	646	386	1	286	387	135	0	60	268	42	0	3258
APPROACH %'s :	14.54%	76.74%	8.41%	0.31%	7.52%	57.83%	34.56%	0.09%	35.40%	47.90%	16.71%	0.00%	16.22%	72.43%	11.35%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	77	397	37	2	47	341	212	0	143	204	71	0	24	146	20	0	1721
PEAK HR FACTOR :	0.770	0.841	0.617	0.500	0.618	0.797	0.815	0.000	0.851	0.927	0.740	0.000	0.667	0.830	0.500	0.000	0.939
		0.822				0.847				0.909				0.880			

Prepared by National Data & Surveying Services

De La Vina St & Cartmill Ave

Peak Hour Turning Movement Count

ID: 18-02088-003
City: TULARE

Day: Tuesday
Date: 08/14/2018

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

De La Vina St — SOUTHBOUND

	Right	Through	Left	U-Turn	Departure
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
Lanes	0	0	0	0	

Cartmill Ave — EASTBOUND

	AM	NOON	PM	Lanes
Departure	304	0	187	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	171	0	194	2
Right	64	0	106	0

Cartmill Ave — WESTBOUND

	PM	NOON	AM	Lanes
Right	0	0	0	0
Through	139	0	165	1
Left	99	0	63	1
U-Turn	3	0	2	0
Departure	260	0	287	

De La Vina St — NORTHBOUND

	Departure	U-Turn	Left	Through	Right
Lanes		0	0	1	0
PM	205	0	48	0	63
NOON	0	0	0	0	0
AM	127	0	139	0	114

CONTROL

1-Way Stop(NB)

	AM	NOON	PM
TEV	718	0	652
PHF	0.83		0.88

Total Vehicles (AM)

SB: 0 0 0; EB: 0, 171, 64; WB: 0, 165, 63; NB: 139, 0, 114

Total Vehicles (Noon)

SB: N/A N/A N/A; EB: N/A, N/A, N/A; WB: N/A, N/A, N/A; NB: N/A, N/A, N/A

Total Vehicles (PM)

SB: 0 0 0; EB: 0, 194, 106; WB: 0, 139, 99; NB: 48, 0, 63

Bikes (AM)

SB: 0 0 0; EB: 0, 0, 0; WB: 0, 0, 0; NB: 0 0 0

Bikes (NOON)

SB: N/A N/A N/A; EB: N/A, N/A, N/A; WB: N/A, N/A, N/A; NB: N/A N/A N/A

Bikes (PM)

SB: 0 0 0; EB: 0, 0, 0; WB: 0, 1, 1; NB: 0 0 0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
North leg	0	0	0
West leg	0	0	0
West leg	0	0	0
East leg	0	0	0
East leg	0	0	0
South leg	0	0	0
South leg	0	0	0
Diagonals (each corner)	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: De La Vina St & Cartmill Ave
City: TULARE
Control: 1-Way Stop(NB)

Project ID: 18-02088-003
Date: 8/14/2018

Total

NS/EW Streets:	De La Vina St				De La Vina St				Cartmill Ave				Cartmill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	14	0	22	0	0	0	0	0	0	28	9	0	3	29	0	0	105
7:15 AM	35	0	23	0	0	0	0	0	0	32	12	0	8	25	0	0	135
7:30 AM	49	0	39	0	0	0	0	0	0	54	9	0	20	28	0	0	199
7:45 AM	35	0	39	0	0	0	0	0	0	48	22	0	18	51	0	2	215
8:00 AM	20	0	13	0	0	0	0	0	0	37	21	0	17	61	0	0	169
8:15 AM	9	0	19	0	0	0	0	0	0	35	10	0	7	25	0	0	105
8:30 AM	15	0	17	0	0	0	0	0	0	31	6	0	6	23	0	1	99
8:45 AM	8	0	19	0	0	0	0	0	0	24	8	0	5	15	0	1	80
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	185	0	191	0	0	0	0	0	0	289	97	0	84	257	0	4	1107
APPROACH %'s :	49.20%	0.00%	50.80%	0.00%					0.00%	74.87%	25.13%	0.00%	24.35%	74.49%	0.00%	1.16%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	139	0	114	0	0	0	0	0	0	171	64	0	63	165	0	2	718
PEAK HR FACTOR :	0.709	0.000	0.731	0.000	0.000	0.000	0.000	0.000	0.000	0.792	0.727	0.000	0.788	0.676	0.000	0.250	0.835
	0.719								0.839				0.737				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	0	13	0	0	0	0	0	0	49	23	0	18	49	0	3	159
4:15 PM	7	0	11	0	0	0	0	0	0	43	16	0	27	33	0	0	137
4:30 PM	11	0	16	0	0	0	0	0	0	46	19	0	25	32	0	0	149
4:45 PM	11	0	13	0	0	0	0	0	0	47	25	0	27	39	0	1	163
5:00 PM	12	0	15	0	0	0	0	0	0	52	29	0	19	27	0	1	155
5:15 PM	14	0	19	0	0	0	0	0	0	49	33	0	28	41	0	1	185
5:30 PM	17	0	15	0	0	0	0	0	0	36	17	0	15	32	0	1	133
5:45 PM	15	0	14	0	0	0	0	0	0	46	26	0	18	25	0	0	144
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	91	0	116	0	0	0	0	0	0	368	188	0	177	278	0	7	1225
APPROACH %'s :	43.96%	0.00%	56.04%	0.00%					0.00%	66.19%	33.81%	0.00%	38.31%	60.17%	0.00%	1.52%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	48	0	63	0	0	0	0	0	0	194	106	0	99	139	0	3	652
PEAK HR FACTOR :	0.857	0.000	0.829	0.000	0.000	0.000	0.000	0.000	0.000	0.933	0.803	0.000	0.884	0.848	0.000	0.750	0.881
	0.841								0.915				0.861				

Prepared by National Data & Surveying Services

Mooney Blvd & Cartmill Ave

Peak Hour Turning Movement Count

ID: 18-02088-004
City: TULARE

Day: Tuesday
Date: 08/14/2018

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Mooney Blvd — SOUTHBOUND

	Right	Through	Left	U-Turn	Departing
AM	101	475	14	0	880
NOON	0	0	0	0	0
PM	156	871	11	1	833
Lanes	0	2	1	0	

Cartmill Ave — EASTBOUND

	Lanes	AM	NOON	PM
Departing		225	0	231
U-Turn	0	0	0	0
Left	1	147	0	131
Through	1	86	0	65
Right	0	56	0	51

Cartmill Ave — WESTBOUND

	Lanes	PM	NOON	AM
Right	0	6	0	12
Through	1	54	0	78
Left	1	19	0	23
U-Turn	0	0	0	0
Departing		90	0	115

Mooney Blvd — NORTHBOUND

	Departing	U-Turn	Left	Through	Right
Lanes		0	1	2	0
PM	941	0	21	695	14
NOON	0	0	0	0	0
AM	554	0	46	721	15

CONTROL

Signalized

	AM	NOON	PM
TEV	1774	0	2095
PHF	0.80		0.90

Total Vehicles (AM)

Approach	Left	Through	Right
Southbound	14	475	101
Eastbound	147	86	56
Westbound	23	78	12
Northbound	46	721	15

Total Vehicles (Noon)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Through	Right
Southbound	11	871	156
Eastbound	131	65	51
Westbound	19	54	6
Northbound	21	695	14

Bikes (AM)

Approach	Left	Through	Right
Southbound	0	0	1
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

Bikes (NOON)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

Approach	Left	Through	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	1
Northbound	1	0	0

Pedestrians (Crosswalks)

Crosswalk / Direction	AM	NOON	PM
North crosswalk (eastbound)	0	0	0
North crosswalk (westbound)	0	0	0
West crosswalk (southbound)	1	0	0
West crosswalk (northbound)	0	0	0
East crosswalk (southbound)	0	0	0
East crosswalk (northbound)	0	0	0
South crosswalk (eastbound)	0	0	0
South crosswalk (westbound)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mooney Blvd & Cartmill Ave
City: TULARE
Control: Signalized

Project ID: 18-02088-004
Date: 8/14/2018

Total

NS/EW Streets:	Mooney Blvd				Mooney Blvd				Cartmill Ave				Cartmill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	123	1	0	5	90	15	0	20	18	7	0	3	12	2	0	302
7:15 AM	7	157	5	0	2	84	16	0	24	15	13	0	4	9	4	0	340
7:30 AM	5	192	5	0	1	116	24	0	31	30	19	0	5	18	2	0	448
7:45 AM	11	222	4	0	6	145	26	0	53	27	19	0	6	32	5	0	556
8:00 AM	25	137	5	0	5	125	37	0	28	20	7	0	5	15	5	0	414
8:15 AM	5	170	1	0	2	89	14	0	35	9	11	0	7	13	0	0	356
8:30 AM	7	145	1	0	1	79	11	0	31	7	8	0	2	11	0	0	303
8:45 AM	8	106	6	0	0	80	8	0	25	12	7	0	0	6	0	0	258
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	74	1252	28	0	22	808	151	0	247	138	91	0	32	116	18	0	2977
APPROACH %'s :	5.47%	92.47%	2.07%	0.00%	2.24%	82.36%	15.39%	0.00%	51.89%	28.99%	19.12%	0.00%	19.28%	69.88%	10.84%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	46	721	15	0	14	475	101	0	147	86	56	0	23	78	12	0	1774
PEAK HR FACTOR :	0.460	0.812	0.750	0.000	0.583	0.819	0.682	0.000	0.693	0.717	0.737	0.000	0.821	0.609	0.600	0.000	0.798
	0.825				0.833				0.730				0.657				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	10	144	4	0	1	186	43	0	33	19	10	0	6	13	0	0	469
4:15 PM	9	176	4	0	1	179	37	0	33	14	13	0	2	14	3	0	485
4:30 PM	3	159	2	0	2	189	39	0	33	14	14	0	1	15	3	0	474
4:45 PM	5	159	4	0	2	195	48	1	32	14	10	0	6	11	1	0	488
5:00 PM	3	192	5	0	4	212	32	0	34	18	15	0	5	16	2	0	538
5:15 PM	10	179	5	0	2	259	42	0	35	19	13	0	3	16	1	0	584
5:30 PM	3	165	0	0	3	205	34	0	30	14	13	0	5	11	2	0	485
5:45 PM	9	177	4	0	2	188	22	0	35	9	16	0	1	12	2	0	477
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	52	1351	28	0	17	1613	297	1	265	121	104	0	29	108	14	0	4000
APPROACH %'s :	3.63%	94.41%	1.96%	0.00%	0.88%	83.66%	15.40%	0.05%	54.08%	24.69%	21.22%	0.00%	19.21%	71.52%	9.27%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	21	695	14	0	11	871	156	1	131	65	51	0	19	54	6	0	2095
PEAK HR FACTOR :	0.525	0.905	0.700	0.000	0.688	0.841	0.813	0.250	0.936	0.855	0.850	0.000	0.792	0.844	0.750	0.000	0.897
	0.913				0.857				0.922				0.859				

Appendix C: Traffic Modeling

August 3, 2018

Derek Winning
Senior Regional Planner
Tulare County Association of Governments
210 N. Church St. Suite B
Visalia, CA 93291

Via E-mail Only: DWinning@tularecog.org

Subject: Traffic Modeling Request for the Preparation of a Traffic Impact Analysis in Support of the Altura Centers for Health at the Northeast Corner of Cartmill Avenue and Hillman Street in the City of Tulare (JLB Project 037-003)

Dear Mr. Winning,

JLB Traffic Engineering, Inc. (JLB) hereby requests traffic modeling for the Project described below. The Project proposes to develop 10.01 gross acres with five (5) Building Medical Complex to be constructed in three (3) phases. Phase 1 consists of two new single story medical office buildings and one new single-story administration office building (building 1: 14,886 s.f.; building 2: 14,836 s.f. building 4: 12,160 s.f.). Phase 2 consists of one new single story dental building (building 3: +/- 12,672 s.f.). Phase 3 consists of one new two story medical office building (building 5: +/- 30,000 s.f.). Based on information provided to JLB, the Project is consistent with the City of Tulare General Plan. An aerial of the Project vicinity is shown on Exhibit A while the Project Site Plan is shown on Exhibit B.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process.

Scenarios:

The following scenarios are requested:

1. Base Year 2018 (with Link and TAZ modifications)
2. Cumulative Year 2035 plus Project Buildout Select Zone (with Link and TAZ modifications)

Changes and/or additions to the Model Network or TAZ's

JLB reviewed the Tulare COG model network for the Base Year 2018 and Cumulative Year 2035. Based on this review, JLB requests the following link and TAZ Network modifications. Details on the requested Link and TAZ modifications for Base Year 2018 and Cumulative Year 2035 are illustrated in Exhibit C.

LINK and TAZ MODIFICATIONS (For Cumulative Year 2035 plus Project Select Zone only):

1. Create Project TAZ A from TAZ 1151 generally located in the Northeast corner of Cartmill Ave and Hillsman St/Demaree St with a TAZ connector to Carmill Ave. TAZ A is 10.01 acres.
2. Modify TAZ 1151
    a. Remove it's TAZ connector to node 10657
    b. Add a TAZ Connector to Node 10131

TAZ A Project Only Trip Generation (For Base Year 2018 and Cumulative Year 2035 plus Project Select Zone Scenario Only)

Table I presents the trip generation for the proposed Project pursuant to the 10th Edition of the Trip Generation Manual with trip generation rates for Medical-Dental Office Building. At build-out, the Project is estimated to generate a maximum of 2,942 daily trips, 235 AM peak hour trips and 293 PM peak hour trips. Using the trip generation, please Fratar the Project ITE trip Generation into the Cumulative 2035 plus Project Select Zone.

Table I: Project Only Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Medical-Dental Office Building (720)	84.554	k.s.f.	34.8	2,942	2.78	78	22	183	52	235	3.46	28	72	82	211	293
Total Project Trips				**2,942**				**183**	**52**	**235**				**82**	**211**	**293**

Note: k.s.f = kilo-Square Feet

If you have any questions or require additional information, please do not hesitate to contact me by phone at (559) 570-8991 or by e-mail at amiao@JLBtraffic.com.

Sincerely,

Alan Miao, EIT
Engineer I/II

cc: Jose Benavides, JLB Traffic Engineering, Inc.

Exhibit A – Aerial

Exhibit B – Site Plan

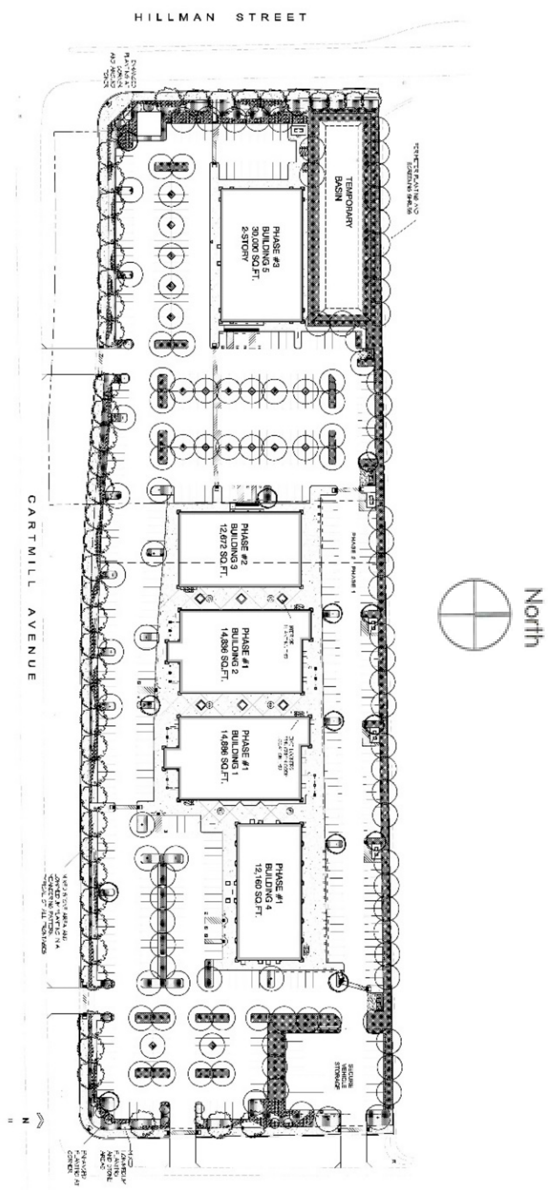
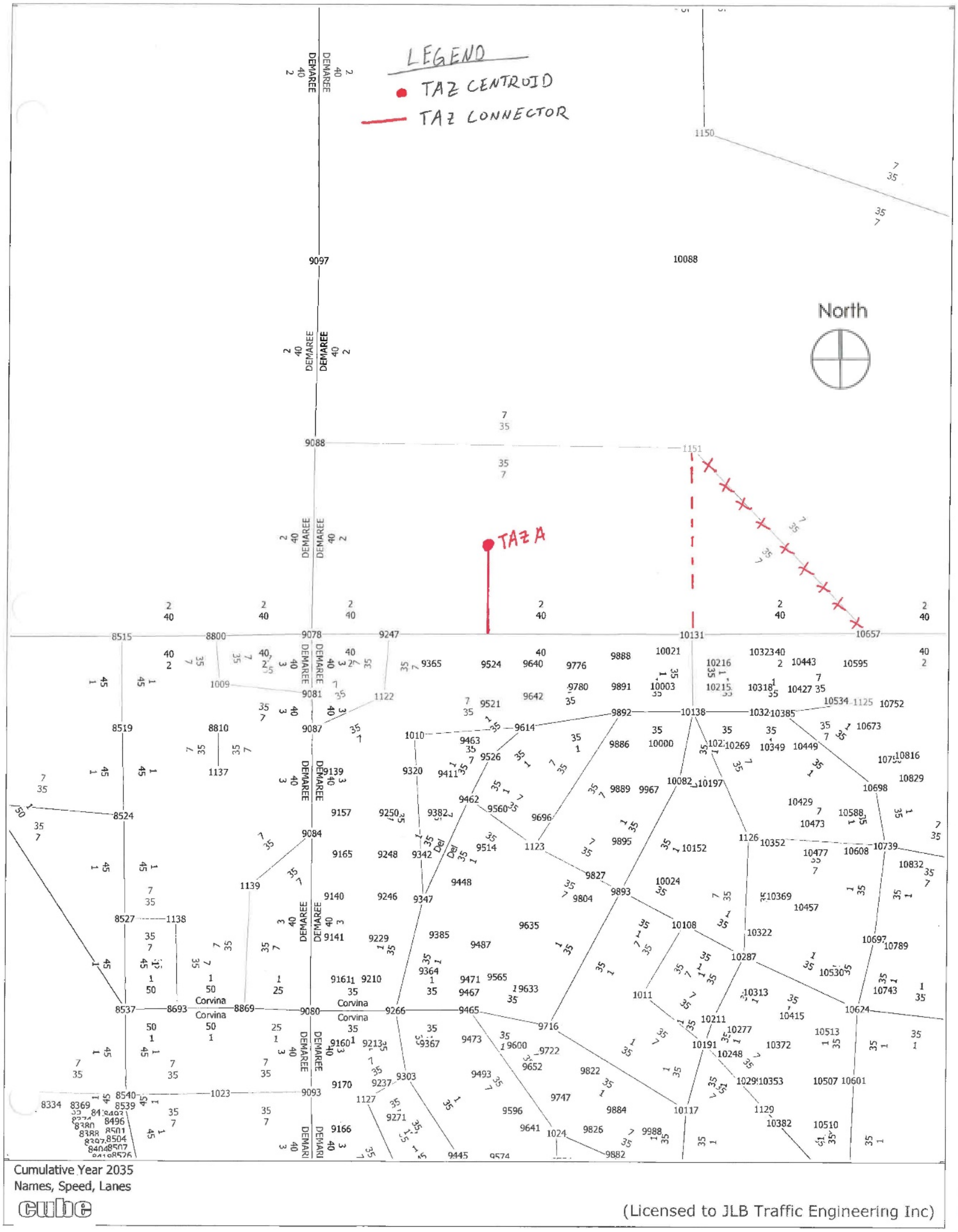
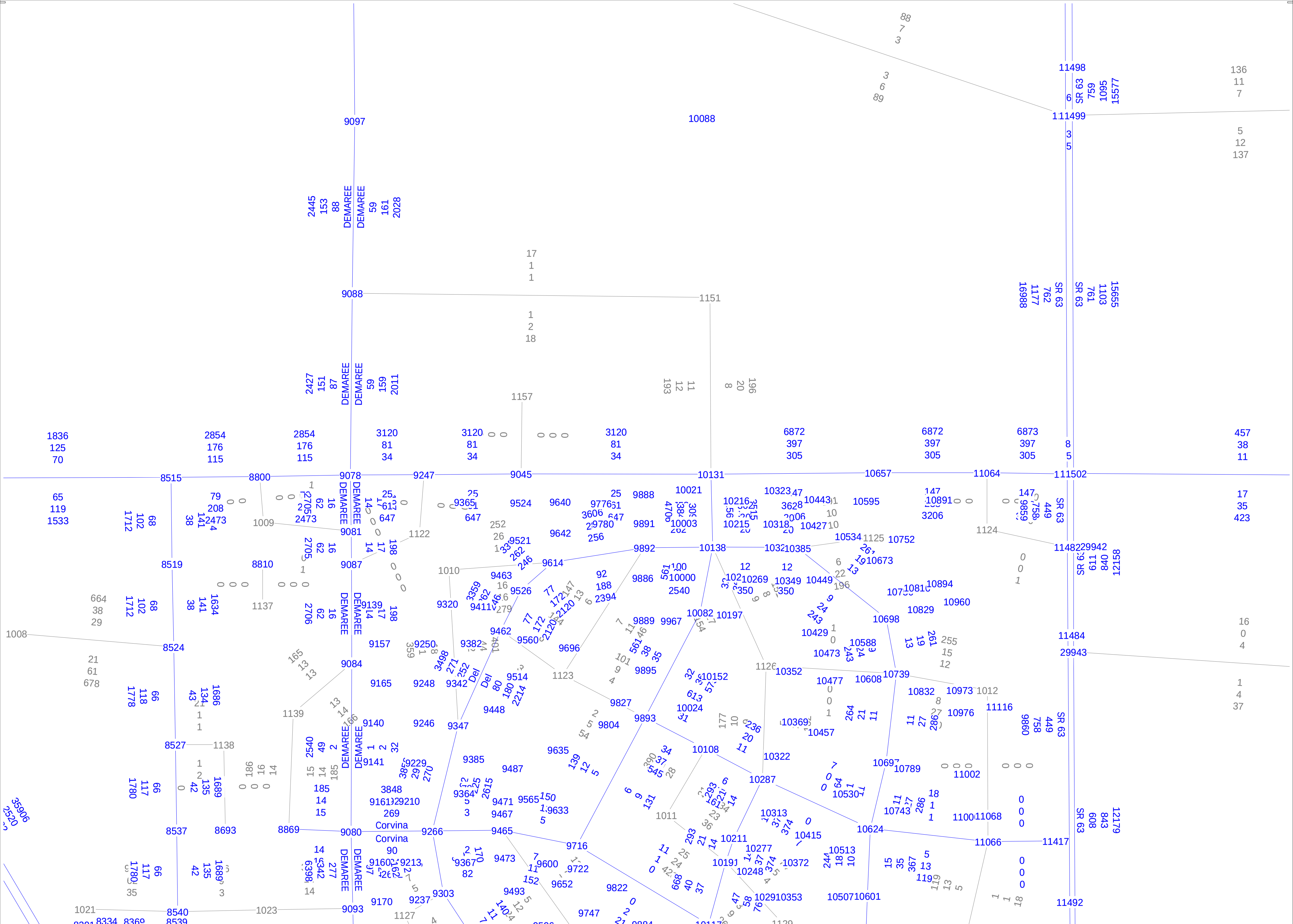


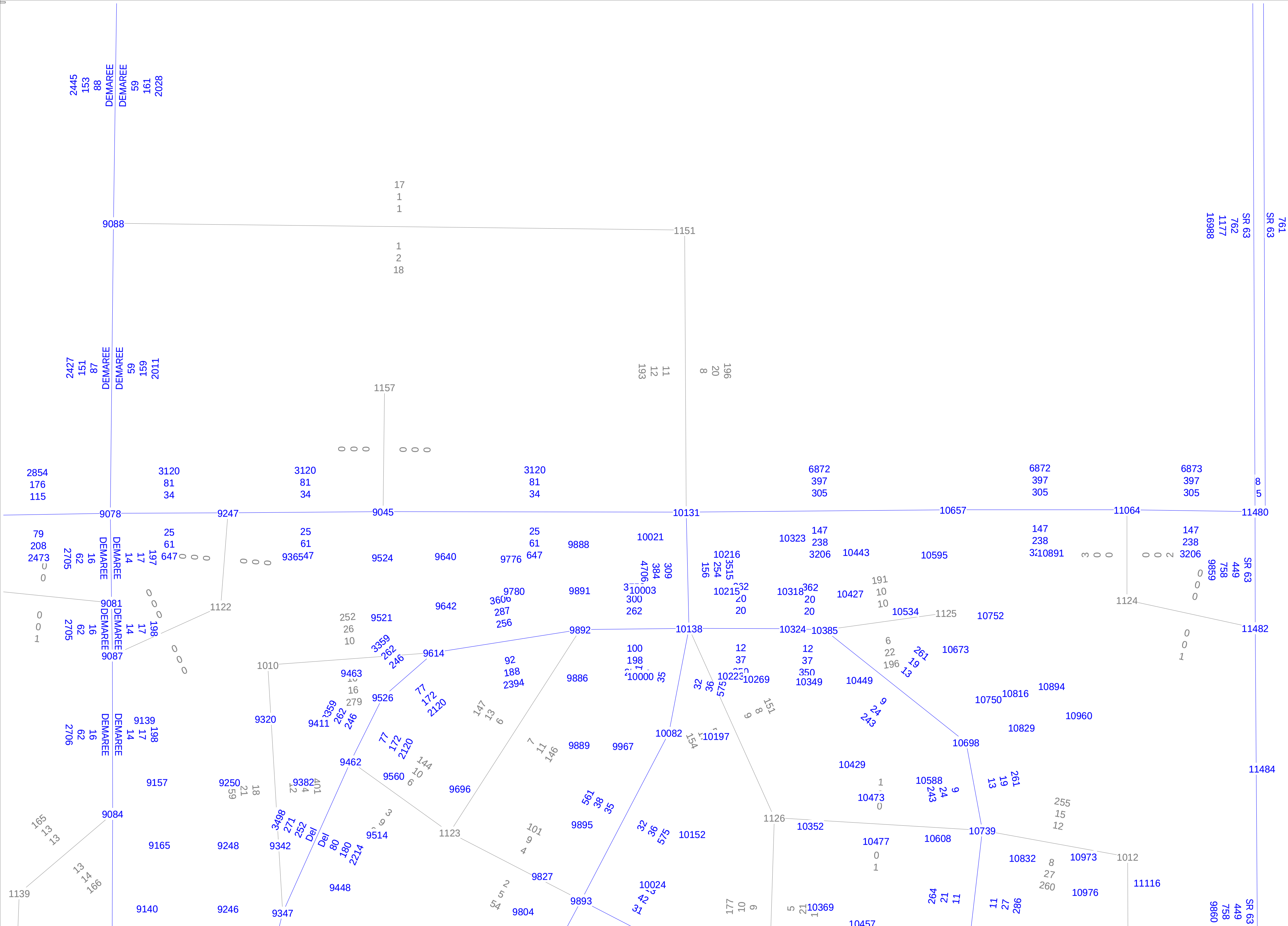
Exhibit C – Model TAZ Modifications



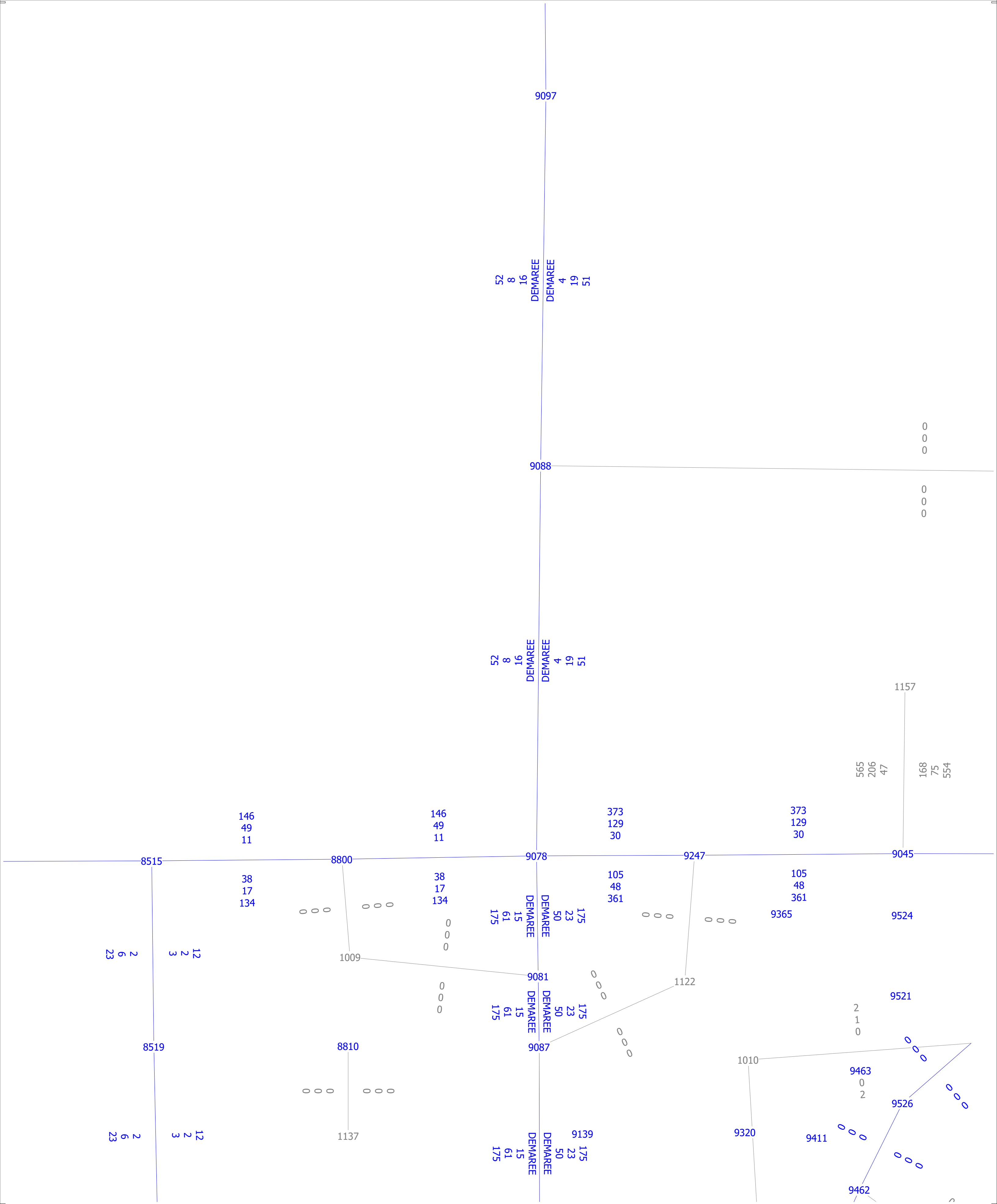


Base Year 2018
AM, PM, Daily Volumes

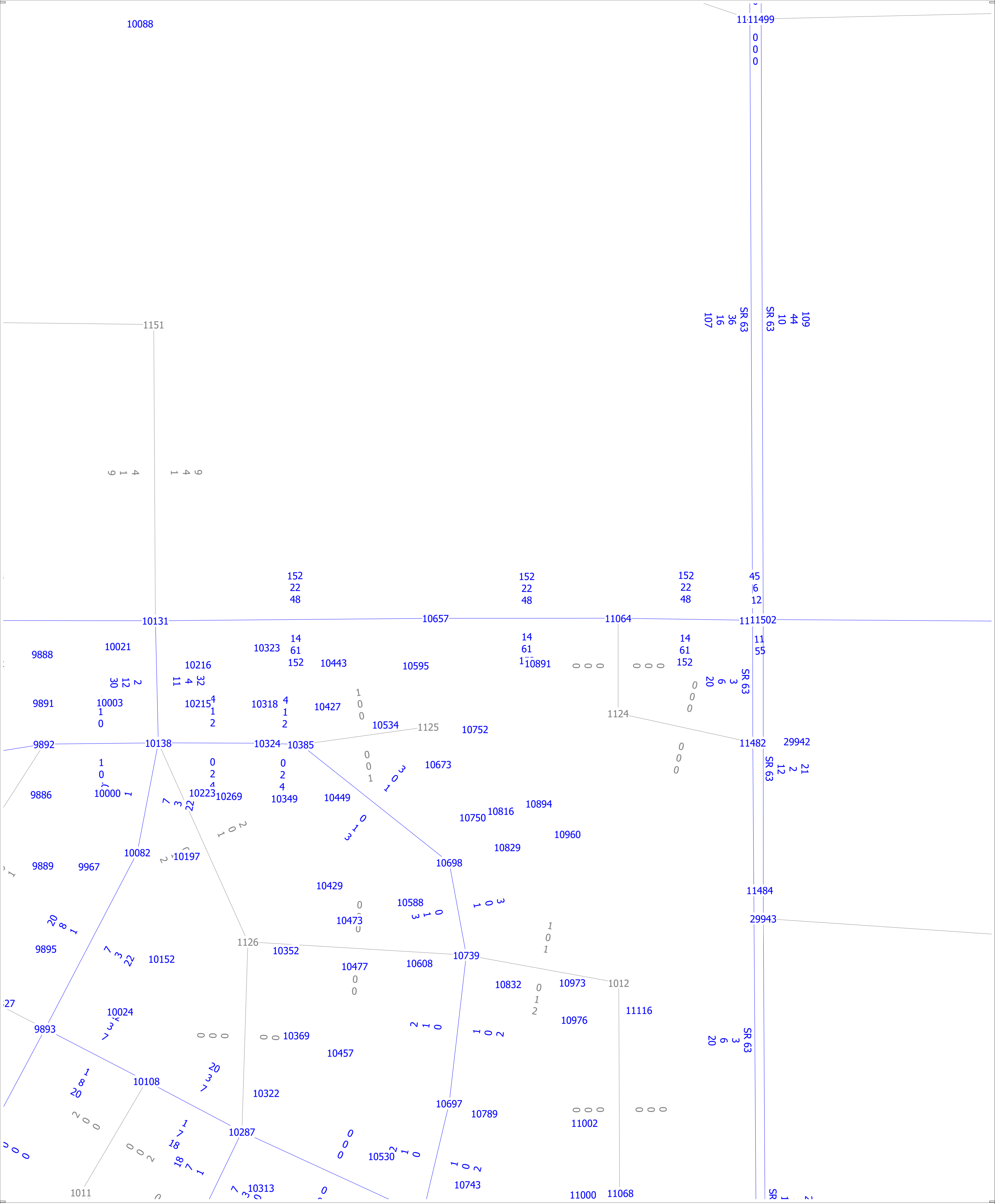
cube



Base Year 2018
AM, PM, Daily Volumes



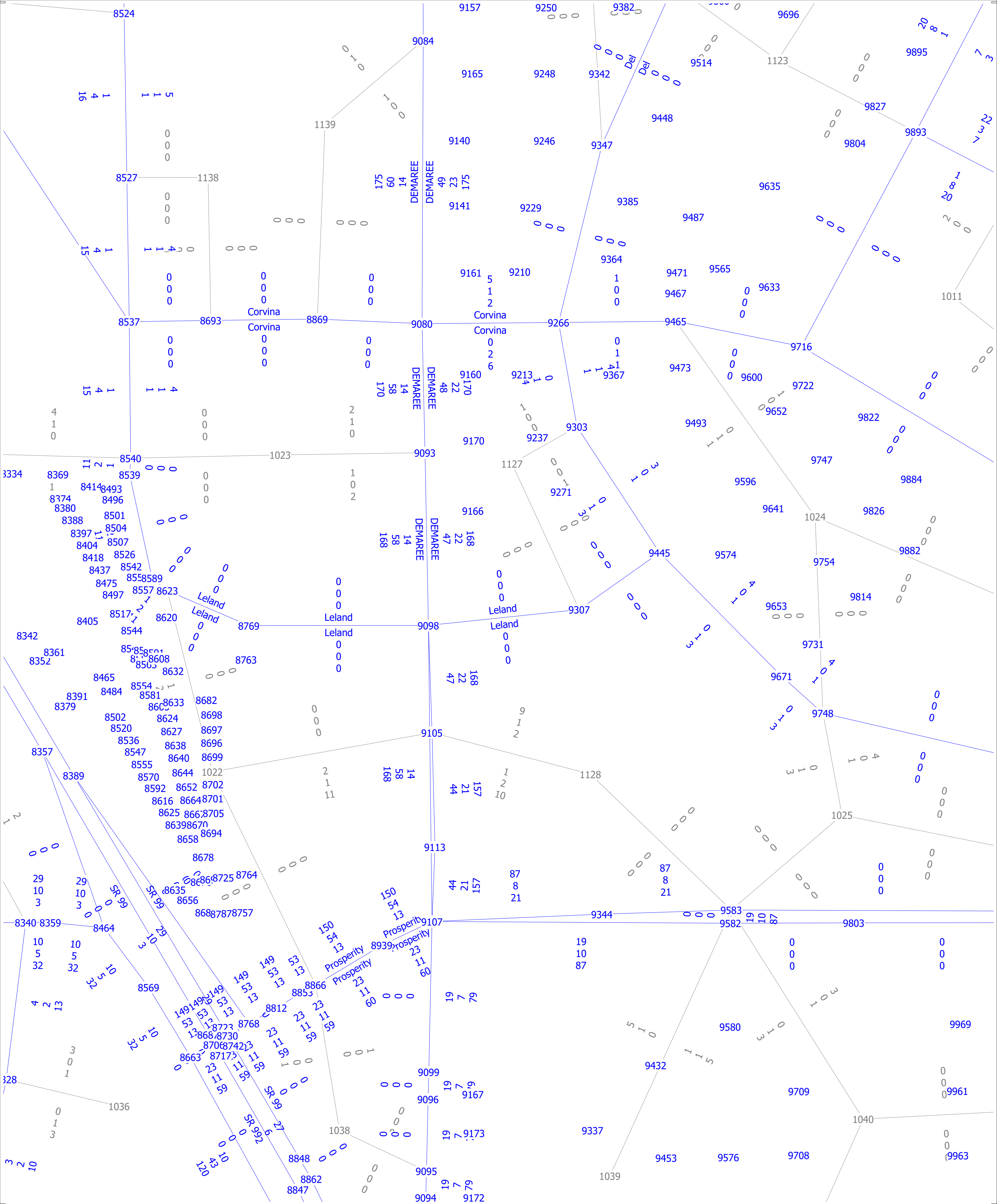
Cumulative Year 2035
Select Zone
AM, PM, Daily Volumes



Cumulative Year 2035

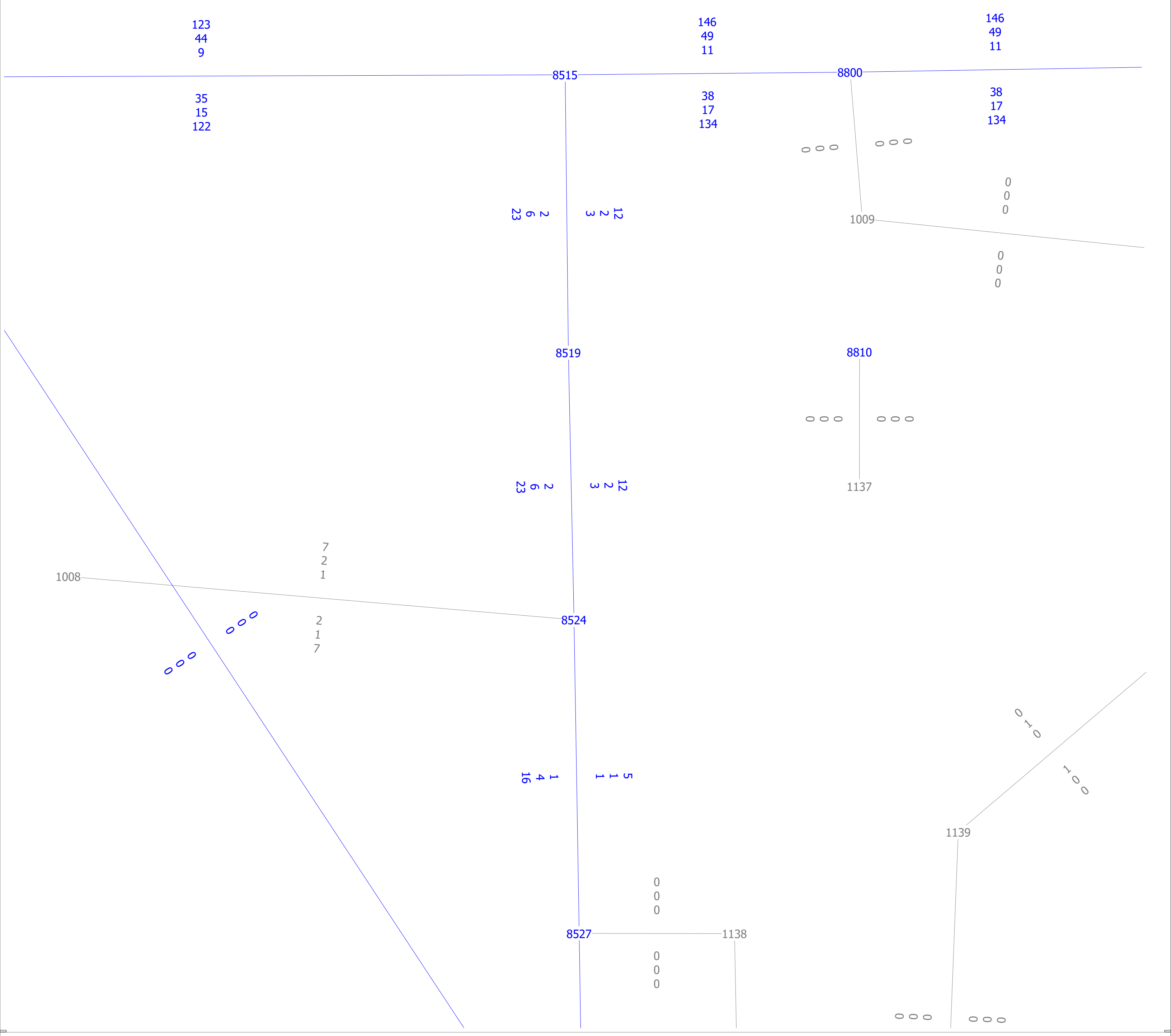
Select Zone

AM, PM, Daily Volumes



Cumulative Year 2035
Select Zone
AM, PM, Daily Volumes

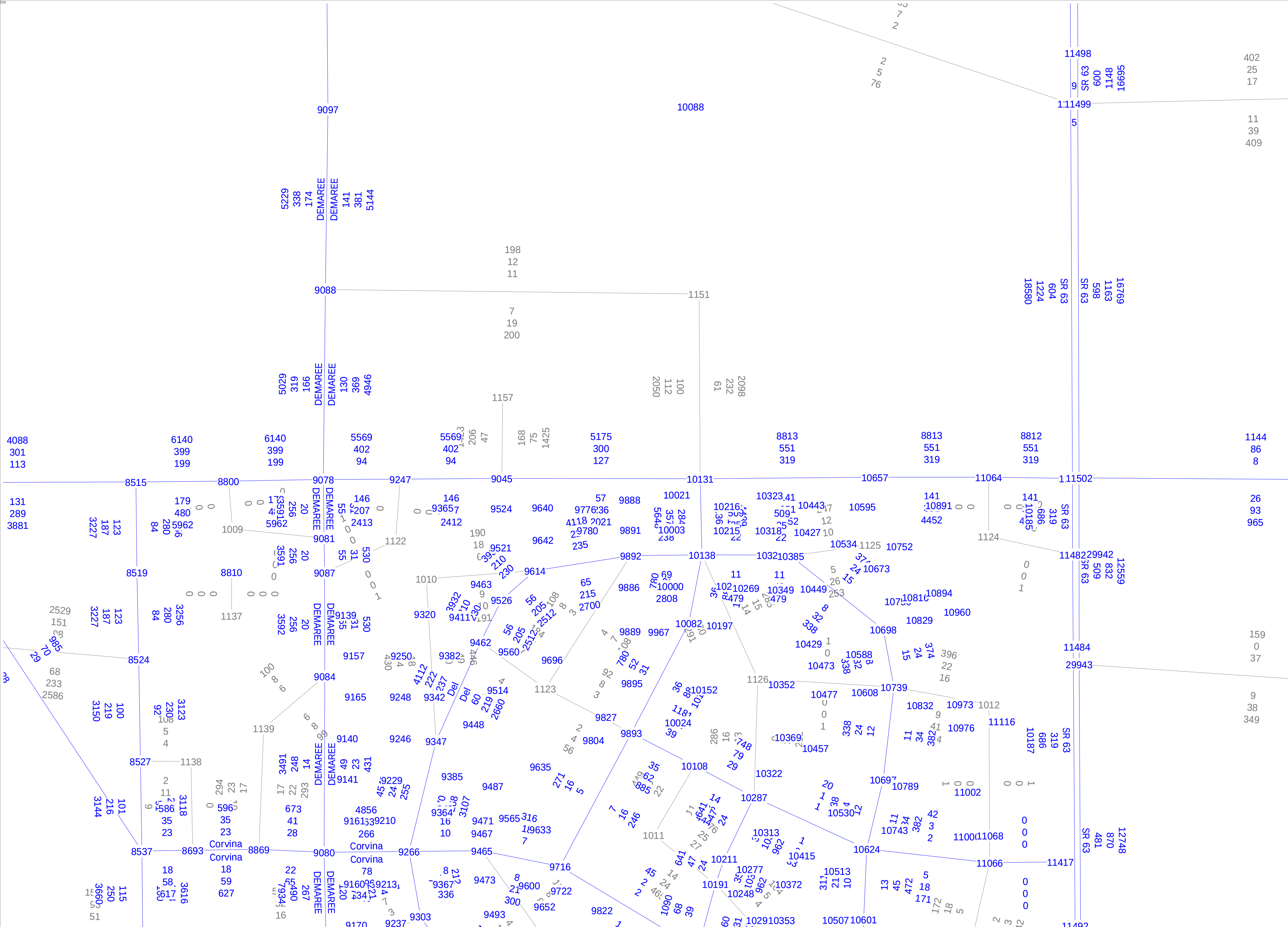
cube



Cumulative Year 2035

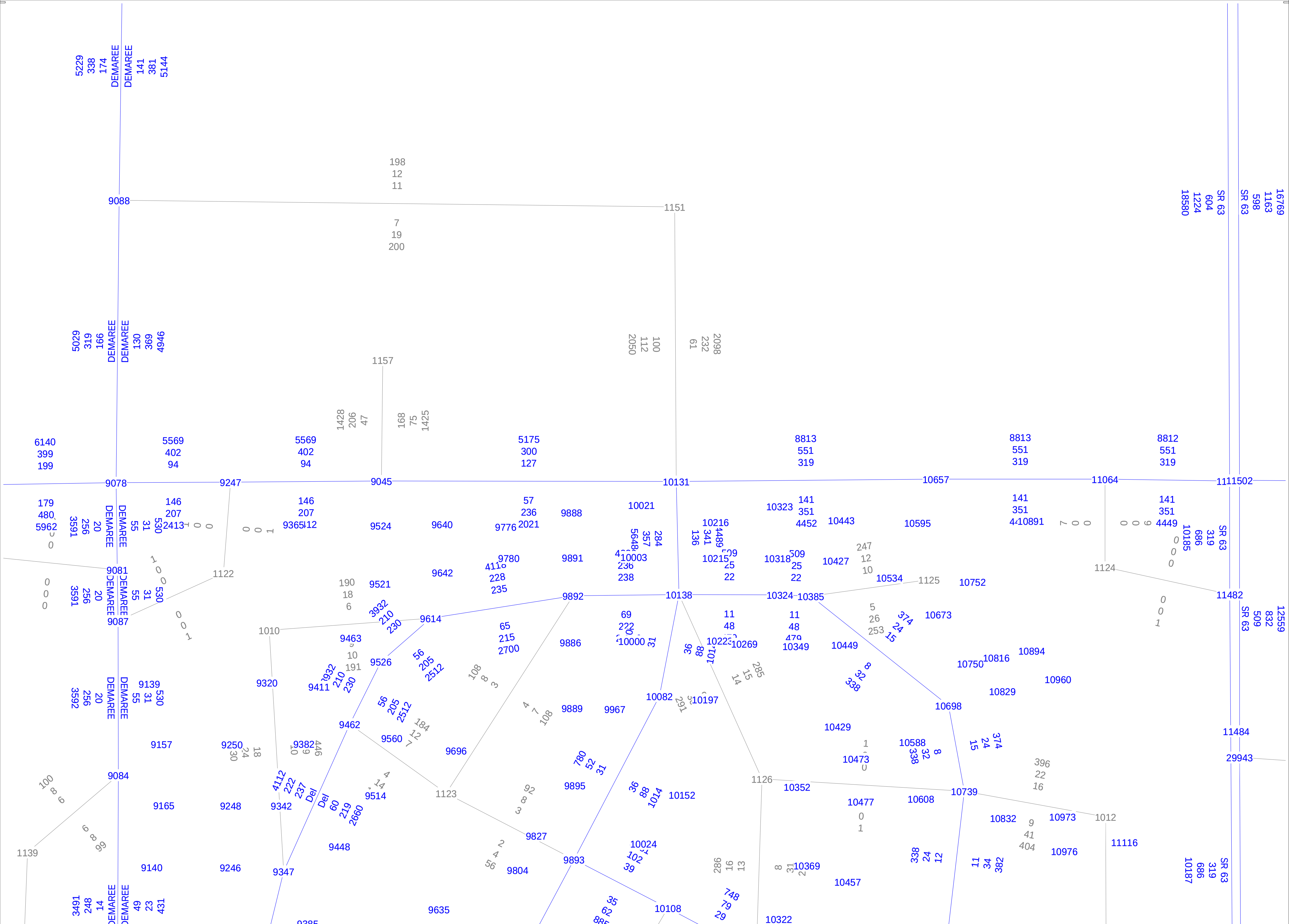
Select Zone

AM, PM, Daily Volumes



Cumulative Year 2035
AM, PM, Daily Volumes

cube



Cumulative Year 2035
AM, PM, Daily Volumes

Appendix D: Methodology

Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 2010 represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish a LOS.

Urban Streets (Automobile Mode)

The term "urban streets" refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials, and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials. They not only move through traffic but also provide access to local businesses for passenger cars, transit buses, and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity, and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses, and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) forces a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

Levels of Service (automobile Mode)

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections.

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 85 of the base free flow speed (FFS).

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 85 percent of the base FFS.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes, inappropriate signal timing, at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

LOS E is characterized unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

LOS F is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

Table A-1: Urban Street Levels of Service (Automobile Mode)

Travel Speed as a Percentage of Base Free-Flow Speed (%)	LOS by Critical Volume-to-Capacity Ratio[a]	
	≤1.0	>1.0
>85	A	F
>67 to 85	B	F
>50 to 67	C	F
>40 to 50	D	F
>30 to 40	E	F
≤30	F	F

a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.
Source: Highway Capacity Manual 2010, Exhibit 16-4. Urban Street LOS Criteria (Automobile Mode)

Intersection Levels of Service

One of the more important elements limiting, and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop and yield signs.

Signalized Intersections – Performance Measures

For signalized intersections the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay, and bicycle perception score. LOS is also considered a performance measure. For the automobile mode average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. A LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-2.

Table A-2: Signalized Intersection Level of Service Description (Automobile Mode)

Level of Service	Description	Average Control Delay (seconds per vehicle)
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when volume-to-capacity ratio is and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/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.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the 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 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.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/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 i ndividual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/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, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and 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.	>80

Source: Highway Capacity Manual 2010

Unsignalized Intersections

The HCM 2010 procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i. e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

All-Way Stop Controlled Intersections

All-way stop controlled intersections is a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. A LOS designation is given to the weighted average control delay to better describe the level of operation.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. A LOS for TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-3 provides a description of LOS at unsignalized intersections.

Table A-3: Unsignalized Intersection Level of Service Description (Automobile Mode)

Control Delay (seconds per vehicle)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Source: HCM 2010 Exhibit 19-1.

Appendix E: Existing Traffic Conditions

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	414	54	13	500	16	1
Future Vol, veh/h	414	54	13	500	16	1
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	85	85	85	85	85	85
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	487	64	15	588	19	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	551	0	1137	519
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	618	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1014	-	222	555
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	536	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1014	-	217	555
Mov Cap-2 Maneuver	-	-	-	-	217	-
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	524	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	22.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	225	-	-	1014	-
HCM Lane V/C Ratio	0.089	-	-	0.015	-
HCM Control Delay (s)	22.6	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	189	184	57	24	207	52	1	68	347	24	33	260
Future Volume (vph)	189	184	57	24	207	52	1	68	347	24	33	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.7			4.2	5.7	5.7	4.2	6.4
Lane Util. Factor		1.00			1.00			1.00	0.95	1.00	1.00	0.95
Frt		0.98			0.98			1.00	1.00	0.85	1.00	1.00
Flt Protected		0.98			1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1773			1792			1752	3505	1568	1752	3505
Flt Permitted		0.98			1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1773			1792			1752	3505	1568	1752	3505
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	220	214	66	28	241	60	1	79	403	28	38	302
RTOR Reduction (vph)	0	5	0	0	7	0	0	0	0	23	0	0
Lane Group Flow (vph)	0	495	0	0	322	0	0	80	403	5	38	302
Turn Type	Split	NA		Split	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases	4	4		8	8		5	5	2		1	6
Permitted Phases										2		
Actuated Green, G (s)		32.0			23.4			4.0	17.6	17.6	2.9	15.8
Effective Green, g (s)		32.0			23.4			4.0	17.6	17.6	2.9	15.8
Actuated g/C Ratio		0.33			0.24			0.04	0.18	0.18	0.03	0.16
Clearance Time (s)		6.0			5.7			4.2	5.7	5.7	4.2	6.4
Vehicle Extension (s)		3.0			3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		581			430			71	632	283	52	567
v/s Ratio Prot		c0.28			c0.18			c0.05	c0.11		0.02	0.09
v/s Ratio Perm										0.00		
v/c Ratio		0.85			0.75			1.13	0.64	0.02	0.73	0.53
Uniform Delay, d1		30.5			34.3			46.8	37.0	32.8	46.9	37.5
Progression Factor		1.00			1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		11.6			7.0			145.4	2.1	0.0	40.9	1.0
Delay (s)		42.1			41.3			192.2	39.1	32.9	87.8	38.4
Level of Service		D			D			F	D	C	F	D
Approach Delay (s)		42.1			41.3				62.7			40.5
Approach LOS		D			D				E			D

Intersection Summary			
HCM 2000 Control Delay	47.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	22.3
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	199
Future Volume (vph)	199
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.4
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.86
Adj. Flow (vph)	231
RTOR Reduction (vph)	194
Lane Group Flow (vph)	37
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	15.8
Effective Green, g (s)	15.8
Actuated g/C Ratio	0.16
Clearance Time (s)	6.4
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	254
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.15
Uniform Delay, d1	35.1
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	35.3
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	6.4

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	171	64	2	63	165	139	114
Future Vol, veh/h	171	64	2	63	165	139	114
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	230	-	0	-
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	206	77	2	76	199	167	137

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	-	283	0	596	245
Stage 1	-	-	-	-	-	245	-
Stage 2	-	-	-	-	-	351	-
Critical Hdwy	-	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	-	1274	-	465	791
Stage 1	-	-	-	-	-	793	-
Stage 2	-	-	-	-	-	710	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	~ -33	~ -33	-	465	791
Mov Cap-2 Maneuver	-	-	-	-	-	465	-
Stage 1	-	-	-	-	-	793	-
Stage 2	-	-	-	-	-	710	-

Approach	EB	WB	NB
HCM Control Delay, s	0		18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	571	-	-	+	-
HCM Lane V/C Ratio	0.534	-	-	-	-
HCM Control Delay (s)	18.3	-	-	-	-
HCM Lane LOS	C	-	-	-	-
HCM 95th %tile Q(veh)	3.1	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	86	56	23	78	12	46	721	15	14	475	101
Future Volume (vph)	147	86	56	23	78	12	46	721	15	14	475	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1736		1752	1808		1752	3494		1752	3413	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1736		1752	1808		1752	3494		1752	3413	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	184	108	70	29	98	15	58	901	19	18	594	126
RTOR Reduction (vph)	0	24	0	0	6	0	0	1	0	0	16	0
Lane Group Flow (vph)	184	154	0	29	107	0	58	919	0	18	704	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.4	23.4		1.8	11.8		4.2	29.5		1.2	26.5	
Effective Green, g (s)	13.4	23.4		1.8	11.8		4.2	29.5		1.2	26.5	
Actuated g/C Ratio	0.18	0.31		0.02	0.15		0.06	0.39		0.02	0.35	
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	532		41	279		96	1350		27	1185	
v/s Ratio Prot	c0.10	0.09		0.02	c0.06		c0.03	c0.26		0.01	0.21	
v/s Ratio Perm												
v/c Ratio	0.60	0.29		0.71	0.38		0.60	0.68		0.67	0.59	
Uniform Delay, d1	29.0	20.1		37.0	29.0		35.2	19.5		37.4	20.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.3		43.2	0.9		10.3	1.4		48.1	0.8	
Delay (s)	32.1	20.4		80.1	29.9		45.5	20.9		85.4	21.3	
Level of Service	C	C		F	C		D	C		F	C	
Approach Delay (s)		26.4			40.1			22.4			22.8	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	20.4
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	381	149	34	403	88	31
Future Vol, veh/h	381	149	34	403	88	31
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	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	405	159	36	429	94	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	564	0	986	485
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	501	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1003	-	274	580
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	607	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1003	-	261	580
Mov Cap-2 Maneuver	-	-	-	-	261	-
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	578	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	24.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	305	-	-	1003	-
HCM Lane V/C Ratio	0.415	-	-	0.036	-
HCM Control Delay (s)	24.9	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2	-	-	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	143	204	71	24	146	20	2	77	397	37	47	341
Future Volume (vph)	143	204	71	24	146	20	2	77	397	37	47	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.7			4.2	5.7	5.7	4.2	6.4
Lane Util. Factor		1.00			1.00			1.00	0.95	1.00	1.00	0.95
Frt		0.98			0.99			1.00	1.00	0.85	1.00	1.00
Flt Protected		0.98			0.99			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1772			1807			1752	3505	1568	1752	3505
Flt Permitted		0.98			0.99			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1772			1807			1752	3505	1568	1752	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	152	217	76	26	155	21	2	82	422	39	50	363
RTOR Reduction (vph)	0	6	0	0	4	0	0	0	0	32	0	0
Lane Group Flow (vph)	0	439	0	0	198	0	0	84	422	7	50	363
Turn Type	Split	NA		Split	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases	4	4		8	8		5	5	2		1	6
Permitted Phases										2		
Actuated Green, G (s)		26.5			16.9			4.0	15.5	15.5	4.0	14.8
Effective Green, g (s)		26.5			16.9			4.0	15.5	15.5	4.0	14.8
Actuated g/C Ratio		0.31			0.20			0.05	0.18	0.18	0.05	0.18
Clearance Time (s)		6.0			5.7			4.2	5.7	5.7	4.2	6.4
Vehicle Extension (s)		3.0			3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		555			361			82	642	287	82	613
v/s Ratio Prot		c0.25			c0.11			c0.05	c0.12		0.03	0.10
v/s Ratio Perm										0.00		
v/c Ratio		0.79			0.55			1.02	0.66	0.02	0.61	0.59
Uniform Delay, d1		26.5			30.4			40.2	32.0	28.3	39.5	32.1
Progression Factor		1.00			1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		7.6			1.7			106.2	2.4	0.0	12.2	1.5
Delay (s)		34.0			32.1			146.5	34.5	28.3	51.7	33.6
Level of Service		C			C			F	C	C	D	C
Approach Delay (s)		34.0			32.1				51.3			33.7
Approach LOS		C			C				D			C

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	22.3
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	212
Future Volume (vph)	212
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.4
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	226
RTOR Reduction (vph)	186
Lane Group Flow (vph)	40
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	14.8
Effective Green, g (s)	14.8
Actuated g/C Ratio	0.18
Clearance Time (s)	6.4
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	274
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.14
Uniform Delay, d1	29.5
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	29.7
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection							
Int Delay, s/veh	2.2						
Movement	**EBT**	**EBR**	**WBU**	**WBL**	**WBT**	**NBL**	**NBR**
Lane Configurations							
Traffic Vol, veh/h	194	106	3	99	139	48	63
Future Vol, veh/h	194	106	3	99	139	48	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	230	-	0	-
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	220	120	3	113	158	55	72
Major/Minor	**Major1**		**Major2**			**Minor1**	
Conflicting Flow All	0	0	-	340	0	664	280
Stage 1	-	-	-	-	-	280	-
Stage 2	-	-	-	-	-	384	-
Critical Hdwy	-	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	-	1214	-	424	756
Stage 1	-	-	-	-	-	765	-
Stage 2	-	-	-	-	-	686	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	~ -35	~ -35	-	424	756
Mov Cap-2 Maneuver	-	-	-	-	-	424	-
Stage 1	-	-	-	-	-	765	-
Stage 2	-	-	-	-	-	686	-
Approach	**EB**		**WB**			**NB**	
HCM Control Delay, s	0					13.2	
HCM LOS						B	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	565	-	-	+	-
HCM Lane V/C Ratio	0.223	-	-	-	-
HCM Control Delay (s)	13.2	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	131	65	51	19	54	6	21	695	14	1	11	871
Future Volume (vph)	131	65	51	19	54	6	21	695	14	1	11	871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			1.00	0.95
Frt	1.00	0.93		1.00	0.98		1.00	1.00			1.00	0.98
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	1722		1752	1816		1752	3494			1752	3425
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1752	1722		1752	1816		1752	3494			1752	3425
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	72	57	21	60	7	23	772	16	1	12	968
RTOR Reduction (vph)	0	29	0	0	4	0	0	1	0	0	0	12
Lane Group Flow (vph)	146	100	0	21	63	0	23	787	0	0	13	1129
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	11.2	20.7		1.5	11.0		1.2	34.6			0.5	33.9
Effective Green, g (s)	11.2	20.7		1.5	11.0		1.2	34.6			0.5	33.9
Actuated g/C Ratio	0.14	0.27		0.02	0.14		0.02	0.45			0.01	0.44
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	252	458		33	257		27	1555			11	1494
v/s Ratio Prot	c0.08	c0.06		0.01	0.03		c0.01	0.23			0.01	c0.33
v/s Ratio Perm												
v/c Ratio	0.58	0.22		0.64	0.24		0.85	0.51			1.18	0.76
Uniform Delay, d1	31.1	22.2		37.8	29.7		38.2	15.4			38.6	18.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.2	0.2		33.9	0.5		110.0	0.3			338.7	2.2
Delay (s)	34.3	22.4		71.7	30.1		148.1	15.7			377.3	20.6
Level of Service	C	C		E	C		F	B			F	C
Approach Delay (s)		28.7			40.1			19.4				24.7
Approach LOS		C			D			B				C

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	77.7	Sum of lost time (s)	20.4
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	156
Future Volume (vph)	156
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	173
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	52	31
Average Queue (ft)	6	12
95th Queue (ft)	27	33
Link Distance (ft)	1249	3287
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	UL	T	T	R	L	T	T	R
Maximum Queue (ft)	370	258	140	166	184	52	74	130	120	94
Average Queue (ft)	199	136	76	87	90	14	27	79	76	48
95th Queue (ft)	324	224	138	150	152	39	65	111	121	76
Link Distance (ft)	1249	2552		5106	5106	5106		5223	5223	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			250				340			240
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	WB	NB
Directions Served	UL	LR
Maximum Queue (ft)	31	139
Average Queue (ft)	8	65
95th Queue (ft)	28	107
Link Distance (ft)		444
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	230	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	161	96	53	76	72	209	227	69	155	197
Average Queue (ft)	77	54	17	42	30	76	100	16	67	80
95th Queue (ft)	134	94	44	72	61	150	167	46	120	149
Link Distance (ft)		2566		4892		5268	5268		5196	5196
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150		480			480		
Storage Blk Time (%)	0									
Queuing Penalty (veh)	0									

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	78	94
Average Queue (ft)	13	44
95th Queue (ft)	47	75
Link Distance (ft)	1249	3287
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	UL	T	T	R	L	T	T	R
Maximum Queue (ft)	291	175	121	164	182	48	93	221	200	169
Average Queue (ft)	181	80	67	99	109	17	37	86	88	56
95th Queue (ft)	260	133	112	153	167	38	71	161	159	109
Link Distance (ft)	1249	2552		5106	5106	5106		5223	5223	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			250				340			240
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	WB	NB
Directions Served	UL	LR
Maximum Queue (ft)	53	68
Average Queue (ft)	18	41
95th Queue (ft)	45	60
Link Distance (ft)		444
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	230	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	UL	T	TR
Maximum Queue (ft)	137	116	53	72	52	160	177	46	187	205
Average Queue (ft)	76	53	17	32	15	66	86	7	96	128
95th Queue (ft)	125	107	42	62	40	140	144	27	171	196
Link Distance (ft)		2566		4892		5268	5268		5196	5196
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150		480			480		
Storage Blk Time (%)	0									
Queuing Penalty (veh)	0									

Zone Summary

Zone wide Queuing Penalty: 0

Appendix F: Existing plus Project (Phase I) Traffic Conditions

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	433	54	14	504	16	2
Future Volume (vph)	0	433	54	14	504	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.98		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4952		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4952		1752	3505	1752	1568
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	509	64	16	593	19	2
RTOR Reduction (vph)	0	41	0	0	0	0	2
Lane Group Flow (vph)	0	532	0	16	593	19	0
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		11.5		0.6	16.3	5.4	5.4
Effective Green, g (s)		11.5		0.6	16.3	5.4	5.4
Actuated g/C Ratio		0.36		0.02	0.51	0.17	0.17
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1785		32	1790	296	265
v/s Ratio Prot		0.11		0.01	c0.17	c0.01	
v/s Ratio Perm							0.00
v/c Ratio		0.30		0.50	0.33	0.06	0.00
Uniform Delay, d1		7.3		15.5	4.6	11.1	11.0
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		11.8	0.1	0.1	0.0
Delay (s)		7.4		27.3	4.7	11.2	11.0
Level of Service		A		C	A	B	B
Approach Delay (s)		7.4			5.3	11.2	
Approach LOS		A			A	B	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	31.9	Sum of lost time (s)	14.4
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	189	204	57	7	31	212	53	1	68	347	50	40
Future Volume (vph)	189	204	57	7	31	212	53	1	68	347	50	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.97			1.00	0.97			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4871			3400	3399			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4871			3400	3399			3400	3505	1568	3400
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	220	237	66	8	36	247	62	1	79	403	58	47
RTOR Reduction (vph)	0	41	0	0	0	23	0	0	0	0	44	0
Lane Group Flow (vph)	220	262	0	0	44	286	0	0	80	403	14	47
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	8.9	25.5			1.7	18.3			3.1	16.3	16.3	2.1
Effective Green, g (s)	8.9	25.5			1.7	18.3			3.1	16.3	16.3	2.1
Actuated g/C Ratio	0.13	0.38			0.03	0.27			0.05	0.24	0.24	0.03
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	450	1848			86	925			156	850	380	106
v/s Ratio Prot	c0.06	0.05			0.01	c0.08			c0.02	c0.11		0.01
v/s Ratio Perm											0.01	
v/c Ratio	0.49	0.14			0.51	0.31			0.51	0.47	0.04	0.44
Uniform Delay, d1	27.0	13.7			32.3	19.4			31.3	21.8	19.5	32.0
Progression Factor	1.00	1.00			1.00	1.03			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0			5.1	0.2			2.8	0.4	0.0	2.9
Delay (s)	27.9	13.7			37.4	20.1			34.1	22.2	19.5	34.9
Level of Service	C	B			D	C			C	C	B	C
Approach Delay (s)		19.7				22.3				23.7		
Approach LOS		B				C				C		

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	67.2	Sum of lost time (s)	21.6
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	260	199
Future Volume (vph)	260	199
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.86	0.86
Adj. Flow (vph)	302	231
RTOR Reduction (vph)	0	178
Lane Group Flow (vph)	302	53
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.3	15.3
Effective Green, g (s)	15.3	15.3
Actuated g/C Ratio	0.23	0.23
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	798	357
v/s Ratio Prot	0.09	
v/s Ratio Perm		0.03
v/c Ratio	0.38	0.15
Uniform Delay, d1	21.9	20.7
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.2
Delay (s)	22.2	20.9
Level of Service	C	C
Approach Delay (s)	22.7	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	8.6

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	53	177	65	2	63	191	145	114
Future Vol, veh/h	53	177	65	2	63	191	145	114
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	64	213	78	2	76	230	175	137

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	230	0	0	213	291	0	612	107
Stage 1	-	-	-	-	-	-	341	-
Stage 2	-	-	-	-	-	-	271	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	1020	-	-	1045	1260	-	423	923
Stage 1	-	-	-	-	-	-	689	-
Stage 2	-	-	-	-	-	-	747	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	1020	-	-	1246	1246	-	371	923
Mov Cap-2 Maneuver	-	-	-	-	-	-	371	-
Stage 1	-	-	-	-	-	-	646	-
Stage 2	-	-	-	-	-	-	700	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	2.1	23.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	504	1020	-	-	1246	-
HCM Lane V/C Ratio	0.619	0.063	-	-	0.063	-
HCM Control Delay (s)	23.1	8.8	-	-	8.1	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	4.2	0.2	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	87	57	23	80	12	52	721	15	14	475	119
Future Volume (vph)	151	87	57	23	80	12	52	721	15	14	475	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1736		1752	1809		1752	3494		1752	3399	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1736		1752	1809		1752	3494		1752	3399	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	189	109	71	29	100	15	65	901	19	18	594	149
RTOR Reduction (vph)	0	24	0	0	6	0	0	1	0	0	22	0
Lane Group Flow (vph)	189	156	0	29	109	0	65	919	0	18	721	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.5	23.6		1.9	12.0		9.0	30.9		1.2	23.1	
Effective Green, g (s)	13.5	23.6		1.9	12.0		9.0	30.9		1.2	23.1	
Actuated g/C Ratio	0.17	0.30		0.02	0.15		0.12	0.40		0.02	0.30	
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	525		42	278		202	1384		26	1006	
v/s Ratio Prot	c0.11	0.09		0.02	c0.06		0.04	c0.26		0.01	c0.21	
v/s Ratio Perm												
v/c Ratio	0.62	0.30		0.69	0.39		0.32	0.66		0.69	0.72	
Uniform Delay, d1	29.9	20.8		37.8	29.7		31.7	19.3		38.2	24.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.3		39.1	0.9		0.9	1.2		57.6	2.5	
Delay (s)	33.9	21.2		76.9	30.6		32.6	20.5		95.8	27.0	
Level of Service	C	C		E	C		C	C		F	C	
Approach Delay (s)		27.7			39.9			21.3			28.6	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	387	149	37	423	88	32
Future Volume (vph)	0	387	149	37	423	88	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.96		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4826		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4826		1752	3505	1752	1568
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	412	159	39	450	94	34
RTOR Reduction (vph)	0	107	0	0	0	0	27
Lane Group Flow (vph)	0	464	0	39	450	94	7
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		10.6		0.6	15.4	6.9	6.9
Effective Green, g (s)		10.6		0.6	15.4	6.9	6.9
Actuated g/C Ratio		0.33		0.02	0.47	0.21	0.21
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1574		32	1660	371	332
v/s Ratio Prot		0.10		c0.02	c0.13	c0.05	
v/s Ratio Perm							0.00
v/c Ratio		0.29		1.22	0.27	0.25	0.02
Uniform Delay, d1		8.2		15.9	5.2	10.7	10.1
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		231.6	0.1	0.4	0.0
Delay (s)		8.3		247.6	5.3	11.0	10.2
Level of Service		A		F	A	B	B
Approach Delay (s)		8.3			24.6	10.8	
Approach LOS		A			C	B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	32.5	Sum of lost time (s)	14.4
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	143	211	71	34	51	169	28	2	77	397	48	49
Future Volume (vph)	143	211	71	34	51	169	28	2	77	397	48	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.96			1.00	0.98			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4845			3400	3430			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4845			3400	3430			3400	3505	1568	3400
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	152	224	76	36	54	180	30	2	82	422	51	52
RTOR Reduction (vph)	0	56	0	0	0	15	0	0	0	0	37	0
Lane Group Flow (vph)	152	244	0	0	90	195	0	0	84	422	14	52
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	7.7	16.6			5.4	14.3			3.9	16.8	16.8	2.7
Effective Green, g (s)	7.7	16.6			5.4	14.3			3.9	16.8	16.8	2.7
Actuated g/C Ratio	0.12	0.26			0.09	0.23			0.06	0.27	0.27	0.04
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	414	1274			290	777			210	933	417	145
v/s Ratio Prot	c0.04	c0.05			0.03	c0.06			c0.02	c0.12		0.02
v/s Ratio Perm											0.01	
v/c Ratio	0.37	0.19			0.31	0.25			0.40	0.45	0.03	0.36
Uniform Delay, d1	25.5	18.0			27.1	20.0			28.5	19.3	17.1	29.4
Progression Factor	1.00	1.00			1.00	1.02			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1			0.6	0.2			1.3	0.4	0.0	1.5
Delay (s)	26.0	18.1			27.6	20.6			29.7	19.7	17.2	30.9
Level of Service	C	B			C	C			C	B	B	C
Approach Delay (s)		20.8				22.7				21.0		
Approach LOS		C				C				C		

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	63.1	Sum of lost time (s)	21.6
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	341	212
Future Volume (vph)	341	212
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	363	226
RTOR Reduction (vph)	0	170
Lane Group Flow (vph)	363	56
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.6	15.6
Effective Green, g (s)	15.6	15.6
Actuated g/C Ratio	0.25	0.25
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	866	387
v/s Ratio Prot	0.10	
v/s Ratio Perm		0.04
v/c Ratio	0.42	0.14
Uniform Delay, d1	19.9	18.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.2
Delay (s)	20.3	18.7
Level of Service	C	B
Approach Delay (s)	20.6	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	3.6

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	20	223	111	3	99	149	50	63
Future Vol, veh/h	20	223	111	3	99	149	50	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	0	-
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	23	253	126	3	113	169	57	72

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	169	0	0	253	379	0	616	127
Stage 1	-	-	-	-	-	-	299	-
Stage 2	-	-	-	-	-	-	317	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	1114	-	-	986	1169	-	420	896
Stage 1	-	-	-	-	-	-	723	-
Stage 2	-	-	-	-	-	-	708	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	1114	-	-	1160	1160	-	370	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	370	-
Stage 1	-	-	-	-	-	-	708	-
Stage 2	-	-	-	-	-	-	637	-

Approach	EB	WB	NB
HCM Control Delay, s	0.5	3.4	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	550	1114	-	-	1160	-
HCM Lane V/C Ratio	0.233	0.02	-	-	0.1	-
HCM Control Delay (s)	13.5	8.3	-	-	8.4	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	150	72	54	19	56	6	22	695	14	1	11	871
Future Volume (vph)	150	72	54	19	56	6	22	695	14	1	11	871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			1.00	0.95
Frt	1.00	0.94		1.00	0.98		1.00	1.00			1.00	0.98
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	1726		1752	1817		1752	3494			1752	3422
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1752	1726		1752	1817		1752	3494			1752	3422
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	167	80	60	21	62	7	24	772	16	1	12	968
RTOR Reduction (vph)	0	28	0	0	4	0	0	1	0	0	0	12
Lane Group Flow (vph)	167	112	0	21	65	0	24	787	0	0	13	1137
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	12.3	21.8		1.5	11.0		1.2	35.5			0.5	34.8
Effective Green, g (s)	12.3	21.8		1.5	11.0		1.2	35.5			0.5	34.8
Actuated g/C Ratio	0.15	0.27		0.02	0.14		0.02	0.45			0.01	0.44
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	270	472		32	250		26	1556			10	1494
v/s Ratio Prot	c0.10	c0.06		0.01	0.04		c0.01	0.23			0.01	c0.33
v/s Ratio Perm												
v/c Ratio	0.62	0.24		0.66	0.26		0.92	0.51			1.30	0.76
Uniform Delay, d1	31.5	22.5		38.8	30.7		39.2	15.8			39.6	18.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	4.2	0.3		39.4	0.6		142.0	0.3			398.9	2.3
Delay (s)	35.7	22.7		78.2	31.3		181.2	16.1			438.5	21.3
Level of Service	D	C		E	C		F	B			F	C
Approach Delay (s)		29.8			42.2			21.0				25.9
Approach LOS		C			D			C				C

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	20.4
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	163
Future Volume (vph)	163
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	181
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	53	30	50	29	79	79	50	21
Average Queue (ft)	28	11	20	7	18	35	8	1
95th Queue (ft)	49	32	45	26	46	66	30	7
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	94	136	94	71	90	25	45	87	127	52	87	155
Average Queue (ft)	46	63	40	24	26	8	17	41	54	12	36	69
95th Queue (ft)	87	110	78	61	60	24	38	77	99	39	68	115
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	188	30	44	53	97	131	142
Average Queue (ft)	66	13	12	16	49	47	50
95th Queue (ft)	127	34	34	44	84	98	96
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	WB	NB
Directions Served	U	UL	LR
Maximum Queue (ft)	44	72	213
Average Queue (ft)	8	14	62
95th Queue (ft)	29	47	121
Link Distance (ft)			420
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250	230	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	139	116	51	120	92	158	151	53	182	236
Average Queue (ft)	73	50	14	58	45	74	84	9	83	106
95th Queue (ft)	122	97	39	106	79	131	137	32	154	190
Link Distance (ft)		2127		4892		5269	5269		5196	5196
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150		480			480		
Storage Blk Time (%)	0									
Queuing Penalty (veh)	0									

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	78	54	115	53	53	74	74	49
Average Queue (ft)	27	23	42	20	15	33	32	13
95th Queue (ft)	60	51	76	42	45	64	60	36
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	79	94	53	54	117	46	45	69	81	49	74	156
Average Queue (ft)	34	54	30	28	40	16	24	34	30	15	34	64
95th Queue (ft)	64	86	59	56	82	42	48	64	65	40	65	116
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	156	31	46	53	97	139	115
Average Queue (ft)	75	16	11	25	58	65	49
95th Queue (ft)	121	35	35	51	92	110	85
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	EB	WB	NB
Directions Served	U	R	UL	LR
Maximum Queue (ft)	25	22	62	135
Average Queue (ft)	1	2	23	35
95th Queue (ft)	10	13	49	78
Link Distance (ft)		1466		420
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	250		230	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	UL	T	TR
Maximum Queue (ft)	180	136	76	129	70	165	180	74	264	352
Average Queue (ft)	82	51	16	47	21	72	96	14	119	138
95th Queue (ft)	137	104	51	98	48	140	155	42	209	254
Link Distance (ft)		2127		4892		5269	5269		5196	5196
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150		480			480		
Storage Blk Time (%)	0	0								
Queuing Penalty (veh)	0	0								

Network Summary

Network wide Queuing Penalty: 0

Appendix G: Existing plus Project (Buildout) Traffic Conditions

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	453	54	15	509	16	4
Future Volume (vph)	0	453	54	15	509	16	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.98		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4955		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4955		1752	3505	1752	1568
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	533	64	18	599	19	5
RTOR Reduction (vph)	0	39	0	0	0	0	4
Lane Group Flow (vph)	0	558	0	18	599	19	1
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		11.5		0.6	16.3	5.4	5.4
Effective Green, g (s)		11.5		0.6	16.3	5.4	5.4
Actuated g/C Ratio		0.36		0.02	0.51	0.17	0.17
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1786		32	1790	296	265
v/s Ratio Prot		0.11		0.01	c0.17	c0.01	
v/s Ratio Perm							0.00
v/c Ratio		0.31		0.56	0.33	0.06	0.00
Uniform Delay, d1		7.4		15.5	4.6	11.1	11.0
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		20.7	0.1	0.1	0.0
Delay (s)		7.5		36.2	4.7	11.2	11.0
Level of Service		A		D	A	B	B
Approach Delay (s)		7.5			5.6	11.2	
Approach LOS		A			A	B	

Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	31.9	Sum of lost time (s)	14.4
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	189	226	57	17	38	218	56	1	68	347	76	49
Future Volume (vph)	189	226	57	17	38	218	56	1	68	347	76	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.97			1.00	0.97			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4884			3400	3397			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4884			3400	3397			3400	3505	1568	3400
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	220	263	66	20	44	253	65	1	79	403	88	57
RTOR Reduction (vph)	0	42	0	0	0	24	0	0	0	0	66	0
Lane Group Flow (vph)	220	287	0	0	64	294	0	0	80	403	22	57
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	8.9	23.0			3.0	17.1			3.1	16.6	16.6	2.1
Effective Green, g (s)	8.9	23.0			3.0	17.1			3.1	16.6	16.6	2.1
Actuated g/C Ratio	0.13	0.35			0.05	0.26			0.05	0.25	0.25	0.03
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	1694			153	876			158	877	392	107
v/s Ratio Prot	c0.06	0.06			0.02	c0.09			c0.02	c0.11		0.02
v/s Ratio Perm											0.01	
v/c Ratio	0.48	0.17			0.42	0.34			0.51	0.46	0.06	0.53
Uniform Delay, d1	26.6	15.0			30.8	20.0			30.9	21.1	18.9	31.6
Progression Factor	1.00	1.00			0.99	1.05			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0			1.8	0.2			2.5	0.4	0.1	5.0
Delay (s)	27.4	15.1			32.5	21.3			33.4	21.4	19.0	36.6
Level of Service	C	B			C	C			C	C	B	D
Approach Delay (s)		20.0				23.2				22.7		
Approach LOS		B				C				C		

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	66.3	Sum of lost time (s)	21.6
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	260	199
Future Volume (vph)	260	199
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.86	0.86
Adj. Flow (vph)	302	231
RTOR Reduction (vph)	0	177
Lane Group Flow (vph)	302	54
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.6	15.6
Effective Green, g (s)	15.6	15.6
Actuated g/C Ratio	0.24	0.24
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	824	368
v/s Ratio Prot	0.09	
v/s Ratio Perm		0.03
v/c Ratio	0.37	0.15
Uniform Delay, d1	21.2	20.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.2
Delay (s)	21.5	20.3
Level of Service	C	C
Approach Delay (s)	22.5	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	15.2

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	110	186	66	2	63	220	151	114
Future Vol, veh/h	110	186	66	2	63	220	151	114
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	133	224	80	2	76	265	182	137

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	265	0	0	224	304	0	779	112
Stage 1	-	-	-	-	-	-	490	-
Stage 2	-	-	-	-	-	-	289	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	969	-	-	1029	1246	-	331	916
Stage 1	-	-	-	-	-	-	578	-
Stage 2	-	-	-	-	-	-	732	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	969	-	-	1231	1231	-	268	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	-
Stage 1	-	-	-	-	-	-	499	-
Stage 2	-	-	-	-	-	-	686	-

Approach	EB	WB	NB
HCM Control Delay, s	2.8	1.9	46.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	385	969	-	-	1231	-
HCM Lane V/C Ratio	0.829	0.137	-	-	0.064	-
HCM Control Delay (s)	46.4	9.3	-	-	8.1	-
HCM Lane LOS	E	A	-	-	A	-
HCM 95th %tile Q(veh)	7.6	0.5	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	89	59	23	83	12	58	721	15	14	475	139
Future Volume (vph)	156	89	59	23	83	12	58	721	15	14	475	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1734		1752	1810		1752	3494		1752	3386	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1734		1752	1810		1752	3494		1752	3386	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	195	111	74	29	104	15	72	901	19	18	594	174
RTOR Reduction (vph)	0	24	0	0	6	0	0	1	0	0	27	0
Lane Group Flow (vph)	195	161	0	29	113	0	73	919	0	18	741	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.8	24.1		1.9	12.2		8.9	30.9		1.2	23.2	
Effective Green, g (s)	13.8	24.1		1.9	12.2		8.9	30.9		1.2	23.2	
Actuated g/C Ratio	0.18	0.31		0.02	0.16		0.11	0.39		0.02	0.30	
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	532		42	281		198	1375		26	1000	
v/s Ratio Prot	c0.11	0.09		0.02	c0.06		0.04	c0.26		0.01	c0.22	
v/s Ratio Perm												
v/c Ratio	0.64	0.30		0.69	0.40		0.37	0.67		0.69	0.74	
Uniform Delay, d1	30.0	20.8		38.0	29.9		32.2	19.6		38.5	24.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	0.3		39.1	0.9		1.2	1.2		57.6	3.0	
Delay (s)	34.3	21.1		77.1	30.8		33.4	20.8		96.1	27.9	
Level of Service	C	C		E	C		C	C		F	C	
Approach Delay (s)		27.9			39.9			21.7			29.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	20.4
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	395	149	40	445	88	33
Future Volume (vph)	0	395	149	40	445	88	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.96		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4828		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4828		1752	3505	1752	1568
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	420	159	43	473	94	35
RTOR Reduction (vph)	0	107	0	0	0	0	28
Lane Group Flow (vph)	0	472	0	43	473	94	7
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		10.7		0.7	15.6	6.9	6.9
Effective Green, g (s)		10.7		0.7	15.6	6.9	6.9
Actuated g/C Ratio		0.33		0.02	0.48	0.21	0.21
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1579		37	1672	369	330
v/s Ratio Prot		0.10		c0.02	c0.13	c0.05	
v/s Ratio Perm							0.00
v/c Ratio		0.30		1.16	0.28	0.25	0.02
Uniform Delay, d1		8.2		16.0	5.2	10.8	10.2
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		200.1	0.1	0.4	0.0
Delay (s)		8.3		216.1	5.3	11.1	10.3
Level of Service		A		F	A	B	B
Approach Delay (s)		8.3			22.8	10.9	
Approach LOS		A			C	B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	32.7	Sum of lost time (s)	14.4
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	143	220	71	74	82	194	38	2	77	397	59	55
Future Volume (vph)	143	220	71	74	82	194	38	2	77	397	59	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.96			1.00	0.98			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4851			3400	3419			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4851			3400	3419			3400	3505	1568	3400
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	152	234	76	79	87	206	40	2	82	422	63	59
RTOR Reduction (vph)	0	61	0	0	0	19	0	0	0	0	46	0
Lane Group Flow (vph)	152	249	0	0	166	227	0	0	84	422	17	59
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	7.7	12.5			8.3	13.1			3.1	16.8	16.8	2.1
Effective Green, g (s)	7.7	12.5			8.3	13.1			3.1	16.8	16.8	2.1
Actuated g/C Ratio	0.13	0.20			0.14	0.21			0.05	0.27	0.27	0.03
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	427	989			460	730			171	960	429	116
v/s Ratio Prot	0.04	0.05			c0.05	c0.07			c0.02	c0.12		0.02
v/s Ratio Perm											0.01	
v/c Ratio	0.36	0.25			0.36	0.31			0.49	0.44	0.04	0.51
Uniform Delay, d1	24.5	20.5			24.1	20.3			28.3	18.4	16.3	29.1
Progression Factor	1.00	1.00			1.00	1.03			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1			0.5	0.2			2.2	0.3	0.0	3.5
Delay (s)	25.0	20.6			24.6	21.2			30.5	18.7	16.4	32.6
Level of Service	C	C			C	C			C	B	B	C
Approach Delay (s)		22.1				22.5				20.2		
Approach LOS		C				C				C		

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	61.3	Sum of lost time (s)	21.6
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations	↑↑	↱
Traffic Volume (vph)	341	212
Future Volume (vph)	341	212
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	363	226
RTOR Reduction (vph)	0	168
Lane Group Flow (vph)	363	58
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.8	15.8
Effective Green, g (s)	15.8	15.8
Actuated g/C Ratio	0.26	0.26
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	903	404
v/s Ratio Prot	0.10	
v/s Ratio Perm		0.04
v/c Ratio	0.40	0.14
Uniform Delay, d1	18.8	17.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.2
Delay (s)	19.1	17.7
Level of Service	B	B
Approach Delay (s)	19.9	
Approach LOS	B	

Intersection Summary

Intersection	
Int Delay, s/veh	3.8

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	46	257	117	3	99	162	52	63
Future Vol, veh/h	46	257	117	3	99	162	52	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	0	-
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	52	292	133	3	113	184	59	72

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	184	0	0	292	425	0	720	146
Stage 1	-	-	-	-	-	-	396	-
Stage 2	-	-	-	-	-	-	324	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	1090	-	-	932	1124	-	361	871
Stage 1	-	-	-	-	-	-	646	-
Stage 2	-	-	-	-	-	-	702	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	1090	-	-	1114	1114	-	308	871
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	-
Stage 1	-	-	-	-	-	-	615	-
Stage 2	-	-	-	-	-	-	629	-

Approach	EB			WB			NB	
HCM Control Delay, s	0.9			3.3			15.4	
HCM LOS							C	

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	477	1090	-	-	1114	-
HCM Lane V/C Ratio	0.274	0.048	-	-	0.104	-
HCM Control Delay (s)	15.4	8.5	-	-	8.6	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	1.1	0.2	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations	↰	↱		↰	↱		↰	↑↱			↰	↑↱
Traffic Volume (vph)	173	80	57	19	60	6	23	695	14	1	11	871
Future Volume (vph)	173	80	57	19	60	6	23	695	14	1	11	871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			1.00	0.95
Frt	1.00	0.94		1.00	0.99		1.00	1.00			1.00	0.98
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	1730		1752	1818		1752	3494			1752	3419
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1752	1730		1752	1818		1752	3494			1752	3419
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	192	89	63	21	67	7	26	772	16	1	12	968
RTOR Reduction (vph)	0	26	0	0	4	0	0	1	0	0	0	13
Lane Group Flow (vph)	192	126	0	21	70	0	26	787	0	0	13	1145
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	13.7	23.3		1.5	11.1		1.2	36.1			0.5	35.4
Effective Green, g (s)	13.7	23.3		1.5	11.1		1.2	36.1			0.5	35.4
Actuated g/C Ratio	0.17	0.28		0.02	0.14		0.01	0.44			0.01	0.43
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	293	492		32	246		25	1541			10	1479
v/s Ratio Prot	c0.11	c0.07		0.01	0.04		c0.01	0.23			0.01	c0.33
v/s Ratio Perm												
v/c Ratio	0.66	0.26		0.66	0.28		1.04	0.51			1.30	0.77
Uniform Delay, d1	31.8	22.6		39.9	31.8		40.3	16.5			40.6	19.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	5.2	0.3		39.4	0.6		192.8	0.3			398.9	2.6
Delay (s)	37.0	22.8		79.3	32.4		233.1	16.8			439.6	22.4
Level of Service	D	C		E	C		F	B			F	C
Approach Delay (s)		30.8			42.8			23.7				27.0
Approach LOS		C			D			C				C

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	81.8	Sum of lost time (s)	20.4
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	171
Future Volume (vph)	171
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Intersection	
Int Delay, s/veh	10

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	110	186	66	2	63	220	151	114
Future Vol, veh/h	110	186	66	2	63	220	151	114
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	150	0
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	133	224	80	2	76	265	182	137

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	265	0	0	224	304	0	779	112
Stage 1	-	-	-	-	-	-	490	-
Stage 2	-	-	-	-	-	-	289	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	969	-	-	1029	1246	-	331	916
Stage 1	-	-	-	-	-	-	578	-
Stage 2	-	-	-	-	-	-	732	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	969	-	-	1231	1231	-	268	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	-
Stage 1	-	-	-	-	-	-	499	-
Stage 2	-	-	-	-	-	-	686	-

Approach	EB	WB	NB
HCM Control Delay, s	2.8	1.9	28.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	268	916	969	-	-	1231	-
HCM Lane V/C Ratio	0.679	0.15	0.137	-	-	0.064	-
HCM Control Delay (s)	42.7	9.6	9.3	-	-	8.1	-
HCM Lane LOS	E	A	A	-	-	A	-
HCM 95th %tile Q(veh)	4.5	0.5	0.5	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	46	257	117	3	99	162	52	63
Future Vol, veh/h	46	257	117	3	99	162	52	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	150	0
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	52	292	133	3	113	184	59	72

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	184	0	0	292	425	0	720	146
Stage 1	-	-	-	-	-	-	396	-
Stage 2	-	-	-	-	-	-	324	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	1090	-	-	932	1124	-	361	871
Stage 1	-	-	-	-	-	-	646	-
Stage 2	-	-	-	-	-	-	702	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	1090	-	-	1114	1114	-	308	871
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	-
Stage 1	-	-	-	-	-	-	615	-
Stage 2	-	-	-	-	-	-	629	-

Approach	EB	WB	NB
HCM Control Delay, s	0.9	3.3	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	308	871	1090	-	-	1114	-
HCM Lane V/C Ratio	0.192	0.082	0.048	-	-	0.104	-
HCM Control Delay (s)	19.4	9.5	8.5	-	-	8.6	-
HCM Lane LOS	C	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0.3	0.2	-	-	0.3	-

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	66	47	74	53	76	69	26	24
Average Queue (ft)	33	10	20	17	21	32	9	4
95th Queue (ft)	59	37	45	45	52	63	29	18
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	93	135	96	81	93	56	80	65	85	55	52	96
Average Queue (ft)	38	60	41	24	31	15	18	29	37	16	31	55
95th Queue (ft)	76	106	83	56	69	39	49	61	77	46	56	89
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	96	54	53	53	96	92	96
Average Queue (ft)	62	25	19	26	46	49	48
95th Queue (ft)	102	45	46	54	80	84	78
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	WB	NB	NB
Directions Served	U	UL	L	R
Maximum Queue (ft)	62	27	91	70
Average Queue (ft)	18	6	51	30
95th Queue (ft)	46	24	89	52
Link Distance (ft)				421
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	250	230	150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	134	115	73	116	94	138	163	52	202	238
Average Queue (ft)	76	51	23	54	38	77	96	11	87	106
95th Queue (ft)	117	94	54	105	72	132	146	36	166	192
Link Distance (ft)		2127		4892		5269	5269		5196	5196
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150		480			480		
Storage Blk Time (%)	0									
Queuing Penalty (veh)	0									

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	73	56	129	74	51	77	74	30
Average Queue (ft)	28	20	46	28	16	34	31	13
95th Queue (ft)	57	48	85	60	43	65	65	33
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	72	92	96	82	131	107	107	101	101	50	72	113
Average Queue (ft)	29	50	43	29	42	46	41	39	38	20	37	63
95th Queue (ft)	66	83	71	68	89	83	79	85	82	43	66	105
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	116	68	67	77	142	97	80
Average Queue (ft)	74	21	18	33	59	51	47
95th Queue (ft)	112	50	51	70	102	93	79
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB
Directions Served	U	R	UL	T	L	R
Maximum Queue (ft)	26	20	118	53	87	59
Average Queue (ft)	6	1	33	3	28	23
95th Queue (ft)	23	6	79	23	59	46
Link Distance (ft)		1466		377		421
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	250		230		150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	UL	T	TR
Maximum Queue (ft)	195	138	52	121	53	195	200	28	284	368
Average Queue (ft)	98	58	12	53	12	81	103	8	138	164
95th Queue (ft)	162	118	37	101	40	162	177	27	258	292
Link Distance (ft)		2127		4892		5269	5269		5196	5196
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150		480			480		
Storage Blk Time (%)	1	0								
Queuing Penalty (veh)	1	0								

Network Summary

Network wide Queuing Penalty: 1

Appendix H: Near Term plus Project (Phase I) Traffic Conditions

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	448	54	14	551	16	2
Future Volume (vph)	0	448	54	14	551	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.98		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4954		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4954		1752	3505	1752	1568
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	527	64	16	648	19	2
RTOR Reduction (vph)	0	39	0	0	0	0	2
Lane Group Flow (vph)	0	552	0	16	648	19	0
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		11.8		0.6	16.6	5.4	5.4
Effective Green, g (s)		11.8		0.6	16.6	5.4	5.4
Actuated g/C Ratio		0.37		0.02	0.52	0.17	0.17
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1815		32	1806	293	262
v/s Ratio Prot		0.11		0.01	c0.18	c0.01	
v/s Ratio Perm							0.00
v/c Ratio		0.30		0.50	0.36	0.06	0.00
Uniform Delay, d1		7.3		15.7	4.6	11.3	11.2
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		11.8	0.1	0.1	0.0
Delay (s)		7.4		27.4	4.8	11.4	11.2
Level of Service		A		C	A	B	B
Approach Delay (s)		7.4			5.3	11.3	
Approach LOS		A			A	B	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	32.2	Sum of lost time (s)	14.4
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	189	218	58	7	90	256	63	1	71	348	72	43
Future Volume (vph)	189	218	58	7	90	256	63	1	71	348	72	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.97			1.00	0.97			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4878			3400	3401			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4878			3400	3401			3400	3505	1568	3400
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	220	253	67	8	105	298	73	1	83	405	84	50
RTOR Reduction (vph)	0	47	0	0	0	23	0	0	0	0	63	0
Lane Group Flow (vph)	220	273	0	0	113	348	0	0	84	405	21	50
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	8.9	19.7			5.8	16.6			3.0	16.7	16.7	2.1
Effective Green, g (s)	8.9	19.7			5.8	16.6			3.0	16.7	16.7	2.1
Actuated g/C Ratio	0.14	0.30			0.09	0.25			0.05	0.25	0.25	0.03
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	459	1458			299	856			154	888	397	108
v/s Ratio Prot	c0.06	c0.06			0.03	c0.10			c0.02	c0.12		0.01
v/s Ratio Perm											0.01	
v/c Ratio	0.48	0.19			0.38	0.41			0.55	0.46	0.05	0.46
Uniform Delay, d1	26.4	17.2			28.3	20.5			30.8	20.8	18.6	31.3
Progression Factor	1.00	1.00			1.00	1.04			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1			0.8	0.3			3.9	0.4	0.1	3.1
Delay (s)	27.1	17.2			29.1	21.6			34.7	21.1	18.7	34.5
Level of Service	C	B			C	C			C	C	B	C
Approach Delay (s)		21.3				23.3				22.8		
Approach LOS		C				C				C		

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	21.6
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	260	199
Future Volume (vph)	260	199
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.86	0.86
Adj. Flow (vph)	302	231
RTOR Reduction (vph)	0	176
Lane Group Flow (vph)	302	55
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.8	15.8
Effective Green, g (s)	15.8	15.8
Actuated g/C Ratio	0.24	0.24
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	840	375
v/s Ratio Prot	0.09	
v/s Ratio Perm		0.04
v/c Ratio	0.36	0.15
Uniform Delay, d1	20.8	19.7
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.2
Delay (s)	21.1	19.9
Level of Service	C	B
Approach Delay (s)	21.8	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	9.4

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	53	199	65	2	63	257	148	116
Future Vol, veh/h	53	199	65	2	63	257	148	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	0	-
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	64	240	78	2	76	310	178	140

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	310	0	0	240	318	0	679	120
Stage 1	-	-	-	-	-	-	368	-
Stage 2	-	-	-	-	-	-	311	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	908	-	-	1005	1232	-	383	906
Stage 1	-	-	-	-	-	-	667	-
Stage 2	-	-	-	-	-	-	713	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	908	-	-	1217	1217	-	333	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	333	-
Stage 1	-	-	-	-	-	-	620	-
Stage 2	-	-	-	-	-	-	667	-

Approach	EB	WB	NB
HCM Control Delay, s	1.5	1.6	28.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	461	908	-	-	1217	-
HCM Lane V/C Ratio	0.69	0.07	-	-	0.064	-
HCM Control Delay (s)	28.4	9.3	-	-	8.2	-
HCM Lane LOS	D	A	-	-	A	-
HCM 95th %tile Q(veh)	5.2	0.2	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	89	91	23	80	12	63	721	15	14	475	126
Future Volume (vph)	175	89	91	23	80	12	63	721	15	14	475	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1704		1752	1809		1752	3494		1752	3394	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1704		1752	1809		1752	3494		1752	3394	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	219	111	114	29	100	15	79	901	19	18	594	158
RTOR Reduction (vph)	0	37	0	0	6	0	0	1	0	0	22	0
Lane Group Flow (vph)	219	188	0	29	109	0	79	919	0	18	730	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.9	24.0		1.9	12.0		5.2	30.6		1.2	26.6	
Effective Green, g (s)	13.9	24.0		1.9	12.0		5.2	30.6		1.2	26.6	
Actuated g/C Ratio	0.18	0.31		0.02	0.15		0.07	0.39		0.02	0.34	
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	311	523		42	277		116	1368		26	1155	
v/s Ratio Prot	c0.12	c0.11		0.02	0.06		c0.05	c0.26		0.01	0.22	
v/s Ratio Perm												
v/c Ratio	0.70	0.36		0.69	0.39		0.68	0.67		0.69	0.63	
Uniform Delay, d1	30.2	21.1		37.8	29.8		35.6	19.6		38.3	21.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	0.4		39.1	0.9		15.2	1.3		57.6	1.1	
Delay (s)	37.2	21.5		76.9	30.7		50.9	20.9		95.9	22.8	
Level of Service	D	C		E	C		D	C		F	C	
Approach Delay (s)		29.3			40.0			23.3			24.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	20.4
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	440	149	37	453	88	32
Future Volume (vph)	0	440	149	37	453	88	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.96		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4844		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4844		1752	3505	1752	1568
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	468	159	39	482	94	34
RTOR Reduction (vph)	0	106	0	0	0	0	27
Lane Group Flow (vph)	0	521	0	39	482	94	7
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		10.8		0.6	15.6	6.9	6.9
Effective Green, g (s)		10.8		0.6	15.6	6.9	6.9
Actuated g/C Ratio		0.33		0.02	0.48	0.21	0.21
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1599		32	1672	369	330
v/s Ratio Prot		0.11		c0.02	c0.14	c0.05	
v/s Ratio Perm							0.00
v/c Ratio		0.33		1.22	0.29	0.25	0.02
Uniform Delay, d1		8.2		16.1	5.2	10.8	10.2
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		231.6	0.1	0.4	0.0
Delay (s)		8.3		247.7	5.3	11.1	10.3
Level of Service		A		F	A	B	B
Approach Delay (s)		8.3			23.4	10.9	
Approach LOS		A			C	B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	32.7	Sum of lost time (s)	14.4
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	143	261	74	34	92	197	33	2	79	398	116	59
Future Volume (vph)	143	261	74	34	92	197	33	2	79	398	116	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.97			1.00	0.98			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4869			3400	3430			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4869			3400	3430			3400	3505	1568	3400
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	152	278	79	36	98	210	35	2	84	423	123	63
RTOR Reduction (vph)	0	55	0	0	0	15	0	0	0	0	90	0
Lane Group Flow (vph)	152	302	0	0	134	230	0	0	86	423	33	63
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	7.7	17.2			5.3	14.8			3.9	17.1	17.1	2.7
Effective Green, g (s)	7.7	17.2			5.3	14.8			3.9	17.1	17.1	2.7
Actuated g/C Ratio	0.12	0.27			0.08	0.23			0.06	0.27	0.27	0.04
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	409	1310			282	794			207	937	419	143
v/s Ratio Prot	c0.04	c0.06			0.04	c0.07			c0.03	c0.12		0.02
v/s Ratio Perm											0.02	
v/c Ratio	0.37	0.23			0.48	0.29			0.42	0.45	0.08	0.44
Uniform Delay, d1	25.9	18.2			28.0	20.2			28.9	19.5	17.5	29.9
Progression Factor	1.00	1.00			1.00	1.02			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1			1.3	0.2			1.4	0.3	0.1	2.2
Delay (s)	26.4	18.3			29.2	20.8			30.3	19.8	17.6	32.0
Level of Service	C	B			C	C			C	B	B	C
Approach Delay (s)		20.7				23.8				20.8		
Approach LOS		C				C				C		

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	21.6
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	342	212
Future Volume (vph)	342	212
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	364	226
RTOR Reduction (vph)	0	170
Lane Group Flow (vph)	364	56
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	15.9	15.9
Effective Green, g (s)	15.9	15.9
Actuated g/C Ratio	0.25	0.25
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	872	390
v/s Ratio Prot	0.10	
v/s Ratio Perm		0.04
v/c Ratio	0.42	0.14
Uniform Delay, d1	20.1	18.7
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.2
Delay (s)	20.4	18.9
Level of Service	C	B
Approach Delay (s)	21.0	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	3.4

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	20	291	114	3	101	195	51	63
Future Vol, veh/h	20	291	114	3	101	195	51	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	0	-
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	23	331	130	3	115	222	58	72

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	222	0	0	331	461	0	724	166
Stage 1	-	-	-	-	-	-	377	-
Stage 2	-	-	-	-	-	-	347	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	1032	-	-	881	1089	-	358	846
Stage 1	-	-	-	-	-	-	660	-
Stage 2	-	-	-	-	-	-	684	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	1032	-	-	1079	1079	-	312	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	312	-
Stage 1	-	-	-	-	-	-	645	-
Stage 2	-	-	-	-	-	-	609	-

Approach	EB	WB	NB
HCM Control Delay, s	0.4	3	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	479	1032	-	-	1079	-
HCM Lane V/C Ratio	0.27	0.022	-	-	0.11	-
HCM Control Delay (s)	15.3	8.6	-	-	8.7	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	165	73	76	19	58	6	60	695	14	1	11	871
Future Volume (vph)	165	73	76	19	58	6	60	695	14	1	11	871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			1.00	0.95
Frt	1.00	0.92		1.00	0.99		1.00	1.00			1.00	0.97
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	1704		1752	1817		1752	3494			1752	3411
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1752	1704		1752	1817		1752	3494			1752	3411
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	183	81	84	21	64	7	67	772	16	1	12	968
RTOR Reduction (vph)	0	41	0	0	4	0	0	1	0	0	0	14
Lane Group Flow (vph)	183	124	0	21	67	0	67	787	0	0	13	1165
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	12.4	22.0		1.6	11.2		5.1	43.5			0.6	39.0
Effective Green, g (s)	12.4	22.0		1.6	11.2		5.1	43.5			0.6	39.0
Actuated g/C Ratio	0.14	0.25		0.02	0.13		0.06	0.49			0.01	0.44
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	246	425		31	230		101	1725			11	1509
v/s Ratio Prot	c0.10	c0.07		0.01	0.04		c0.04	0.23			0.01	c0.34
v/s Ratio Perm												
v/c Ratio	0.74	0.29		0.68	0.29		0.66	0.46			1.18	0.77
Uniform Delay, d1	36.3	26.8		43.0	34.8		40.7	14.6			43.8	20.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	11.5	0.4		45.6	0.7		15.2	0.2			338.7	2.5
Delay (s)	47.8	27.1		88.6	35.5		55.9	14.8			382.5	23.3
Level of Service	D	C		F	D		E	B			F	C
Approach Delay (s)		38.0			47.7			18.0				27.2
Approach LOS		D			D			B				C

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	88.1	Sum of lost time (s)	20.4
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	190
Future Volume (vph)	190
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	211
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	95	29	74	31	53	74	49	25
Average Queue (ft)	37	4	25	7	20	31	11	2
95th Queue (ft)	71	21	51	27	50	66	34	12
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	98	118	91	78	114	46	85	87	105	31	70	144
Average Queue (ft)	50	62	42	29	35	19	42	39	42	10	35	65
95th Queue (ft)	92	100	73	59	77	43	76	70	81	32	59	117
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	164	68	53	72	99	111	114
Average Queue (ft)	67	20	18	22	53	48	43
95th Queue (ft)	125	45	47	52	87	95	77
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	WB	NB
Directions Served	U	UL	LR
Maximum Queue (ft)	31	31	229
Average Queue (ft)	5	15	76
95th Queue (ft)	23	37	160
Link Distance (ft)			420
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250	230	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	202	265	53	94	96	243	242	26	181	197
Average Queue (ft)	96	67	19	57	48	90	110	9	81	104
95th Queue (ft)	173	159	46	94	92	158	178	28	135	178
Link Distance (ft)		2127		4892		5269	5269		5196	5196
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150		480			480		
Storage Blk Time (%)	3	0								
Queuing Penalty (veh)	6	0								

Network Summary

Network wide Queuing Penalty: 6

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	92	56	99	76	53	99	73	50
Average Queue (ft)	36	19	40	25	12	37	30	10
95th Queue (ft)	70	49	70	60	42	71	60	35
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	75	113	113	102	119	85	85	86	86	75	94	93
Average Queue (ft)	35	55	53	39	45	33	35	41	39	32	39	58
95th Queue (ft)	68	88	94	81	89	67	66	74	79	60	70	82
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	120	55	49	90	131	181	75
Average Queue (ft)	69	29	16	30	58	62	46
95th Queue (ft)	105	52	42	64	101	108	72
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)						0	
Queuing Penalty (veh)						1	

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	WB	WB	NB
Directions Served	U	UL	T	LR
Maximum Queue (ft)	22	158	46	103
Average Queue (ft)	1	27	2	34
95th Queue (ft)	11	77	15	70
Link Distance (ft)			388	420
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	250	230		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	UL	T	TR
Maximum Queue (ft)	138	132	51	121	96	118	207	27	311	332
Average Queue (ft)	96	64	13	47	43	59	88	8	135	165
95th Queue (ft)	141	115	41	97	88	116	159	26	244	284
Link Distance (ft)		2127		4892		5269	5269		5196	5196
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		150		480			480		
Storage Blk Time (%)	0	0								
Queuing Penalty (veh)	0	0								

Network Summary

Network wide Queuing Penalty: 1

Appendix I: Near Term plus Project (Buildout) Traffic Conditions

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	601	76	27	739	38	15
Future Volume (vph)	0	601	76	27	739	38	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.98		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4951		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4951		1752	3505	1752	1568
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	707	89	32	869	45	18
RTOR Reduction (vph)	0	38	0	0	0	0	15
Lane Group Flow (vph)	0	758	0	32	869	45	3
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		14.2		0.7	19.1	6.0	6.0
Effective Green, g (s)		14.2		0.7	19.1	6.0	6.0
Actuated g/C Ratio		0.40		0.02	0.54	0.17	0.17
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1991		34	1896	297	266
v/s Ratio Prot		0.15		0.02	c0.25	c0.03	
v/s Ratio Perm							0.00
v/c Ratio		0.38		0.94	0.46	0.15	0.01
Uniform Delay, d1		7.4		17.3	4.9	12.5	12.2
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		129.7	0.2	0.2	0.0
Delay (s)		7.6		147.0	5.1	12.7	12.2
Level of Service		A		F	A	B	B
Approach Delay (s)		7.6			10.2	12.6	
Approach LOS		A			B	B	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	35.3	Sum of lost time (s)	14.4
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	235	326	70	17	142	365	69	1	99	384	153	57
Future Volume (vph)	235	326	70	17	142	365	69	1	99	384	153	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.97			1.00	0.98			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4903			3400	3421			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4903			3400	3421			3400	3505	1568	3400
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	273	379	81	20	165	424	80	1	115	447	178	66
RTOR Reduction (vph)	0	36	0	0	0	16	0	0	0	0	131	0
Lane Group Flow (vph)	273	424	0	0	185	488	0	0	116	447	47	66
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	8.6	17.7			8.5	17.6			4.1	18.4	18.4	3.0
Effective Green, g (s)	8.6	17.7			8.5	17.6			4.1	18.4	18.4	3.0
Actuated g/C Ratio	0.12	0.26			0.12	0.25			0.06	0.27	0.27	0.04
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	422	1254			417	870			201	931	416	147
v/s Ratio Prot	c0.08	0.09			0.05	c0.14			c0.03	c0.13		0.02
v/s Ratio Perm											0.03	
v/c Ratio	0.65	0.34			0.44	0.56			0.58	0.48	0.11	0.45
Uniform Delay, d1	28.9	21.0			28.2	22.4			31.7	21.4	19.2	32.3
Progression Factor	1.00	1.00			1.01	1.00			1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.2			0.8	0.8			4.0	0.4	0.1	2.2
Delay (s)	32.3	21.1			29.2	23.3			35.7	21.8	19.4	34.5
Level of Service	C	C			C	C			D	C	B	C
Approach Delay (s)		25.3				24.9				23.4		
Approach LOS		C				C				C		

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	69.2	Sum of lost time (s)	21.6
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	298	263
Future Volume (vph)	298	263
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.86	0.86
Adj. Flow (vph)	347	306
RTOR Reduction (vph)	0	230
Lane Group Flow (vph)	347	77
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	17.3	17.3
Effective Green, g (s)	17.3	17.3
Actuated g/C Ratio	0.25	0.25
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	876	392
v/s Ratio Prot	0.10	
v/s Ratio Perm		0.05
v/c Ratio	0.40	0.20
Uniform Delay, d1	21.6	20.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.2
Delay (s)	21.9	20.7
Level of Service	C	C
Approach Delay (s)	22.5	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	51.3

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	110	351	67	2	63	396	156	117
Future Vol, veh/h	110	351	67	2	63	396	156	117
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	0	-
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	133	423	81	2	76	477	188	141

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	477	0	0	423	504	0	1084	212
Stage 1	-	-	-	-	-	-	689	-
Stage 2	-	-	-	-	-	-	395	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	712	-	-	770	1050	-	210	790
Stage 1	-	-	-	-	-	-	457	-
Stage 2	-	-	-	-	-	-	647	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	712	-	-	1031	1031	-	~ 158	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 158	-
Stage 1	-	-	-	-	-	-	372	-
Stage 2	-	-	-	-	-	-	598	-

Approach	EB	WB	NB
HCM Control Delay, s	2.3	1.2	230.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	240	712	-	-	1031	-
HCM Lane V/C Ratio	1.37	0.186	-	-	0.076	-
HCM Control Delay (s)	230.6	11.2	-	-	8.8	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	18	0.7	-	-	0.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	95	131	23	88	12	130	747	15	14	504	216
Future Volume (vph)	230	95	131	23	88	12	130	747	15	14	504	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.98		1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1684		1752	1811		1752	3494		1752	3347	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1684		1752	1811		1752	3494		1752	3347	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	288	119	164	29	110	15	162	934	19	18	630	270
RTOR Reduction (vph)	0	45	0	0	5	0	0	1	0	0	39	0
Lane Group Flow (vph)	288	238	0	29	120	0	163	952	0	18	861	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	18.2	31.1		3.2	16.1		10.0	40.5		1.3	31.8	
Effective Green, g (s)	18.2	31.1		3.2	16.1		10.0	40.5		1.3	31.8	
Actuated g/C Ratio	0.19	0.32		0.03	0.17		0.10	0.42		0.01	0.33	
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	330	542		58	302		181	1466		23	1102	
v/s Ratio Prot	c0.16	c0.14		0.02	0.07		c0.09	0.27		0.01	c0.26	
v/s Ratio Perm												
v/c Ratio	0.87	0.44		0.50	0.40		0.90	0.65		0.78	0.78	
Uniform Delay, d1	38.0	25.8		45.9	35.9		42.8	22.3		47.5	29.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.5	0.6		6.6	0.9		40.0	1.0		93.8	3.7	
Delay (s)	59.6	26.4		52.5	36.7		82.7	23.3		141.2	32.9	
Level of Service	E	C		D	D		F	C		F	C	
Approach Delay (s)		43.1			39.7			32.0			35.0	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	20.4
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	928	176	53	911	109	46
Future Volume (vph)	0	928	176	53	911	109	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.98		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4916		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4916		1752	3505	1752	1568
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	987	187	56	969	116	49
RTOR Reduction (vph)	0	61	0	0	0	0	41
Lane Group Flow (vph)	0	1113	0	56	969	116	8
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		17.0		1.6	22.8	6.8	6.8
Effective Green, g (s)		17.0		1.6	22.8	6.8	6.8
Actuated g/C Ratio		0.43		0.04	0.57	0.17	0.17
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		2099		70	2007	299	267
v/s Ratio Prot		0.23		0.03	c0.28	c0.07	
v/s Ratio Perm							0.01
v/c Ratio		0.53		0.80	0.48	0.39	0.03
Uniform Delay, d1		8.4		18.9	5.0	14.7	13.8
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3		46.2	0.2	0.8	0.0
Delay (s)		8.7		65.2	5.2	15.5	13.8
Level of Service		A		E	A	B	B
Approach Delay (s)		8.7			8.5	15.0	
Approach LOS		A			A	B	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	39.8	Sum of lost time (s)	14.4
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	297	557	126	74	284	492	61	2	118	490	279	81
Future Volume (vph)	297	557	126	74	284	492	61	2	118	490	279	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.97			1.00	0.98			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4897			3400	3447			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4897			3400	3447			3400	3505	1568	3400
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	316	593	134	79	302	523	65	2	126	521	297	86
RTOR Reduction (vph)	0	39	0	0	0	10	0	0	0	0	102	0
Lane Group Flow (vph)	316	688	0	0	381	578	0	0	128	521	195	86
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	7.4	18.9			8.8	20.3			4.0	20.7	20.7	3.0
Effective Green, g (s)	7.4	18.9			8.8	20.3			4.0	20.7	20.7	3.0
Actuated g/C Ratio	0.10	0.26			0.12	0.28			0.05	0.28	0.28	0.04
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	344	1267			409	958			186	993	444	139
v/s Ratio Prot	0.09	0.14			c0.11	c0.17			c0.04	c0.15		0.03
v/s Ratio Perm											0.12	
v/c Ratio	0.92	0.54			0.93	0.60			0.69	0.52	0.44	0.62
Uniform Delay, d1	32.5	23.3			31.8	22.9			33.9	22.0	21.4	34.4
Progression Factor	1.00	1.00			1.01	0.99			1.00	1.00	1.00	1.00
Incremental Delay, d2	28.5	0.5			27.9	1.1			10.1	0.5	0.7	8.0
Delay (s)	61.0	23.8			60.0	23.8			44.0	22.5	22.1	42.4
Level of Service	E	C			E	C			D	C	C	D
Approach Delay (s)		35.1				38.0				25.3		
Approach LOS		D				D				C		

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	435	352
Future Volume (vph)	435	352
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	463	374
RTOR Reduction (vph)	0	212
Lane Group Flow (vph)	463	162
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	19.7	19.7
Effective Green, g (s)	19.7	19.7
Actuated g/C Ratio	0.27	0.27
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	945	423
v/s Ratio Prot	0.13	
v/s Ratio Perm		0.10
v/c Ratio	0.49	0.38
Uniform Delay, d1	22.4	21.7
Progression Factor	1.00	1.00
Incremental Delay, d2	0.4	0.6
Delay (s)	22.8	22.3
Level of Service	C	C
Approach Delay (s)	24.4	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	8.6

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Vol, veh/h	46	771	122	3	102	560	54	64
Future Vol, veh/h	46	771	122	3	102	560	54	64
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None
Storage Length	250	-	0	-	230	-	0	-
Veh in Median Storage, #	-	0	-	-	-	0	0	-
Grade, %	-	0	-	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	52	876	139	3	116	636	61	73

Major/Minor	Major1			Major2			Minor1	
Conflicting Flow All	636	0	0	876	1015	0	1536	438
Stage 1	-	-	-	-	-	-	980	-
Stage 2	-	-	-	-	-	-	556	-
Critical Hdwy	6.46	-	-	6.46	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.86	-
Follow-up Hdwy	2.53	-	-	2.53	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	564	-	-	396	673	-	106	564
Stage 1	-	-	-	-	-	-	322	-
Stage 2	-	-	-	-	-	-	535	-
Platoon blocked, %		-	-			-		
Mov Cap-1 Maneuver	564	-	-	656	656	-	79	564
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	-
Stage 1	-	-	-	-	-	-	292	-
Stage 2	-	-	-	-	-	-	438	-

Approach	EB	WB	NB
HCM Control Delay, s	0.6	1.8	110
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	148	564	-	-	656	-
HCM Lane V/C Ratio	0.906	0.093	-	-	0.182	-
HCM Control Delay (s)	110	12	-	-	11.7	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	6.3	0.3	-	-	0.7	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	360	97	240	19	79	6	204	779	14	1	11	953
Future Volume (vph)	360	97	240	19	79	6	204	779	14	1	11	953
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			1.00	0.95
Frt	1.00	0.89		1.00	0.99		1.00	1.00			1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	1648		1752	1824		1752	3495			1752	3363
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1752	1648		1752	1824		1752	3495			1752	3363
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	400	108	267	21	88	7	227	866	16	1	12	1059
RTOR Reduction (vph)	0	86	0	0	3	0	0	1	0	0	0	27
Lane Group Flow (vph)	400	289	0	21	92	0	227	881	0	0	13	1424
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	14.0	26.4		1.7	14.1		8.9	56.0			0.6	47.7
Effective Green, g (s)	14.0	26.4		1.7	14.1		8.9	56.0			0.6	47.7
Actuated g/C Ratio	0.13	0.25		0.02	0.13		0.08	0.53			0.01	0.45
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	233	413		28	244		148	1862			10	1526
v/s Ratio Prot	c0.23	c0.18		0.01	0.05		c0.13	0.25			0.01	c0.42
v/s Ratio Perm												
v/c Ratio	1.72	0.70		0.75	0.38		1.53	0.47			1.30	0.93
Uniform Delay, d1	45.5	35.7		51.5	41.5		48.1	15.3			52.2	27.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	340.1	5.1		71.8	1.0		271.2	0.2			398.9	10.7
Delay (s)	385.6	40.9		123.3	42.5		319.3	15.5			451.2	37.9
Level of Service	F	D		F	D		F	B			F	D
Approach Delay (s)		218.8			57.1			77.7				41.6
Approach LOS		F			E			E				D

Intersection Summary			
HCM 2000 Control Delay	93.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	105.1	Sum of lost time (s)	20.4
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	353
Future Volume (vph)	353
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	392
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Volume (vph)	110	351	67	2	63	396	156	117
Future Volume (vph)	110	351	67	2	63	396	156	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.8	4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	
Frt	1.00	1.00	0.85		1.00	1.00	0.94	
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	1752	3505	1568		1752	3505	1690	
Flt Permitted	0.95	1.00	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	1752	3505	1568		1752	3505	1690	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	133	423	81	2	76	477	188	141
RTOR Reduction (vph)	0	0	48	0	0	0	48	0
Lane Group Flow (vph)	133	423	33	0	78	477	281	0
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Prot	
Protected Phases	7	4		3	3	8	5	
Permitted Phases			4					
Actuated Green, G (s)	4.2	16.2	16.2		2.8	14.5	11.2	
Effective Green, g (s)	5.9	17.9	17.9		3.0	16.2	11.4	
Actuated g/C Ratio	0.13	0.40	0.40		0.07	0.37	0.26	
Clearance Time (s)	4.5	5.7	5.7		4.2	5.7	4.2	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	233	1416	633		118	1281	434	
v/s Ratio Prot	c0.08	0.12			0.04	c0.14	c0.17	
v/s Ratio Perm			0.02					
v/c Ratio	0.57	0.30	0.05		0.66	0.37	0.65	
Uniform Delay, d1	18.0	8.9	8.0		20.2	10.3	14.7	
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	3.4	0.1	0.0		13.0	0.2	3.3	
Delay (s)	21.4	9.1	8.1		33.2	10.5	18.0	
Level of Service	C	A	A		C	B	B	
Approach Delay (s)		11.5				13.7	18.0	
Approach LOS		B				B	B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	44.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	95	131	23	88	12	130	747	15	14	504	216
Future Volume (vph)	230	95	131	23	88	12	130	747	15	14	504	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	1845	1568	1752	1811		1752	3505	1568	1752	5036	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	1845	1568	1752	1811		1752	3505	1568	1752	5036	1568
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	288	119	164	29	110	15	162	934	19	18	630	270
RTOR Reduction (vph)	0	0	117	0	6	0	0	0	10	0	0	181
Lane Group Flow (vph)	288	119	47	29	119	0	163	934	9	18	630	89
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	8.7	18.7	18.7	1.9	11.9		9.7	31.1	31.1	0.6	22.0	22.0
Effective Green, g (s)	8.9	20.7	20.7	2.1	13.9		9.9	33.1	33.1	0.8	24.0	24.0
Actuated g/C Ratio	0.12	0.28	0.28	0.03	0.19		0.14	0.46	0.46	0.01	0.33	0.33
Clearance Time (s)	4.2	6.0	6.0	4.2	6.0		4.2	6.0	6.0	4.2	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	416	525	446	50	346		238	1595	713	19	1662	517
v/s Ratio Prot	c0.08	0.06		0.02	c0.07		c0.09	c0.27		0.01	0.13	
v/s Ratio Perm			0.03						0.01			0.06
v/c Ratio	0.69	0.23	0.10	0.58	0.34		0.68	0.59	0.01	0.95	0.38	0.17
Uniform Delay, d1	30.6	19.9	19.2	34.9	25.5		29.9	14.7	10.8	35.9	18.6	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	0.2	0.1	15.3	0.6		7.9	0.6	0.0	179.6	0.1	0.2
Delay (s)	35.5	20.1	19.3	50.1	26.1		37.8	15.3	10.9	215.5	18.8	17.5
Level of Service	D	C	B	D	C		D	B	B	F	B	B
Approach Delay (s)		27.6			30.6			18.5			22.3	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	72.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Traffic Volume (vph)	46	771	122	3	102	560	54	64
Future Volume (vph)	46	771	122	3	102	560	54	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.7	5.7		4.2	5.7	4.2	
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	
Frt	1.00	1.00	0.85		1.00	1.00	0.93	
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1752	3505	1568		1752	3505	1671	
Flt Permitted	0.95	1.00	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	1752	3505	1568		1752	3505	1671	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	52	876	139	3	116	636	61	73
RTOR Reduction (vph)	0	0	74	0	0	0	67	0
Lane Group Flow (vph)	52	876	65	0	119	636	67	0
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Prot	
Protected Phases	7	4		3	3	8	5	
Permitted Phases			4					
Actuated Green, G (s)	1.8	20.3	20.3		5.6	24.1	3.7	
Effective Green, g (s)	1.8	20.3	20.3		5.6	24.1	3.7	
Actuated g/C Ratio	0.04	0.46	0.46		0.13	0.55	0.08	
Clearance Time (s)	4.2	5.7	5.7		4.2	5.7	4.2	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	72	1628	728		224	1932	141	
v/s Ratio Prot	0.03	c0.25			c0.07	0.18	c0.04	
v/s Ratio Perm			0.04					
v/c Ratio	0.72	0.54	0.09		0.53	0.33	0.48	
Uniform Delay, d1	20.7	8.4	6.5		17.8	5.4	19.1	
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	29.8	0.3	0.1		2.4	0.1	2.5	
Delay (s)	50.5	8.7	6.6		20.2	5.5	21.6	
Level of Service	D	A	A		C	A	C	
Approach Delay (s)		10.5				7.8	21.6	
Approach LOS		B				A	C	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	43.7	Sum of lost time (s)	14.1
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	360	97	240	19	79	6	204	779	14	1	11	953
Future Volume (vph)	360	97	240	19	79	6	204	779	14	1	11	953
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0	6.0	4.2	6.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95	1.00		1.00	0.91
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3400	1845	1568	1752	1824		1752	3505	1568		1752	5036
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3400	1845	1568	1752	1824		1752	3505	1568		1752	5036
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	400	108	267	21	88	7	227	866	16	1	12	1059
RTOR Reduction (vph)	0	0	198	0	3	0	0	0	8	0	0	0
Lane Group Flow (vph)	400	108	69	21	92	0	227	866	8	0	13	1059
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases			4						2			
Actuated Green, G (s)	13.5	24.1	24.1	1.6	12.2		15.6	46.5	46.5		0.6	31.5
Effective Green, g (s)	13.5	24.1	24.1	1.6	12.2		15.6	46.5	46.5		0.6	31.5
Actuated g/C Ratio	0.14	0.26	0.26	0.02	0.13		0.17	0.50	0.50		0.01	0.34
Clearance Time (s)	4.2	6.0	6.0	4.2	6.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	492	477	405	30	238		293	1748	782		11	1702
v/s Ratio Prot	c0.12	0.06		0.01	c0.05		c0.13	0.25			0.01	c0.21
v/s Ratio Perm			0.04						0.01			
v/c Ratio	0.81	0.23	0.17	0.70	0.39		0.77	0.50	0.01		1.18	0.62
Uniform Delay, d1	38.6	27.2	26.8	45.6	37.1		37.1	15.5	11.8		46.3	25.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.9	0.2	0.2	52.7	1.1		12.0	0.2	0.0		338.7	0.7
Delay (s)	48.5	27.5	27.0	98.3	38.1		49.2	15.8	11.8		385.0	26.6
Level of Service	D	C	C	F	D		D	B	B		F	C
Approach Delay (s)		38.2			49.0			22.5				28.7
Approach LOS		D			D			C				C

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	20.4
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	353
Future Volume (vph)	353
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	392
RTOR Reduction (vph)	260
Lane Group Flow (vph)	132
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	31.5
Effective Green, g (s)	31.5
Actuated g/C Ratio	0.34
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	529
v/s Ratio Prot	
v/s Ratio Perm	0.08
v/c Ratio	0.25
Uniform Delay, d1	22.3
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	22.6
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	98	56	76	50	72	96	53	26
Average Queue (ft)	42	21	20	14	27	48	17	9
95th Queue (ft)	82	51	48	37	59	83	46	27
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	151	153	133	96	133	85	108	111	125	86	74	138
Average Queue (ft)	64	82	78	41	47	38	53	58	68	35	41	76
95th Queue (ft)	113	125	122	76	94	76	94	100	109	67	70	121
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	157	100	53	72	140	121	110
Average Queue (ft)	84	45	20	24	60	53	62
95th Queue (ft)	137	80	48	56	105	108	106
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB
Directions Served	U	T	R	UL	T	T	LR
Maximum Queue (ft)	136	153	93	90	137	100	195
Average Queue (ft)	60	69	17	38	51	42	79
95th Queue (ft)	109	138	50	72	99	82	150
Link Distance (ft)		1466	1466		388	388	420
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	250			230			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	T	R	L	TR	L	T	T	R	L	T
Maximum Queue (ft)	130	115	140	62	63	124	151	150	169	17	53	140
Average Queue (ft)	53	70	43	26	14	50	73	78	83	2	13	67
95th Queue (ft)	96	105	96	47	37	96	132	133	137	9	43	113
Link Distance (ft)			2103			4879		5250	5250			5190
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150	150		250	150		480			250	480	
Storage Blk Time (%)			0									
Queuing Penalty (veh)			0									

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	137	96	97
Average Queue (ft)	69	30	46
95th Queue (ft)	112	75	79
Link Distance (ft)	5190	5190	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	120	92	142	96	74	119	138	72
Average Queue (ft)	59	37	57	32	20	52	49	23
95th Queue (ft)	95	76	100	68	56	89	98	48
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	182	204	174	159	210	300	360	880	551	98	139	195
Average Queue (ft)	92	110	99	91	113	260	306	472	252	43	58	102
95th Queue (ft)	156	177	152	136	185	363	438	926	555	79	106	167
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)						46	67	1				
Queuing Penalty (veh)						114	164	2				

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	222	180	75	72	196	207	181
Average Queue (ft)	108	57	34	36	95	103	101
95th Queue (ft)	180	106	68	66	158	162	160
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)						1	0
Queuing Penalty (veh)						3	1

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB
Directions Served	U	T	T	R	UL	T	T	LR
Maximum Queue (ft)	74	361	272	120	94	84	75	111
Average Queue (ft)	29	155	14	29	50	35	28	40
95th Queue (ft)	68	297	96	71	84	76	67	80
Link Distance (ft)		1466	1466	1466		388	388	420
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250				230			
Storage Blk Time (%)		3						
Queuing Penalty (veh)		1						

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	T	R	L	TR	L	T	T	R	UL	T
Maximum Queue (ft)	176	204	250	89	46	104	304	142	151	17	52	162
Average Queue (ft)	95	112	50	46	12	40	144	77	87	2	11	106
95th Queue (ft)	153	171	130	84	39	83	242	131	139	10	36	148
Link Distance (ft)			2103			4879		5250	5250			5190
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150	150		250	150		480			250	480	
Storage Blk Time (%)	2	3	0									
Queuing Penalty (veh)	6	9	0									

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	186	198	176
Average Queue (ft)	120	90	82
95th Queue (ft)	165	150	135
Link Distance (ft)	5190	5190	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 299

Appendix J: Cumulative Year 2035 plus Project (Buildout) Traffic Conditions

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	601	76	62	739	38	39
Future Volume (vph)	0	601	76	62	739	38	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.98		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4951		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4951		1752	3505	1752	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	653	83	67	803	41	42
RTOR Reduction (vph)	0	38	0	0	0	0	35
Lane Group Flow (vph)	0	698	0	67	803	41	7
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		13.2		1.9	19.3	5.9	5.9
Effective Green, g (s)		13.2		1.9	19.3	5.9	5.9
Actuated g/C Ratio		0.37		0.05	0.55	0.17	0.17
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1846		94	1910	292	261
v/s Ratio Prot		0.14		0.04	c0.23	c0.02	
v/s Ratio Perm							0.00
v/c Ratio		0.38		0.71	0.42	0.14	0.03
Uniform Delay, d1		8.1		16.5	4.7	12.6	12.3
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1		22.4	0.2	0.2	0.0
Delay (s)		8.2		38.9	4.9	12.8	12.4
Level of Service		A		D	A	B	B
Approach Delay (s)		8.2			7.5	12.6	
Approach LOS		A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	35.4	Sum of lost time (s)	14.4
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	235	326	70	17	142	365	69	1	99	415	153	70
Future Volume (vph)	235	326	70	17	142	365	69	1	99	415	153	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.97			1.00	0.98			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4902			3400	3421			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4902			3400	3421			3400	3505	1568	3400
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	354	76	18	154	397	75	1	108	451	166	76
RTOR Reduction (vph)	0	36	0	0	0	17	0	0	0	0	122	0
Lane Group Flow (vph)	255	394	0	0	172	455	0	0	109	451	44	76
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	8.6	17.2			8.2	16.8			4.1	18.3	18.3	3.1
Effective Green, g (s)	8.6	17.2			8.2	16.8			4.1	18.3	18.3	3.1
Actuated g/C Ratio	0.13	0.25			0.12	0.25			0.06	0.27	0.27	0.05
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	427	1232			407	840			203	937	419	154
v/s Ratio Prot	c0.08	0.08			0.05	c0.13			c0.03	c0.13		0.02
v/s Ratio Perm											0.03	
v/c Ratio	0.60	0.32			0.42	0.54			0.54	0.48	0.11	0.49
Uniform Delay, d1	28.3	20.8			27.9	22.5			31.2	21.1	18.9	31.9
Progression Factor	1.00	1.00			1.01	1.01			1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.2			0.7	0.7			2.7	0.4	0.1	2.5
Delay (s)	30.5	21.0			28.9	23.3			33.9	21.5	19.0	34.4
Level of Service	C	C			C	C			C	C	B	C
Approach Delay (s)		24.5				24.8				22.8		
Approach LOS		C				C				C		

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	21.6
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	311	263
Future Volume (vph)	311	263
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	338	286
RTOR Reduction (vph)	0	214
Lane Group Flow (vph)	338	72
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	17.3	17.3
Effective Green, g (s)	17.3	17.3
Actuated g/C Ratio	0.25	0.25
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	886	396
v/s Ratio Prot	0.10	
v/s Ratio Perm		0.05
v/c Ratio	0.38	0.18
Uniform Delay, d1	21.1	20.0
Progression Factor	1.00	1.00
Incremental Delay, d2	0.3	0.2
Delay (s)	21.4	20.2
Level of Service	C	C
Approach Delay (s)	22.3	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	180.3

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	110	34	351	77	2	75	396	51	166	55	136	22	17	83
Future Vol, veh/h	110	34	351	77	2	75	396	51	166	55	136	22	17	83
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	250	-	0	-	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	120	37	382	84	2	82	430	55	180	60	148	24	18	90

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	486	485	0	0	382	466	0	0	1088	1349	191	1161	1406	243
Stage 1	-	-	-	-	-	-	-	-	696	696	-	626	626	-
Stage 2	-	-	-	-	-	-	-	-	392	653	-	535	780	-
Critical Hdwy	6.46	4.16	-	-	6.46	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.53	2.23	-	-	2.53	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	702	1067	-	-	817	1085	-	-	~ 169	148	815	149	137	755
Stage 1	-	-	-	-	-	-	-	-	396	439	-	436	473	-
Stage 2	-	-	-	-	-	-	-	-	601	459	-	494	402	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	693	693	-	-	1069	1069	-	-	~ 100	105	815	53	98	755
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~ 100	105	-	53	98	-
Stage 1	-	-	-	-	-	-	-	-	306	339	-	337	436	-
Stage 2	-	-	-	-	-	-	-	-	467	423	-	258	311	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	1.3	$ 764.5	71
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	152	693	-	-	1069	-	-	175
HCM Lane V/C Ratio	2.553	0.226	-	-	0.078	-	-	0.758
HCM Control Delay (s)	$ 764.5	11.7	-	-	8.7	-	-	71
HCM Lane LOS	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	33.8	0.9	-	-	0.3	-	-	4.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	103	131	28	93	14	130	862	18	17	568	216
Future Volume (vph)	230	103	131	28	93	14	130	862	18	17	568	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.98		1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1690		1752	1809		1752	3494		1752	3360	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1690		1752	1809		1752	3494		1752	3360	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	112	142	30	101	15	141	937	20	18	617	235
RTOR Reduction (vph)	0	46	0	0	6	0	0	1	0	0	36	0
Lane Group Flow (vph)	250	208	0	30	110	0	141	956	0	18	816	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.6	22.0		1.9	12.3		7.3	34.2		1.2	28.1	
Effective Green, g (s)	11.6	22.0		1.9	12.3		7.3	34.2		1.2	28.1	
Actuated g/C Ratio	0.15	0.28		0.02	0.15		0.09	0.43		0.02	0.35	
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0		4.2	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	254	466		41	279		160	1499		26	1184	
v/s Ratio Prot	c0.14	c0.12		0.02	0.06		c0.08	c0.27		0.01	0.24	
v/s Ratio Perm												
v/c Ratio	0.98	0.45		0.73	0.39		0.88	0.64		0.69	0.69	
Uniform Delay, d1	34.0	23.8		38.6	30.3		35.8	17.9		39.1	22.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	51.7	0.7		49.4	0.9		39.0	0.9		57.6	1.7	
Delay (s)	85.7	24.5		88.1	31.3		74.8	18.8		96.7	23.8	
Level of Service	F	C		F	C		E	B		F	C	
Approach Delay (s)		54.8			42.9			26.0			25.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	20.4
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	928	178	100	911	109	150
Future Volume (vph)	0	928	178	100	911	109	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.2	6.0	4.2	4.2
Lane Util. Factor		0.91		1.00	0.95	1.00	1.00
Frt		0.98		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		4915		1752	3505	1752	1568
Flt Permitted		1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)		4915		1752	3505	1752	1568
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	987	189	106	969	116	160
RTOR Reduction (vph)	0	62	0	0	0	0	135
Lane Group Flow (vph)	0	1114	0	106	969	116	25
Turn Type	Prot	NA		Prot	NA	Prot	Perm
Protected Phases	7	4		3	8	2	
Permitted Phases							2
Actuated Green, G (s)		17.4		3.0	24.6	6.3	6.3
Effective Green, g (s)		17.4		3.0	24.6	6.3	6.3
Actuated g/C Ratio		0.42		0.07	0.60	0.15	0.15
Clearance Time (s)		6.0		4.2	6.0	4.2	4.2
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		2080		127	2097	268	240
v/s Ratio Prot		c0.23		c0.06	0.28	c0.07	
v/s Ratio Perm							0.02
v/c Ratio		0.54		0.83	0.46	0.43	0.10
Uniform Delay, d1		8.8		18.8	4.6	15.8	15.0
Progression Factor		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3		35.3	0.2	1.1	0.2
Delay (s)		9.1		54.1	4.7	16.9	15.2
Level of Service		A		D	A	B	B
Approach Delay (s)		9.1			9.6	15.9	
Approach LOS		A			A	B	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	41.1	Sum of lost time (s)	14.4
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	297	557	126	74	284	492	101	2	118	490	279	81
Future Volume (vph)	297	557	126	74	284	492	101	2	118	490	279	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Lane Util. Factor	0.97	0.91			0.97	0.95			0.97	0.95	1.00	0.97
Frt	1.00	0.97			1.00	0.97			1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)	3400	4897			3400	3416			3400	3505	1568	3400
Flt Permitted	0.95	1.00			0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)	3400	4897			3400	3416			3400	3505	1568	3400
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	316	593	134	80	302	523	107	2	126	521	297	86
RTOR Reduction (vph)	0	38	0	0	0	18	0	0	0	0	102	0
Lane Group Flow (vph)	316	689	0	0	382	612	0	0	128	521	195	86
Turn Type	Prot	NA		Prot	Prot	NA		Prot	Prot	NA	Perm	Prot
Protected Phases	7	4		3	3	8		5	5	2		1
Permitted Phases											2	
Actuated Green, G (s)	7.4	19.3			8.8	20.7			4.0	20.8	20.8	3.0
Effective Green, g (s)	7.4	19.3			8.8	20.7			4.0	20.8	20.8	3.0
Actuated g/C Ratio	0.10	0.26			0.12	0.28			0.05	0.28	0.28	0.04
Clearance Time (s)	6.0	6.0			5.7	5.7			4.2	5.7	5.7	4.2
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	342	1285			407	962			185	991	443	138
v/s Ratio Prot	0.09	0.14			c0.11	c0.18			c0.04	c0.15		0.03
v/s Ratio Perm											0.12	
v/c Ratio	0.92	0.54			0.94	0.64			0.69	0.53	0.44	0.62
Uniform Delay, d1	32.8	23.3			32.1	23.1			34.1	22.2	21.6	34.7
Progression Factor	1.00	1.00			1.01	0.99			1.00	1.00	1.00	1.00
Incremental Delay, d2	29.8	0.4			29.2	1.4			10.6	0.5	0.7	8.5
Delay (s)	62.6	23.7			61.5	24.4			44.8	22.7	22.3	43.2
Level of Service	E	C			E	C			D	C	C	D
Approach Delay (s)		35.5				38.4				25.6		
Approach LOS		D				D				C		

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	73.5	Sum of lost time (s)	21.6
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	449	352
Future Volume (vph)	449	352
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.7	5.7
Lane Util. Factor	0.95	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3505	1568
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3505	1568
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	478	374
RTOR Reduction (vph)	0	212
Lane Group Flow (vph)	478	162
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	19.8	19.8
Effective Green, g (s)	19.8	19.8
Actuated g/C Ratio	0.27	0.27
Clearance Time (s)	5.7	5.7
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	944	422
v/s Ratio Prot	0.14	
v/s Ratio Perm		0.10
v/c Ratio	0.51	0.38
Uniform Delay, d1	22.7	21.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.4	0.6
Delay (s)	23.1	22.5
Level of Service	C	C
Approach Delay (s)	24.7	
Approach LOS	C	

Intersection Summary

Intersection	
Int Delay, s/veh	868.8

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	46	111	771	127	3	118	560	148	90	28	79	26	20	125
Future Vol, veh/h	46	111	771	127	3	118	560	148	90	28	79	26	20	125
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	250	-	0	-	230	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	50	121	838	138	3	128	609	161	98	30	86	28	22	136

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	770	770	0	0	838	976	0	0	1758	2212	419	1728	2270	385
Stage 1	-	-	-	-	-	-	-	-	1180	1180	-	952	952	-
Stage 2	-	-	-	-	-	-	-	-	578	1032	-	776	1318	-
Critical Hdwy	6.46	4.16	-	-	6.46	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.53	2.23	-	-	2.53	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	463	834	-	-	419	696	-	-	~ 53	43	580	56	39	610
Stage 1	-	-	-	-	-	-	-	-	200	260	-	277	334	-
Stage 2	-	-	-	-	-	-	-	-	466	306	-	354	223	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	608	608	-	-	680	680	-	-	~ 5	~ 25	580	-	23	610
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	~ 5	~ 25	-	-	23	-
Stage 1	-	-	-	-	-	-	-	-	144	187	-	199	269	-
Stage 2	-	-	-	-	-	-	-	-	268	247	-	182	160	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	1.7	$ 9914.1	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	10	608	-	-	680	-	-	-
HCM Lane V/C Ratio	21.413	0.281	-	-	0.193	-	-	-
HCM Control Delay (s)	$ 9914.1	13.2	-	-	11.6	-	-	-
HCM Lane LOS	F	B	-	-	B	-	-	-
HCM 95th %tile Q(veh)	28.3	1.1	-	-	0.7	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	360	97	240	33	100	11	204	831	17	1	13	1042
Future Volume (vph)	360	97	240	33	100	11	204	831	17	1	13	1042
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			1.00	0.95
Frt	1.00	0.89		1.00	0.99		1.00	1.00			1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	1647		1752	1817		1752	3495			1752	3372
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	1752	1647		1752	1817		1752	3495			1752	3372
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	105	261	36	109	12	222	903	18	1	14	1133
RTOR Reduction (vph)	0	83	0	0	4	0	0	1	0	0	0	25
Lane Group Flow (vph)	391	283	0	36	117	0	222	920	0	0	15	1492
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases												
Actuated Green, G (s)	12.9	27.6		3.9	18.6		8.9	54.5			1.8	47.4
Effective Green, g (s)	12.9	27.6		3.9	18.6		8.9	54.5			1.8	47.4
Actuated g/C Ratio	0.12	0.26		0.04	0.17		0.08	0.50			0.02	0.44
Clearance Time (s)	4.2	6.0		4.2	6.0		4.2	6.0			4.2	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	208	420		63	312		144	1760			29	1477
v/s Ratio Prot	c0.22	c0.17		0.02	0.06		c0.13	0.26			0.01	c0.44
v/s Ratio Perm												
v/c Ratio	1.88	0.67		0.57	0.37		1.54	0.52			0.52	1.01
Uniform Delay, d1	47.6	36.3		51.3	39.7		49.6	18.1			52.8	30.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	413.6	4.2		11.9	0.8		275.3	0.3			14.7	26.0
Delay (s)	461.3	40.5		63.2	40.4		324.9	18.4			67.5	56.4
Level of Service	F	D		E	D		F	B			E	E
Approach Delay (s)		257.8			45.6			77.9				56.5
Approach LOS		F			D			E				E

Intersection Summary			
HCM 2000 Control Delay	105.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	108.2	Sum of lost time (s)	20.4
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	353
Future Volume (vph)	353
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	384
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	110	34	351	77	2	75	396	51	166	55	136	22
Future Volume (vph)	110	34	351	77	2	75	396	51	166	55	136	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.7	5.7		4.2	5.7		4.2	4.6		4.2
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	0.89		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1752	3505	1568		1752	3445		1752	1648		1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1752	3505	1568		1752	3445		1752	1648		1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	37	382	84	2	82	430	55	180	60	148	24
RTOR Reduction (vph)	0	0	0	59	0	0	11	0	0	101	0	0
Lane Group Flow (vph)	0	157	382	25	0	84	474	0	180	107	0	24
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4								
Actuated Green, G (s)		10.0	19.8	19.8		5.4	15.2		11.3	21.0		0.8
Effective Green, g (s)		10.0	19.8	19.8		5.4	15.2		11.3	21.0		0.8
Actuated g/C Ratio		0.15	0.30	0.30		0.08	0.23		0.17	0.32		0.01
Clearance Time (s)		4.2	5.7	5.7		4.2	5.7		4.2	4.6		4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		266	1056	472		144	797		301	526		21
v/s Ratio Prot		c0.09	0.11			0.05	c0.14		c0.10	c0.07		0.01
v/s Ratio Perm				0.02								
v/c Ratio		0.59	0.36	0.05		0.58	0.60		0.60	0.20		1.14
Uniform Delay, d1		25.9	18.0	16.3		29.1	22.5		25.1	16.3		32.5
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		3.5	0.2	0.0		5.9	1.2		3.2	0.2		244.5
Delay (s)		29.4	18.2	16.3		35.0	23.7		28.3	16.5		277.0
Level of Service		C	B	B		C	C		C	B		F
Approach Delay (s)			20.8				25.4			21.9		
Approach LOS			C				C			C		

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	18.7
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	17	83
Future Volume (vph)	17	83
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	1.00	
Frt	0.88	
Flt Protected	1.00	
Satd. Flow (prot)	1614	
Flt Permitted	1.00	
Satd. Flow (perm)	1614	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	18	90
RTOR Reduction (vph)	76	0
Lane Group Flow (vph)	32	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	10.5	
Effective Green, g (s)	10.5	
Actuated g/C Ratio	0.16	
Clearance Time (s)	4.6	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	257	
v/s Ratio Prot	0.02	
v/s Ratio Perm		
v/c Ratio	0.13	
Uniform Delay, d1	23.7	
Progression Factor	1.00	
Incremental Delay, d2	0.2	
Delay (s)	23.9	
Level of Service	C	
Approach Delay (s)	69.9	
Approach LOS	E	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	103	131	28	93	14	130	862	18	17	568	216
Future Volume (vph)	230	103	131	28	93	14	130	862	18	17	568	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0	6.0	4.2	6.0		4.2	6.0	6.0	4.2	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	1845	1568	1752	1809		1752	3505	1568	1752	5036	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	1845	1568	1752	1809		1752	3505	1568	1752	5036	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	112	142	30	101	15	141	937	20	18	617	235
RTOR Reduction (vph)	0	0	106	0	7	0	0	0	12	0	0	157
Lane Group Flow (vph)	250	112	36	30	109	0	141	937	8	18	617	78
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	5.7	16.0	16.0	1.2	11.5		4.3	24.6	24.6	0.4	20.7	20.7
Effective Green, g (s)	5.7	16.0	16.0	1.2	11.5		4.3	24.6	24.6	0.4	20.7	20.7
Actuated g/C Ratio	0.09	0.26	0.26	0.02	0.18		0.07	0.39	0.39	0.01	0.33	0.33
Clearance Time (s)	4.2	6.0	6.0	4.2	6.0		4.2	6.0	6.0	4.2	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	309	471	400	33	332		120	1377	616	11	1665	518
v/s Ratio Prot	c0.07	0.06		0.02	c0.06		c0.08	c0.27		0.01	0.12	
v/s Ratio Perm			0.02						0.01			0.05
v/c Ratio	0.81	0.24	0.09	0.91	0.33		1.18	0.68	0.01	1.64	0.37	0.15
Uniform Delay, d1	27.9	18.5	17.8	30.6	22.2		29.2	15.7	11.6	31.1	16.0	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.4	0.3	0.1	118.0	0.6		136.7	1.4	0.0	518.7	0.1	0.1
Delay (s)	42.3	18.7	17.9	148.6	22.8		165.9	17.1	11.6	549.8	16.1	14.9
Level of Service	D	B	B	F	C		F	B	B	F	B	B
Approach Delay (s)		30.2			48.6			36.1			26.8	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	20.4
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	46	111	771	127	3	118	560	148	90	28	79	26
Future Volume (vph)	46	111	771	127	3	118	560	148	90	28	79	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.7	5.7		4.2	5.7		4.2	4.6		4.2
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	0.97		1.00	0.89		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1752	3505	1568		1752	3395		1752	1640		1752
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1752	3505	1568		1752	3395		1752	1640		1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	121	838	138	3	128	609	161	98	30	86	28
RTOR Reduction (vph)	0	0	0	92	0	0	25	0	0	67	0	0
Lane Group Flow (vph)	0	171	838	46	0	131	745	0	98	49	0	28
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	7	7	4		3	3	8		5	2		1
Permitted Phases				4								
Actuated Green, G (s)		10.8	22.2	22.2		8.9	20.3		5.1	15.0		1.9
Effective Green, g (s)		10.8	22.2	22.2		8.9	20.3		5.1	15.0		1.9
Actuated g/C Ratio		0.16	0.33	0.33		0.13	0.30		0.08	0.22		0.03
Clearance Time (s)		4.2	5.7	5.7		4.2	5.7		4.2	4.6		4.2
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		283	1166	521		233	1033		133	368		49
v/s Ratio Prot		c0.10	c0.24			0.07	0.22		c0.06	c0.03		0.02
v/s Ratio Perm				0.03								
v/c Ratio		0.60	0.72	0.09		0.56	0.72		0.74	0.13		0.57
Uniform Delay, d1		26.0	19.5	15.3		27.1	20.7		30.1	20.7		32.0
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		3.6	2.1	0.1		3.1	2.5		19.0	0.2		15.1
Delay (s)		29.6	21.7	15.4		30.2	23.2		49.1	20.8		47.1
Level of Service		C	C	B		C	C		D	C		D
Approach Delay (s)			22.1				24.2			33.8		
Approach LOS			C				C			C		

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	18.7
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	20	125
Future Volume (vph)	20	125
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	1.00	
Frt	0.87	
Flt Protected	1.00	
Satd. Flow (prot)	1606	
Flt Permitted	1.00	
Satd. Flow (perm)	1606	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	22	136
RTOR Reduction (vph)	112	0
Lane Group Flow (vph)	46	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	11.8	
Effective Green, g (s)	11.8	
Actuated g/C Ratio	0.18	
Clearance Time (s)	4.6	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	284	
v/s Ratio Prot	0.03	
v/s Ratio Perm		
v/c Ratio	0.16	
Uniform Delay, d1	23.3	
Progression Factor	1.00	
Incremental Delay, d2	0.3	
Delay (s)	23.5	
Level of Service	C	
Approach Delay (s)	27.1	
Approach LOS	C	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	360	97	240	33	100	11	204	831	17	1	13	1042
Future Volume (vph)	360	97	240	33	100	11	204	831	17	1	13	1042
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	6.0	6.0	4.2	6.0		4.2	6.0	6.0		4.2	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95	1.00		1.00	0.91
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3400	1845	1568	1752	1817		1752	3505	1568		1752	5036
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3400	1845	1568	1752	1817		1752	3505	1568		1752	5036
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	105	261	36	109	12	222	903	18	1	14	1133
RTOR Reduction (vph)	0	0	187	0	4	0	0	0	9	0	0	0
Lane Group Flow (vph)	391	105	74	36	117	0	222	903	9	0	15	1133
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot	NA
Protected Phases	7	4		3	8		5	2		1	1	6
Permitted Phases			4						2			
Actuated Green, G (s)	13.1	25.3	25.3	3.8	16.0		14.2	46.9	46.9		0.7	33.4
Effective Green, g (s)	13.1	25.3	25.3	3.8	16.0		14.2	46.9	46.9		0.7	33.4
Actuated g/C Ratio	0.13	0.26	0.26	0.04	0.16		0.15	0.48	0.48		0.01	0.34
Clearance Time (s)	4.2	6.0	6.0	4.2	6.0		4.2	6.0	6.0		4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	458	480	408	68	299		256	1692	757		12	1732
v/s Ratio Prot	c0.12	0.06		0.02	c0.06		c0.13	0.26			0.01	c0.22
v/s Ratio Perm			0.05						0.01			
v/c Ratio	0.85	0.22	0.18	0.53	0.39		0.87	0.53	0.01		1.25	0.65
Uniform Delay, d1	41.1	28.2	27.9	45.8	36.2		40.5	17.5	13.0		48.2	27.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	14.3	0.2	0.2	7.3	0.8		25.1	0.3	0.0		352.1	0.9
Delay (s)	55.4	28.4	28.1	53.0	37.0		65.6	17.8	13.1		400.3	27.9
Level of Service	E	C	C	D	D		E	B	B		F	C
Approach Delay (s)		42.2			40.7			27.0				30.3
Approach LOS		D			D			C				C

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	97.1	Sum of lost time (s)	20.4
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	353
Future Volume (vph)	353
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	384
RTOR Reduction (vph)	252
Lane Group Flow (vph)	132
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	33.4
Effective Green, g (s)	33.4
Actuated g/C Ratio	0.34
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	539
v/s Ratio Prot	
v/s Ratio Perm	0.08
v/c Ratio	0.25
Uniform Delay, d1	22.8
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	23.1
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	84	89	122	100	55	76	52	52
Average Queue (ft)	52	28	36	35	13	40	24	13
95th Queue (ft)	82	59	76	68	38	70	56	37
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	136	140	143	105	145	89	110	172	164	96	71	163
Average Queue (ft)	66	77	63	44	48	36	47	70	82	31	40	76
95th Queue (ft)	123	123	112	85	100	75	88	129	143	69	70	135
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	198	78	77	95	141	138	107
Average Queue (ft)	89	35	26	35	63	65	62
95th Queue (ft)	142	61	58	73	108	104	98
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	T	R	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	180	197	48	53	167	184	150	191	175	66	93
Average Queue (ft)	74	102	2	21	55	77	71	78	65	23	40
95th Queue (ft)	136	176	18	44	112	143	118	143	124	55	70
Link Distance (ft)		1466	1466	1466		375	375		421		2584
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250				230			150		250	
Storage Blk Time (%)								1			
Queuing Penalty (veh)								2			

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	T	R	L	TR	L	T	T	R	L	T
Maximum Queue (ft)	105	129	126	90	45	122	256	154	170	20	72	134
Average Queue (ft)	64	78	38	33	23	51	104	75	88	4	17	72
95th Queue (ft)	101	117	82	71	50	99	203	135	162	15	45	113
Link Distance (ft)			2103			4879		5250	5250			5190
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150	150		250	150		480			250	480	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	175	157	157
Average Queue (ft)	72	39	58
95th Queue (ft)	119	93	110
Link Distance (ft)	5190	5190	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2

Intersection: 1: Retherford Street & Cartmill Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	115	100	116	118	75	78	138	89
Average Queue (ft)	64	45	63	53	21	46	51	40
95th Queue (ft)	102	77	111	103	60	75	102	66
Link Distance (ft)	980	980	980		1237	1237		3250
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)				240			240	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	TR	UL	L	T	TR	UL	L	T
Maximum Queue (ft)	300	343	262	238	218	276	293	147	192	94	96	181
Average Queue (ft)	183	196	103	78	83	144	148	100	110	41	50	100
95th Queue (ft)	308	317	200	157	154	222	232	152	173	73	84	152
Link Distance (ft)			1237	1237	1237			1027	1027			5070
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	245	245				240	240			230	230	
Storage Blk Time (%)	6	11	0			0	1					
Queuing Penalty (veh)	12	20	1			0	3					

Intersection: 2: Hillman Street & Cartmill Avenue

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	203	118	73	53	183	208	225
Average Queue (ft)	112	60	31	36	78	86	103
95th Queue (ft)	167	105	58	62	125	137	189
Link Distance (ft)	5070	5070			5199	5199	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			250	250			175
Storage Blk Time (%)						0	1
Queuing Penalty (veh)						1	3

Intersection: 3: De La Vina Street & Cartmill Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	T	R	UL	T	TR	L	TR	L	TR
Maximum Queue (ft)	370	567	455	116	187	182	158	113	114	54	156
Average Queue (ft)	170	309	94	28	77	110	98	55	37	15	66
95th Queue (ft)	388	477	336	64	143	173	160	96	77	41	115
Link Distance (ft)		1466	1466	1466		375	375		421		2584
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250				230			150		250	
Storage Blk Time (%)		24									
Queuing Penalty (veh)		38									

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	EB	EB	EB	EB	B18	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	T	R	T	L	TR	L	T	T	R	UL
Maximum Queue (ft)	177	203	296	128	430	85	154	238	318	300	18	27
Average Queue (ft)	98	113	60	66	14	23	61	127	102	109	5	11
95th Queue (ft)	173	185	166	113	142	53	106	198	203	205	17	31
Link Distance (ft)			2103		375		4879		5250	5250		
Upstream Blk Time (%)					0							
Queuing Penalty (veh)					0							
Storage Bay Dist (ft)	150	150		250		150		480			250	480
Storage Blk Time (%)	2	7					0			1		
Queuing Penalty (veh)	5	22					0			0		

Intersection: 4: Mooney Boulevard & Cartmill Avenue

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	184	224	189	176
Average Queue (ft)	131	142	123	79
95th Queue (ft)	179	192	183	134
Link Distance (ft)	5190	5190	5190	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				250
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 105

Appendix K: Signal Warrants

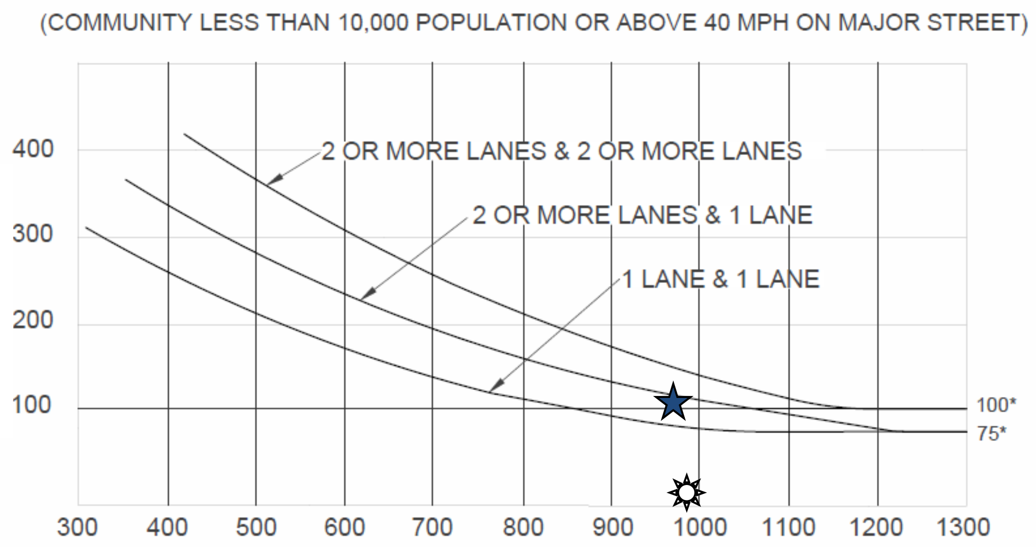
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
1. Retherford Street / Cartmill Avenue
AM (PM) Peak Hour

Retherford Street

Highest Approach Volume =

17 (104) VPH



Cartmill Avenue Total of Both Approaches =

981 (967) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

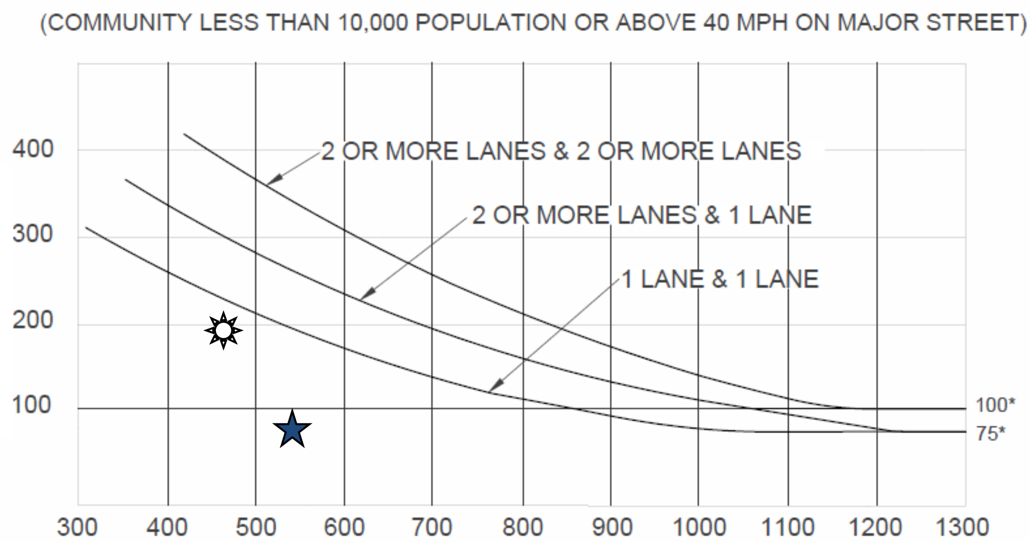
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
3. De La Vina Street / Cartmill Avenue
AM (PM) Peak Hour

De La Vina Street

Highest Approach Volume =

196 (80) VPH



Cartmill Avenue Total of Both Approaches =

465 (541) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

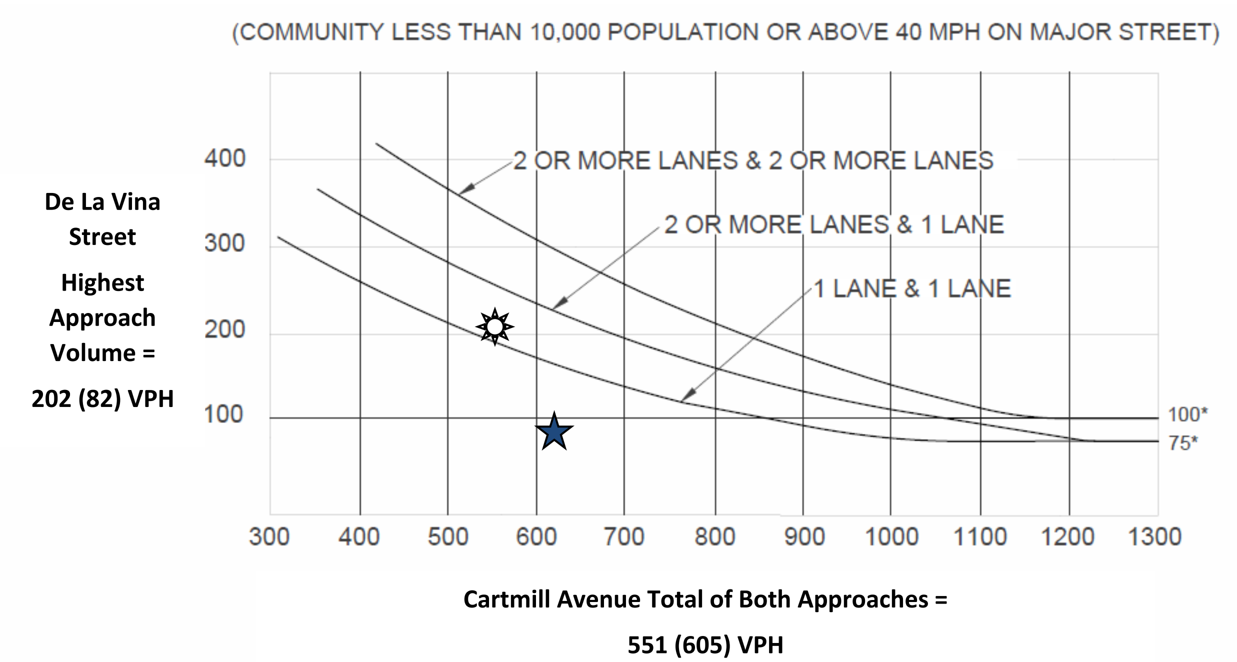
AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Existing plus Project (Phase 1) Traffic Conditions
3. De La Vina Street / Cartmill Avenue
AM (PM) Peak Hour



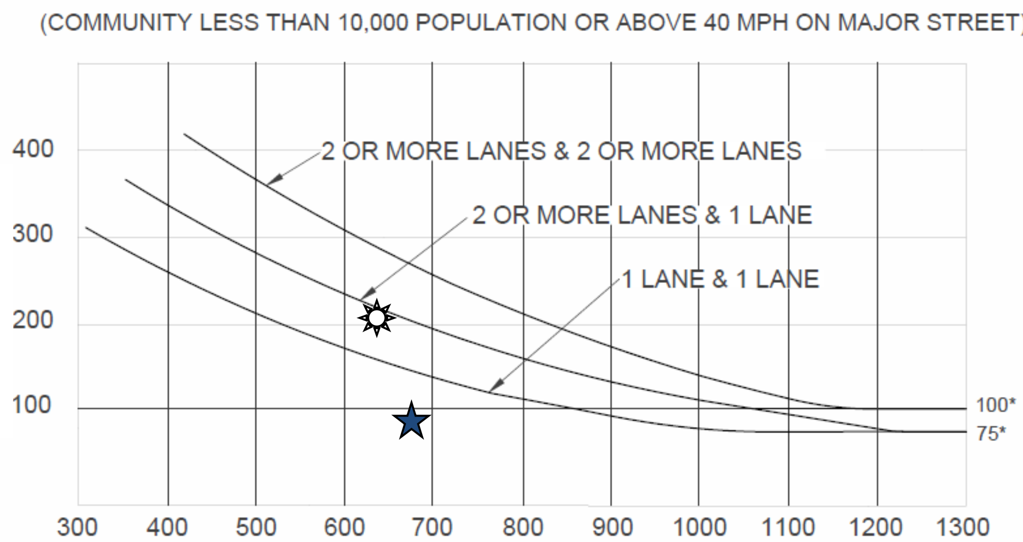
*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Existing plus Project (Buildout) Traffic Conditions
3. De La Vina Street / Cartmill Avenue
AM (PM) Peak Hour



De La Vina Street

Highest Approach Volume =

208 (84) VPH

Cartmill Avenue Total of Both Approaches =

647 (684) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

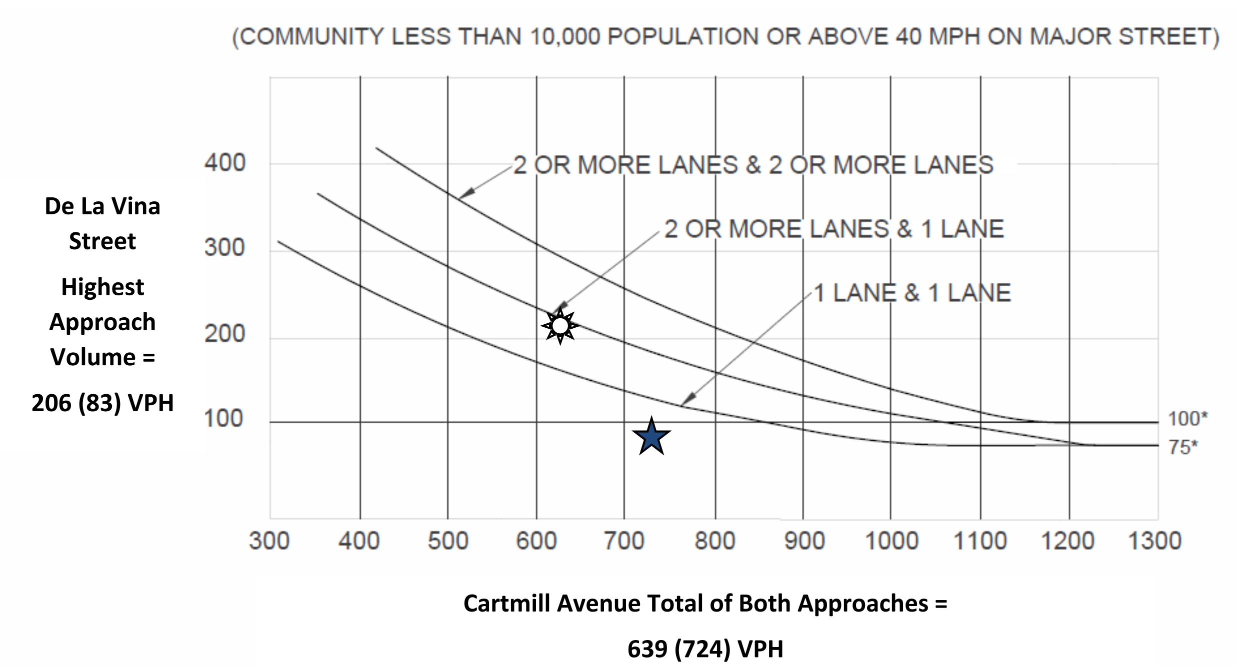
☼ **AM Peak Hour – Signal Warrant is Not Met**

★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Near Term plus Project (Phase 1) Traffic Conditions
3. De La Vina Street / Cartmill Avenue
AM (PM) Peak Hour



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Not Met**

★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

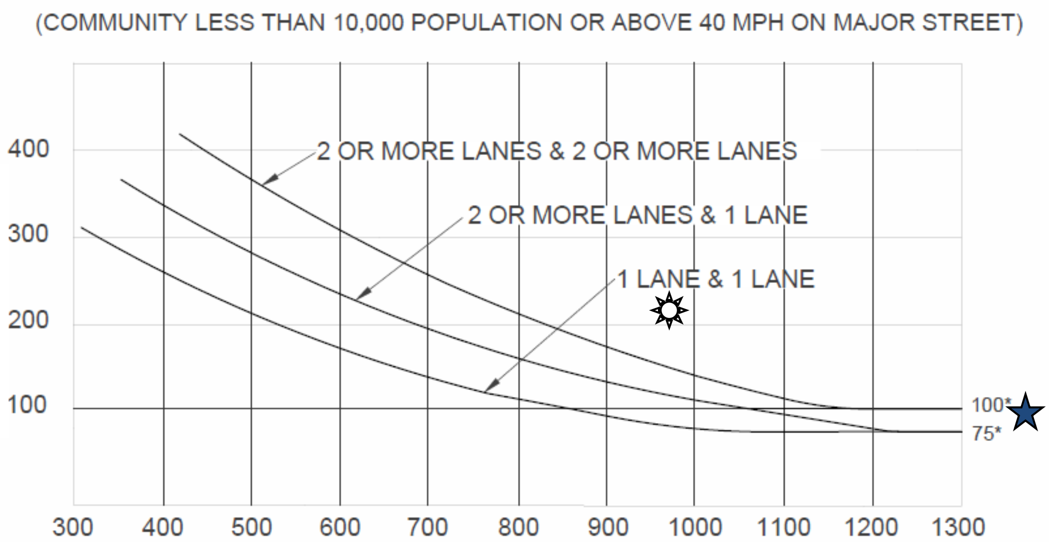
Warrant 3: Peak Hour (Rural)

Near Term plus Project (Buildout) Traffic Conditions
3. De La Vina Street / Cartmill Avenue
AM (PM) Peak Hour

De La Vina Street

Highest Approach Volume =

215 (86) VPH



Cartmill Avenue Total of Both Approaches =

989 (1604) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

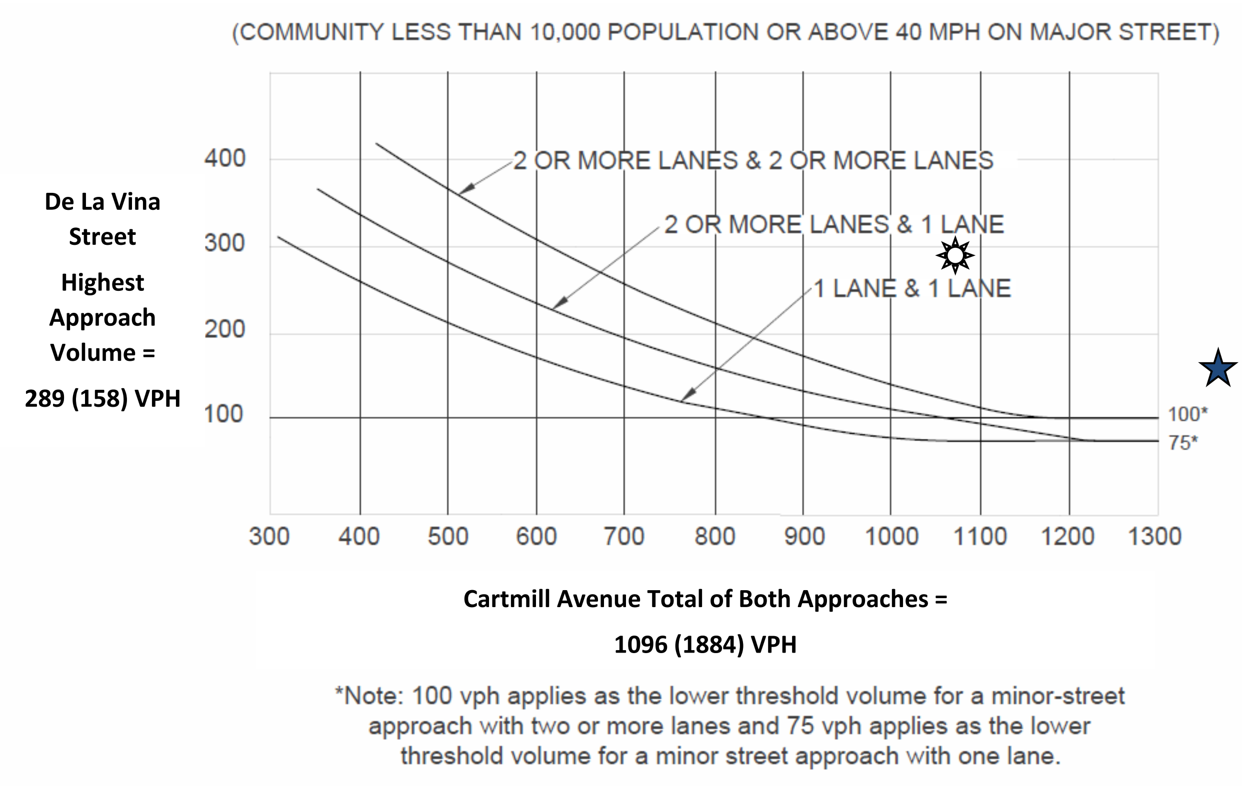
☼ **AM Peak Hour – Signal Warrant is Met**

★ **PM Peak Hour – Signal Warrant is Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Cumulative Year 2035 plus Project (Buildout) Traffic Conditions
3. De La Vina Street / Cartmill Avenue
AM (PM) Peak Hour



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**
★ **PM Peak Hour – Signal Warrant is Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014