DRAFT
Environmental Impact Report
Del Hombre Apartments Project
Contra Costa County, California

State Clearinghouse Number: 2018102067

Prepared for:
Contra Costa County
30 Muir Road
Martinez, CA 94553-4601
925.674.7790

Date: September 10, 2019

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Department of Conservation and Development

30 Muir Road
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Contra Costa County

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Business Operations Manager

September 10, 2019

NOTICE OF AVAILABILITY

and

NOTICE OF PUBLIC HEARING

for

DEL HOMBRE 284-UNIT APARTMENT PROJECT

DRAFT ENVIRONMENTAL IMPACT REPORT

State Clearinghouse Number: 2018102067

County File Numbers: GP18-0002, RZ18-3245, MS18-0010, DP18-3031

Notice is hereby given pursuant to the California Environmental Quality Act (CEQA) that a document titled "Del Hombre Apartment Project – Draft Environmental Impact Report" (hereafter referenced as "Draft EIR") has been prepared for the proposed Del Hombre Apartment Project and is available for public review.

PROJECT DESCRIPTION: The project applicant, The Hanover Company, proposes to build a 284-unit six-story podium apartment community on a 2.37-acre site located in central Contra Costa County and adjacent to the Pleasant Hill/Contra Costa Centre Bay Area Rapid Transit (BART) Station in unincorporated Walnut Creek.[1] The project will require approval of a General Plan Amendment from Multiple-Family Residential-Very High Density (MV) to Multiple-Family Residential-Very High Special Density (MS), a rezoning of the property from Single-Family Residential (R-15) and Planned Unit District (P-1) to Planned Unit District (P-1), a minor subdivision, and a Final Development Plan to allow the construction of the apartments including variances to the lot size for rezoning a less than 5-acre property to P-1 and 10-foot setback requirement from a public road, and an exception from Title 9 for drainage requirements. The project also includes the improvements to roads, demolition of the existing residential buildings,

[1] The project site is 2.4 gross acres and 2.37 net acres.

the removal of approximately 161 trees and impacts to approximately 28 additional trees, and grading of approximately 29,000 cubic yards.

The project will provide 36 affordable units; representing 15 percent of the 237 units allowed by the proposed MS land use district and 12 of those (5 percent) would be affordable to very low-income households. Therefore, the project would be eligible for the State density bonus of 20 percent, and the total allowable unit count under the MS designation would increase from 237 units to 284 units.

By providing 5 percent of units as affordable to very low-income households, the project is also eligible for one development incentive or concession. The project would require a concession to provide the remaining affordable units (24 total) as affordable to moderate income. Contra Costa County Off-Street Parking Ordinance Section 82-16.404(b)(1)(c) requires driveway aisle widths of 25 feet for spaces with an angle of parking of 90 degrees. Pursuant to Section 65915(e) of the California Government Code, the project would request a reduction of this development standard to allow a driveway aisle width of 24 feet.

PROJECT LOCATION: The property addresses are 112 Roble Road, 3010, 3018, 3050, and 3070 Del Hombre Lane in the unincorporated Walnut Creek area of Contra Costa County. The project site is primarily surrounded by unincorporated Contra Costa County lands and the City of Walnut Creek to the north and south. The Pleasant Hill/Contra Costa Centre BART Station and I-680 are to the west of the project site; approximately 0.12 mile and 0.36 mile, respectively. The project site is also identified by the following Assessor's Parcel Numbers: 148-170-001, 148-170-022, 148-170-037, 148-170-041, and 148-170-042.

ENVIRONMENTAL IMPACTS OF THE PROJECT: The Draft EIR identified potentially significant environmental impacts in the following resource/topic areas, except for the significant and unavoidable impact identified in transportation, all significant impacts can be mitigated to less-than-significant levels:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Recreation
- Transportation
- Utilities and Service Systems

DRAFT EIR PUBLIC REVIEW & COMMENT PERIOD: The public review period for the Draft EIR will be 45 days. Day 1 of the review period is September 11, 2019. Written comments on the adequacy of the Draft EIR must be received by **4:00 p.m. on Friday, October 25, 2019**, at the following address:

Jennifer Cruz
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

OR

jennifer.cruz@dcd.cccounty.us

The County File Number indicated near the top of this notice should be included on all correspondence.

During the 45-day review period, the County Zoning Administrator will hold a public hearing to provide additional opportunity for public comment on the Draft EIR. The County Zoning Administrator's hearing will be held on **Monday, October 7, 2019, at 3:30 p.m.** in the DCD office at 30 Muir Road, Martinez, California. The County Planning Commission will hold a subsequent hearing to consider the merits of the project. While a date for this hearing has not yet been set, it is anticipated to occur in late 2019.

DRAFT EIR AVAILABILITY: Copies of the Draft EIR are available for review and purchase at the DCD office, located at the address indicated above. The Draft EIR is available for purchase in CD format for $10.00 and in hard copy format for approximately $50. In addition to copies of the Draft EIR, supplemental information including maps, plans, studies, and other material related to the project and preparation of the Draft EIR are available for public review at the DCD office. The Draft EIR can also be downloaded free from the DCD website at www.contracosta.ca.gov/delhombre.

Hard copies of the Draft EIR are also available for review only at the following additional locations:

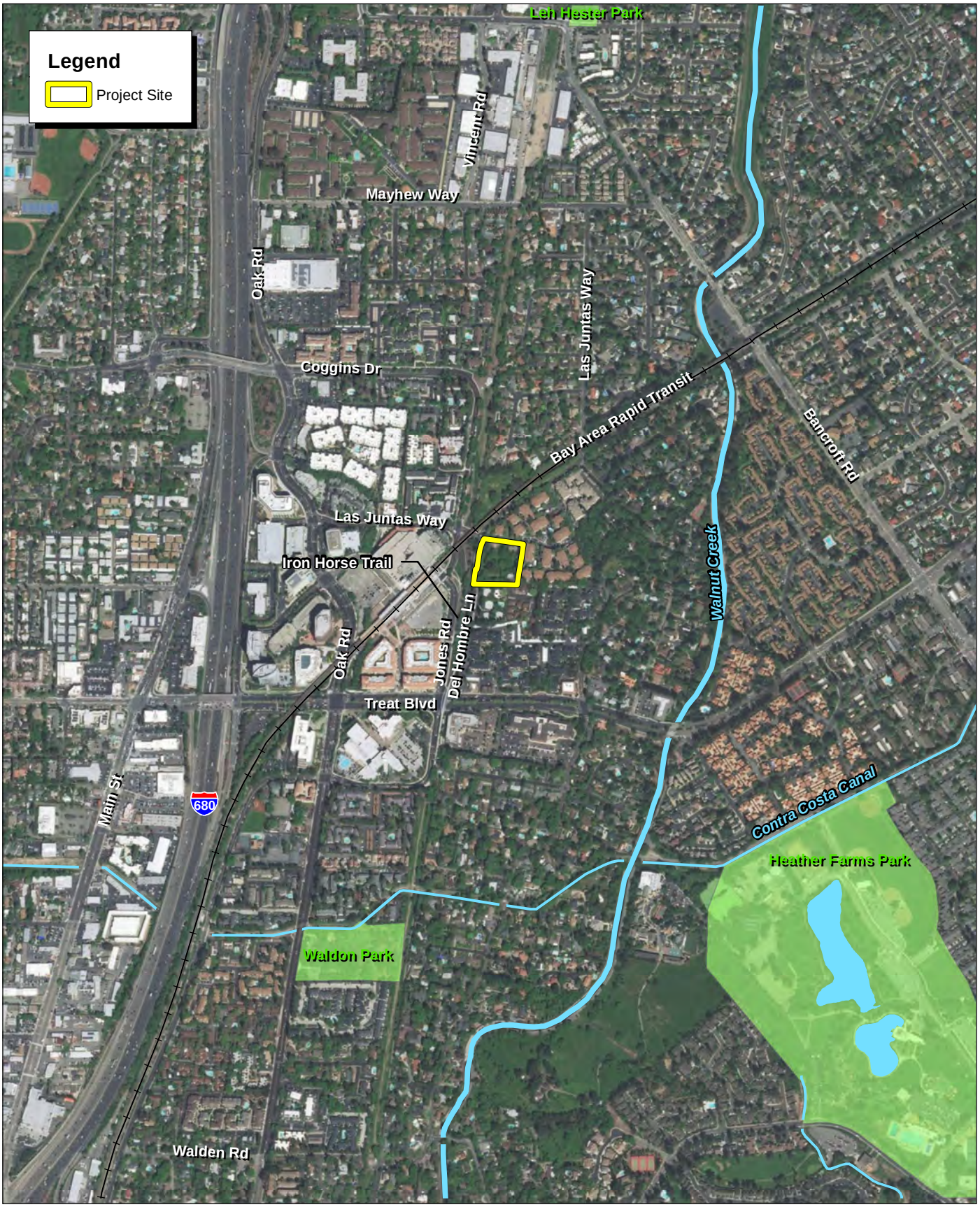
Office of County Supervisor Karen Mitchoff
2151 Salvio St. Suite R
Concord, CA

Pleasant Hill Library
Contra Costa County Main Branch
1750 Oak Park Boulevard
Pleasant Hill, CA

ADDITIONAL INFORMATION: For additional information on the Draft EIR and the proposed project, please contact Jennifer Cruz of the DCD by telephone at (925) 674-7790, fax at (925) 674-7258 or email at jennifer.cruz@dcd.cccounty.us.

Attachments: Exhibit 2-2 (Local Vicinity Map Aerial Base)
Exhibit 2-7 (Site Plan)

Cc: County Clerk



Source: ESRI Aerial Imagery.

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Exhibit 2-2
Local Vicinity Map
Aerial Base

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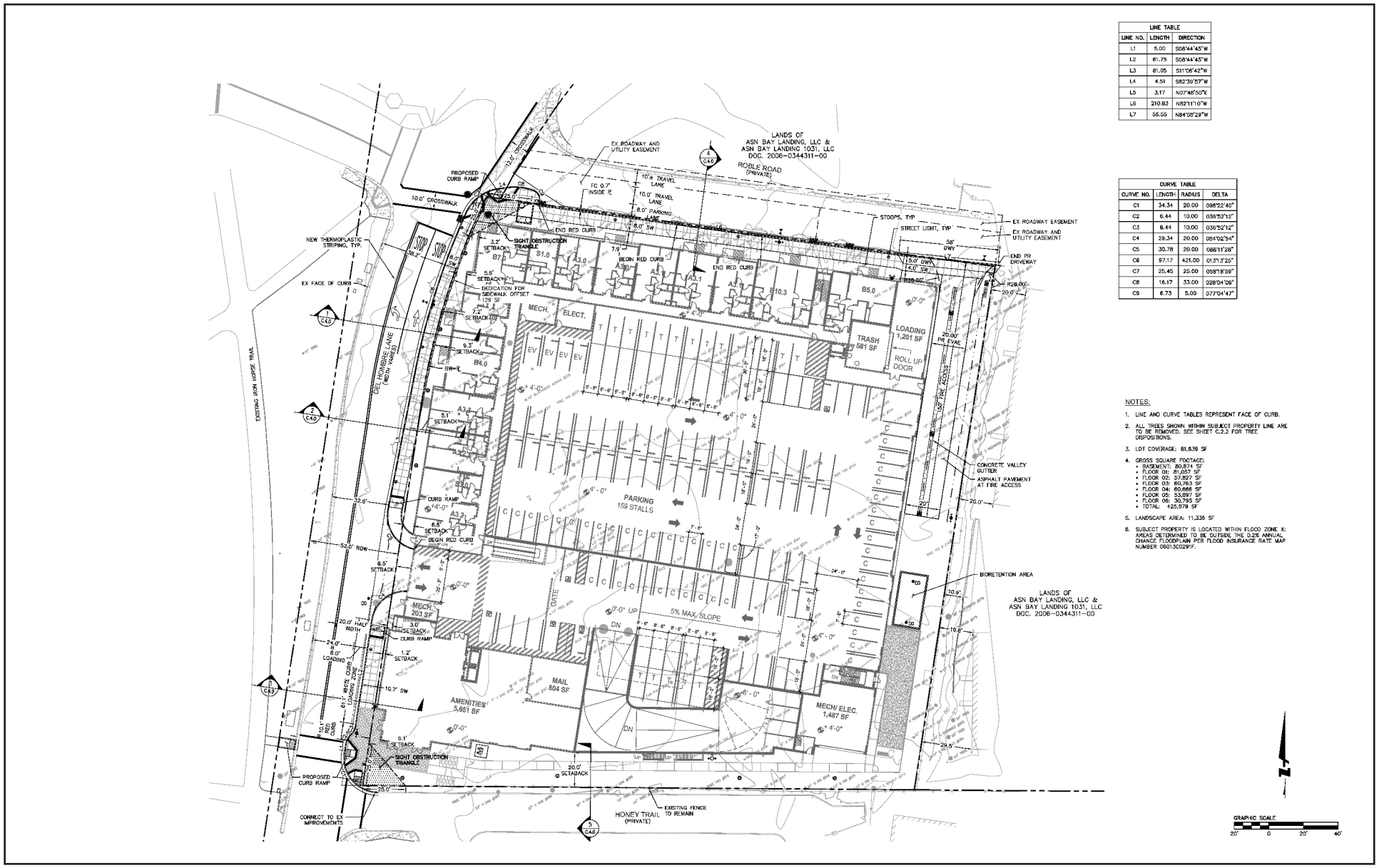

Source: BFK Engineers, Surveyors, Planners, July 2019.

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Exhibit 2-7
Site Plan

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius (Centigrade)
°F	degrees Fahrenheit
$\mu g/m^3$	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
ACLUP	Airport Comprehensive Land Use Plan
ACM	asbestos-containing material
ACP	Alternative Compliance Plan
AD	*anno domini*
ADA	Americans with Disabilities Act
ADT	average daily traffic
ADU	accessory dwelling units
AF	acre-foot
AFY	acre-feet/year
AIA	Airport Influence Area
AIC	Archaeological Information Center
AICUZ	Air Installation Compatibility Use Zone
AIRFA	American Indian Religious Freedom Act
ALUC	Airport Land Use Commission
APCD	Air Pollution Control District
APE	Area of Potential Effect
APN	Assessor's Parcel Number
AQI	Air Quality Index
AQMD	Air Quality Management District
ARB	California Air Resources Board
ARPA	Archaeological Resources Protection Act
AST	aboveground storage tank
ATCM	Airborne Toxic Control Measures
AUHSD	Acalanes Union High School District
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BART	Bay Area Rapid Transit
BAU	Business as Usual

BC	before Christ
BCDC	Bay Conservation and Development Commission
BCE	before Common Era
BKF	BKF Engineers
BMP	Best Management Practice
BRA	Biological Resources Assessment
BTU	British thermal units
BVOC	biogenic volatile organic compound
C2ES	Center for Climate Energy Solutions
CA FID	California Facility Inventory Database
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Health and Safety Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CBC	California Building Standards Code
CBPP	Countywide Bicycle and Pedestrian Plan
CCAA	California Clean Air Act
CCCC	California Climate Change Center
CCCFPD	Contra Costa County Fire Protection District
CCCSD	Central Contra Costa Sanitary District
CCCWP	Contra Costa Clean Water Program
CCEH	Contra Costa Environmental Health
CCHMP	Contra Costa Hazard Mitigation Plan
CCR	California Code of Regulations
CCTA	Contra Costa Transportation Authority
CCTS	Central California Taxonomic System
CCWD	Contra Costa Water District
CDF	California Department of Finance
CDFW	California Department of Fish and Wildlife
CE	Common Era
CEC	California Energy Commission
CEQA	California Environmental Quality Act

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
cfs	cubic-feet-per-second
CH_4	methane
CHL	California Historical Landmarks
CHRIS	California Historical Resources Information System
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_4	methane
CO_2e	carbon dioxide equivalent
CPHI	California Points of Historical Interest
CPT	Cone Penetration Testing
CPUC	California Public Utilities Code
CRA	Cultural Resource Assessment
CRHR	California Register of Historical Resources
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CVP	Central Valley Project
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DBH	diameter at breast height
DNL	Day/Night Noise Level
DOT	United States Department of Transportation
DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
DVC	Diablo Valley College
ECCCHCP	East Contra Costa County Habitat Conservation Plan
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act

EOP	Emergency Operations Plan
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
EV	electric vehicle
FAA	Federal Aviation Administration
FAR	floor area ratio
FCS	FirstCarbon Solutions
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
gsf	gross square feet
GVWR	gross vehicle weight rating
GWh/y	gigawatt-hours per year
GWP	global warming potential
HAZNET	Hazardous Waste Tracking System
HCD	California Department of Housing and Community Development
HCM	Highway Capacity Manual
HFC	hydrofluorocarbon
HMP	Hazard Mitigation Plan
HMUPA	Hazardous Materials Unified Program Agency
HOV/HOT	High Occupancy Vehicle/High Occupancy Toll
HRA	Health Risk Assessment
HRI	California Historic Resources Inventory
HSC	Health and Safety Code
HUD	United States Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
HWCL	Hazardous Waste Control Law
IPCC	United Nations Intergovernmental Panel on Climate Change
ITE	Institute of Transportation Engineers
kBTU	kilo-British Thermal Unit
KCL	Keller Canyon Landfills
kW	kilowatts
kWh	kilowatt-hour
LCFS	Low Carbon Fuel Standard
L_{dn}	day/night average sound level
LED	light emitting diode

L_{eq}	equivalent sound level
LEV	Low-Emission Vehicle
LOS	Level of Service
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MIR	Maximum Impacted Sensitive Receptor
MLD	most likely descendant
MM	Mitigation Measure
MMI	Modified Mercalli Intensity
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
mph	miles per hour
MRP	Municipal Regional Permit
MS	Multiple-Family Residential-Very Special High
MS4s	Municipal Separate Storm Sewer Systems
MT	metric ton
MTC	Metropolitan Transportation Commission
MTS	Metropolitan Transportation System
MV	Multiple-Family Residential-Very High Density
MW	megawatt
MWh	megawatt hour
MWELO	Model Water Efficient Landscape Ordinance
MXD	mixed-use development
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NDC	nationally determined contributions
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOAA	National Marine Fisheries Service
NOC	Notice of Completion

NOP	Notice of Preparation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTR	National Toxics Rule
NWIC	Northwest Information Center
O_3	ozone
OAL	Office of Administrative Law
OEHHA	California Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
ONAC	Federal Office of Noise Abatement and Control
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
P-1	Planned Unit District
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PFC	perfluorocarbon
PHF	peak-hour factor
PM_X	particulate matter
ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
PPV	peak particle velocity
PRC	Public Resources Code
PVC	polyvinyl chloride
R-15	Residential
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Conditions
RecycleSmart	Central Contra Costa County Solid Waste Authority
REL	Reference Exposure Level
RHNA	Regional Housing Needs Allocation
RMP	Risk Management Plan
rms	root mean square
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act

SB	Senate Bill
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFPUC	San Francisco Public Utilities Commission
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOI	Sphere of Influence
SPCC	Spill Prevention, Control, and Countermeasure
SR	State Route
State Water Board	State Water Resources Control Board
SVP	Society of Vertebrate Paleontology
SWEEP	State Water Efficiency and Enhancement Program
SWIS	Solid Waste information System
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminant
TCM	transportation control measures
TCR	Tribal Cultural Resource
TDM	Transportation Demand Management
TDS	total dissolved solids
Tg	teragram
therms/y	therms per year
TIA	Transportation Impact Assessment
TMA	Transportation Management Association
TMDL	Total Maximum Daily Load
TNC	Transportation Network Company
TOD	Transit Oriented Development
UBC	Uniform Building Code
UNFCCC	United Nations Framework Convention on Climate Change
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan
V/C	volume to capacity ratio
VDECS	Verified Diesel Emission Control Strategies
VMT	Vehicle Miles Traveled

VOC	volatile organic compounds
WCSD	Walnut Creek School District
WDR	Waste Discharge Requirements
WSA	Water Supply Assessment

EXECUTIVE SUMMARY

Purpose

This Environmental Impact Report (EIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of the Del Hombre Apartments Project in Contra Costa County (State Clearinghouse No. 2018102067). This document is prepared in conformance with CEQA (California Public Resources Code [PRC], § 21000, *et seq*.) and the CEQA Guidelines (California Code of Regulations [CCR], Title 14, § 15000, *et seq*.).

The purpose of this EIR is to inform decision makers, representatives of affected and responsible agencies, the public, and other interested parties of the potential environmental effects that may result from implementation of the proposed Del Hombre Apartments Project (project). This EIR describes potential impacts relating to a wide variety of environmental issues and methods by which these impacts can be mitigated or avoided.

Project Summary

Project Location

The project site is located in the unincorporated Walnut Creek area of Contra Costa County. The site is bound by Del Hombre Lane to the west as well as the Iron Horse Regional Trail (just west of Del Hombre Lane), Roble Road to the north, Avalon Walnut Ridge apartments to the north and east, and Honey Trail to the south. The area around the project site has a suburban, transit-oriented residential character. Multi-family apartments are located to the north (on Las Juntas Way and Santos Lane), east (on Roble Road and Santos Lane), and south (on Honey Trail).

Project Description

The project applicant proposes to build a 284-unit, six-story apartment community on a 2.4 (gross) 2.37 (net)-acre site consisting of five parcels located in central Contra Costa County and 0.12 mile east of the Bay Area Rapid Transit (BART) Pleasant Hill/Contra Costa Centre Station. The project will require approval of a General Plan Amendment, Rezoning, Minor Subdivision, and a Final Development Plan to allow the construction of the apartments with variances and exceptions from Title 8 and 9 of the County code. The project includes the demolition of two existing residential buildings. The new apartment building would total approximately 425,879 gross square feet that would cover 81,639 square feet (or 79 percent) of the project site. The residential building would consist of 21 studio apartments, 178 one-bedroom apartments, and 85 two-bedroom apartments, totaling 284 units, with an average unit size of 863 square feet, as well as a partial below-grade and partial at-grade parking garage. The project would also include ancillary and recreational amenities to serve residents of the apartment building.

Project Objectives

The objectives of the project are to:

- Address the regional housing and employment imbalance by providing 284 housing units to an underserved area.
- Reduce traffic on area roads by increasing housing density in an area well served by regional public transportation (Bay Area Rapid Transit [BART]).
- Provide much needed affordable housing through the delivery of 36 affordable units.
- Provide housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents.
- Create an apartment community consisting of high-quality architecture that encourages walkability within the neighborhood.
- Implement policies of importance to the County, as reflected in the Contra Costa County General Plan.
- Encourage infill redevelopment of underused sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Significant Unavoidable Adverse Impacts

The project would result in the following significant and unavoidable impacts:

- **Project Level:** Operational impact related to unacceptable Level of Service (LOS) at Coggins Drive at Las Juntas Way intersection under Opening Year with Project.
- **Cumulative Level:** Operational impact related to unacceptable Level of Service (LOS) at Coggins Drive at Las Juntas Way intersection under Cumulative Year with Project.

Summary of Project Alternatives

No Project Alternative: Under the No Project Alternative, **t**he 284-unit six-story podium apartment community proposed under the project would not be constructed on the project site. In this scenario, the two existing single-family homes and garage on the project site would remain, road improvements would not occur, trees would not be removed or impacted, grading would not take place, and the five parcels would not be merged into one parcel. This alternative would not require a General Plan Amendment, rezoning, minor subdivision, or a Final Development Plan.

Reduced Scale Alternative: Under the Reduced Scale Alternative, 52 town homes (22 units per acre on 2.37 acres) would be constructed on the project site. While this alternative would reduce the overall intensity of development on the project site, it would still require the development of the entire project site. In this scenario, the number of market rate units would decrease by 82 percent

(248 units down to 44 units) and the number of affordable units would decrease by 78 percent (36 units down to 8 units). Similar to the project, the two existing single-family homes and garage on the project site would be demolished. However, no below ground parking would be constructed under this alternative.

Areas of Controversy

Pursuant to CEQA Guidelines Section 15123(b), a summary section must address areas of controversy known to the lead agency, including issues raised by agencies and the public, and it must also address issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects.

A Notice of Preparation (NOP) for the project was issued on October 29, 2018. The NOP describing the original concept for the project and issues to be addressed in the EIR was distributed to the State Clearinghouse, responsible agencies, and other interested parties for a 30-day public review period extending from October 29, 2018 through November 28, 2018. The NOP identified the potential for significant impacts on the environment related to the following topical areas:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Hydrology and Water Quality
- Greenhouse Gas Emissions
- Noise
- Transportation

Disagreement Among Experts

This EIR contains substantial evidence to support all the conclusions presented herein. It is possible that there will be disagreement among various parties regarding these conclusions, although the County of Contra Costa is not aware of any disputed conclusions at the time of this writing. Both CEQA Guidelines and case law clearly provide the standards for treating disagreement among experts. Where evidence and opinions conflict on an issue concerning the environment, and the lead agency knows of these controversies in advance, the EIR must acknowledge the controversies, summarize the conflicting opinions of the experts, and include sufficient information to allow the public and decision makers to make an informed judgment about the environmental consequences of the project.

Potentially Controversial Issues

Below is a list of potentially controversial issues that may be raised during the public review and hearing process of this EIR:

- With residences adjacent to the project site, potential neighborhood impacts related to air quality, noise, and local traffic will need to be quantified and assessed.
- Potential impacts to unknown cultural resources (including the two existing residences) on the project site will also need to be evaluated.
- Given the presence of trees and pervious land areas on the site, the EIR will need to examine potential impacts related to biological resources and changes to stormwater drainage patterns.
- Aesthetics impacts to views from public areas toward Mount Diablo will need to be evaluated.

It is also possible that evidence will be presented during the 45-day, statutory Draft EIR public review period that may create disagreement. Decision makers would consider this evidence during the public hearing process.

In rendering a decision on a project where there is disagreement among experts, the decision makers are not obligated to select the most environmentally preferable viewpoint. Decision makers are vested with the ability to choose whatever viewpoint is preferable and need not resolve a dispute among experts. In their proceedings, decision makers must consider comments received concerning the adequacy of the Draft EIR and address any objections raised in these comments. However, decision makers are not obligated to follow any directives, recommendations, or suggestions presented in comments on the Draft EIR, and can certify the Final EIR without needing to resolve disagreements among experts.

Public Review of the Draft EIR

Upon completion of the Draft EIR, the County of Contra Costa filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period (PRC § 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the Draft EIR, including the technical appendices, is available for review at the Contra Costa County website (http://www.contracosta.ca.gov/delhombre), the office of Contra Costa County Department of Conservation and Development and two alternative locations. The address for each location is provided below:

Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553-4601
Hours:
Monday through Thursday: 7:30 a.m.–5:00 p.m.
Friday: 7:30 a.m.–4:00 p.m.
Saturday and Sunday: Closed

Pleasant Hill Library Contra Costa County Main Branch
1750 Oak Park Boulevard
Pleasant Hill, CA 94523
Hours:
Monday: 12:00 p.m.–8:00 p.m.
Tuesday: 1:00 p.m.–8:00 p.m.
Wednesday and Thursday: 11:00 a.m.–6:00 p.m.
Friday and Saturday: 10:00 a.m.–5:00 p.m.
Sunday: Closed

Office of County Supervisor Karen Mitchoff
2151 Salvio Street, Suite R
Concord, CA 94520
Hours:
Monday through Friday: 8:00 a.m.–5:00 p.m.; closed 12:00 p.m.–1:00 p.m.
Saturday and Sunday: Closed

Agencies, organizations, and interested parties have the opportunity to comment on the Draft EIR during the 45-day public review period. Written comments on this Draft EIR should be addressed to:

Jennifer Cruz, Senior Planner
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553-4601
Phone: 925.674.7790
Email: Jennifer.cruz@dcd.cccounty.us

Submittal of electronic comments in Microsoft Word or Adobe PDF format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to the public hearing before the County of Contra Costa on the project, at which the certification of the Final EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision makers for the project.

Executive Summary Matrix

Table ES-1 below summarizes the impacts, mitigation measures, and resulting level of significance after mitigation for the relevant environmental issue areas evaluated for the project. The table is intended to provide an overview; narrative discussions for the issue areas are included in the corresponding section of this EIR. Table ES-1 is included in the EIR as required by CEQA Guidelines Section 15123(b)(1).

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Table ES-1: Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Section 3.1—Aesthetics			
Impact AES-1: The project would not have a substantial adverse effect on a scenic vista.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact AES-2: The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a State scenic highway.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact AES-3: The project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings or conflict with applicable zoning and other regulations governing scenic quality.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact AES-4: The project could create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	Potentially Significant	**MM AES-4: Exterior Lighting** Proposed exterior lighting shall be directed downward and away from adjacent properties and public/private right-of-way to prevent glare or excessive light spillover.	Less Than Significant with Mitigation
Cumulative Impact	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.2—Air Quality			
Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan.	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact AIR-2: The project could result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment under an applicable federal or State ambient air quality standard.	Potentially Significant	**MM AIR-2: Implement BAAQMD Best Management Practices (BMP) During Construction** During construction, the following BMPs, as recommended by the BAAQMD, shall be implemented: • Exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or more as needed. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads and surfaces shall be limited to 15 miles per hour. • All roadways, driveways, and sidewalks shall be paved as soon as possible. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • A publicly visible sign shall be posted with the telephone number and person to contact both at Contra Costa County and at the office of the General Contractor regarding dust complaints. This person shall respond and take corrective action within 2 business days of a complaint or issue notification. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.	
Impact AIR-3: The project would expose sensitive receptors to substantial pollutant concentrations.	Potentially Significant	Implement MM AIR-2 and the following: **MM AIR-3: Use Construction Equipment That Meets Tier IV Interim Off-road Emission Standards** During construction activities, all off-road equipment with diesel engines greater than 50 horsepower shall meet either United States Environmental Protection Agency or California Air Resources Board Tier IV Interim off-road emission standards. The construction contractor shall maintain records concerning its efforts to comply with this requirement, including equipment lists. Off-road equipment descriptions and information may include but are not limited to	Less than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, and engine serial number. If engines that comply with Tier IV Interim off-road emission standards are not commercially available, then the construction contractor shall use the next cleanest piece of off-road equipment (e.g., Tier III) available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier IV Interim engines taking into consideration factors such as (i) critical-path timing of construction; and (ii) geographic proximity to the project site of equipment. The contractor can maintain records for equipment that is not commercially available by obtaining letters from at least two rental companies for each piece of off-road equipment where the Tier IV Interim engine is not available.	
Impact AIR-4: The project would not result in other emissions (such as those leading to odors adversely affecting a substantial number of people).	Less Than Significant	No mitigation is necessary.	Less Than Significant
Cumulative Impact	Potentially Significant	Implement MM AIR-2 and MM AIR-3	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Section 3.3—Biological Resources			
Impact BIO-1: The project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially Significant	**MM BIO-1a: Conduct Pre-construction Special-status Bat Surveys** The following measures shall be implemented prior to demolition, construction activities, or tree removal: • A qualified wildlife Biologist shall conduct surveys for special-status bats during the appropriate time of day to maximize detectability to determine if bat species are roosting near the work area no less than 7 days and no more than 14 days prior to tree removal, beginning ground disturbance and/or construction. Survey methodology may include visual surveys of bats (e.g., observation of bats during foraging period), inspection for suitable habitat, bat sign (e.g., guano), or use of ultrasonic detectors (Anabat, etc.). Visual surveys shall include trees within 0.25 mile of project construction activities. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study is required. • If evidence of bat use is observed, the number and species of bats using the roost will be determined. Bat detectors may be used to supplement survey efforts. • If roosts are determined to be present and must be removed, the bats shall be excluded from the roosting site before	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		the facility is removed. A mitigation program addressing compensation, exclusion methods, and roost removal procedures shall be developed prior to implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but cannot reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). • If roosts cannot be avoided or it is determined that construction activities may cause roost abandonment, such activities shall not commence until permanent, elevated bat houses have been installed outside of, but near the construction area. Placement and height shall be determined by a qualified wildlife Biologist, but the height of the bat house will be at least 15 feet. Bat houses will be multi-chambered and will be purchased or constructed in accordance with CDFW standards. The number of bat houses required will be dependent upon the size and number of colonies found, but at least one bat house will be installed for each pair of bats (if occurring individually), or of sufficient number to accommodate each colony of bats to be relocated.	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		MM BIO-1b: Avoid Active Migratory Bird Nests and Bat Roosts During Construction The following measures shall be implemented for construction work during the nesting season (February 15 through August 31): • If construction or tree removal is proposed during the breeding/nesting season for migratory birds (typically February 15 through August 31), a qualified Biologist shall conduct pre-construction surveys for northern harrier, pallid bat, Townsend's big-ear bat, and other migratory birds within the construction area, including a survey buffer determined by a qualified Biologist based on professional experience, no more than 14 days prior to the start of ground disturbing activities in the construction area. • If an active nest is located during pre-construction surveys, USFWS and/or CDFW (as appropriate) shall be notified regarding the status of the nest. Furthermore, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or a qualified Biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 300 feet around an	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		active raptor nest and 50-foot radius around an active migratory bird nest) or alteration of the construction schedule. • A qualified Biologist shall delineate the buffer using nest buffer signs, ESA fencing, pin flags, and or flagging tape. The buffer zone shall be maintained around the active nest site(s) until the young have fledged and are foraging independently.	
Impact BIO-2: The project would not have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	No Impact	No mitigation is necessary.	No Impact
Impact BIO-3: The project would not have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	No Impact	No mitigation is necessary.	No Impact
Impact BIO-4: The project would not substantially interfere with the movement of 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.	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact BIO-5: The project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Potentially Significant	**MM BIO-5a: Prepare and Implement a Tree Replacement Plan** A Tree Replacement Plan shall be submitted to and approved by Contra Costa County Department of Conservation and Development prior to the removal of trees, and/or prior to issuance of a demolition or grading permit. The Tree Replacement Plan shall designate the approximate location, number, and sizes of trees to be planted. Trees shall be planted prior to requesting a final inspection of the building permit. **MM BIO-5b: Implement Tree Protection Guidelines During Construction** Tree protection guidelines shall be implemented during construction through the clearing, grading, and construction phases as outlined in the arborist report prepared by HortScience dated May 9, 2019.	Less Than Significant with Mitigation
Impact BIO-6: The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.	No Impact	No mitigation is necessary.	No Impact
Cumulative Impact	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Section 3.4—Cultural Resources			
Impact CUL-1: The project could cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.	Potentially Significant	**MM CUL-1: Stop Construction Upon Encountering Historical or Archeological Materials** An archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology should inspect the site once grubbing and clearing are complete, and prior to any grading or trenching into previously undisturbed soils. This may be followed by regular periodic or "spot-check" historic and archaeological monitoring during ground disturbance as needed, but full-time archaeological monitoring is not required at this time. In the event a potentially significant cultural resource is encountered during subsurface earthwork activities, all construction activities within a 100-foot radius of the find shall cease and workers should avoid altering the materials until an archaeologist has evaluated the situation. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Potentially significant cultural resources consist of but are not limited to stone, bone, glass, ceramics, fossils, wood, or shell artifacts, or features including hearths, structural remains, or historic dumpsites. The archaeologist shall make	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		recommendations concerning appropriate measures that will be implemented to protect the resource, including but not limited to excavation and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines. Any previously undiscovered resources found during construction within the project site shall be recorded on appropriate California DPR 523 forms and shall be submitted to Contra Costa County Department of Conservation and Development, the Northwest Information Center, and the State Historic Preservation Office, as required.	
Impact CUL-2: The project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	Potentially Significant	Implement MM CUL-1	Less Than Significant with Mitigation
Impact CUL-3: The project could disturb human remains, including those interred outside of formal cemeteries.	Potentially Significant	**MM CUL-3: Stop Construction Upon Encountering Human Remains** If during the course of construction activities there is accidental discovery or recognition of any human remains, the following steps shall be taken: 1. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains to be Native American, the	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98. 2. Where the following conditions occur, the landowner or his or her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project site in a location not subject to further subsurface disturbance: • The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission. • The descendant identified fails to make a recommendation. • The landowner or his authorized	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner. Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains: • When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code Section 5097.98. The applicant may develop a plan for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American Burials with the appropriate Native Americans as identified by the Native American Heritage Commission.	
Cumulative Impact	Potentially Significant	Implement MM CUL-1 and MM CUL-3	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Section 3.5—Energy			
Impact ENER-1: The project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact ENER-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Cumulative Impact	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.6—Geology and Soils			
Impact GEO-1: The project could 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.	Potentially Significant	**MM GEO-1: Submittal of a Design-Level Geotechnical Report** At least 60 days prior to issuance of construction permits or installation of utility improvements, the project applicant shall submit a design-level geotechnical report that provides geotechnical recommendations for the project based on adequate subsurface exploration, laboratory testing, and engineering analysis. The design-level geotechnical report shall address the following: • Grading, including removal of existing undocumented fill • Consolidation settlement • Analysis of liquefaction potential, including estimating total settlement and differential settlement and surface manifestation of liquefaction	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• Foundation design • Measures to protect improvements from relatively shallow water table • Further evaluation of expansive soils and corrosion potential of soils, including measures to protect improvements that are in contact with the ground from this hazard • Exploration, testing, and engineering analysis to provide recommendations pertaining to foundation design, including retaining walls and pavement design • Evaluation of the drainage design • Address temporary shoring and support of excavations • Provide updated California Building Code seismic parameters • Outline recommended geotechnical monitoring Prior to issuance of building permits, the project Geotechnical Engineer shall review construction drawings to ensure that the grading, drainage, and foundation plans are consistent with recommendations and specifications in the design level geotechnical report. All grading, excavation and filling shall be conducted during the period of April 15 through October 15 only, and all areas of exposed soils shall be revegetated to minimize erosion and subsequent sedimentation. After October 15, only	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		erosion control work shall be allowed by the grading permit. Any modification to the above schedule shall be subject to review by the Grading Inspection Section, and the review and approval of the Department of Conservation and Development, Community Development Division. A hold shall be placed on the "final" grading inspection, pending submittal of a report from the project Geotechnical Engineer that documents their observation and testing services during construction. Similarly, a hold shall be placed on the final building inspection until the Geotechnical Engineer submits a report documenting the monitoring services provided and implementation of all applicable recommendations. The final grading and construction plans for the project shall be reviewed by the project Geotechnical Engineer. Grading and construction activities shall meet the requirements of the recommendations included in the design-level geotechnical study.	
Impact GEO-2: The project would not result in substantial soil erosion or the loss of topsoil.	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact GEO-3: The project could 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.	Potentially Significant	Implement MM GEO-1	Less Than Significant
Impact GEO-4: The project could 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.	Potentially Significant	Implement MM GEO-1	Less Than Significant with Mitigation
Impact GEO-5: The project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.	No Impact	No mitigation is necessary.	No Impact
Impact GEO-6: The project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant	**MM GEO-6: Stop Construction Upon Encountering Paleontological Materials** A qualified paleontological monitor (as defined by the Society of Vertebrate Paleontology) retained by the project proponent shall be present during all phases of ground disturbance in excess of 15 feet below the existing ground surface or to the depth of Pleistocene deposits, whichever is greater. The role of the paleontological monitor shall be limited to monitoring of known or inferred Pleistocene deposits. This may be followed by regular periodic or "spot-	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		check" paleontological monitoring during ground disturbance as needed, but full-time monitoring is not required at this time. In the event that Pleistocene fossils or fossil-bearing deposits are discovered during construction activities, excavations within a 100-foot radius of the find shall be temporarily halted or diverted. The applicant's construction contractor shall notify a qualified paleontologist to examine the discovery, and shall notify the Department of Conservation and Development within 24 hours of the discovery. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. The paleontologist shall document the discovery as needed in accordance with Society of Vertebrate Paleontology standards and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction activities are allowed to resume at the location of the find. If the applicant determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of construction activities on the discovery. The plan shall be submitted to the Department of	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Conservation and Development, Community Development Division for review and approval prior to implementation. The applicant shall adhere to the recommendations in the approved plan.	
Cumulative	Potentially Significant	Implement MM GEO-6	Less Than Significant with Mitigation
Section 3.7—Greenhouse Gas Emissions			
Impact GHG-1: Implementation of the project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact GHG-2: Implementation of the project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce the emissions of greenhouse gases.	Potentially Significant	**MM GHG-2: Prepare Climate Action Plan (CAP) Development Checklist** Prior to issuance of building permits, the applicant shall prepare and submit a CAP Development Checklist completed for the project to the County of Contra Costa that demonstrates to the County's satisfaction that project would be constructed and operated to be consistent with measures required in the CAP Development Checklist.	Less Than Significant with Mitigation
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Section 3.8—Hazards and Hazardous Materials			
Impact HAZ-1: The project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Potentially Significant	**MM HAZ-1: Conduct Asbestos and Lead Surveys Prior to Demolition** Prior to the issuance of demolition permits for the two existing residences and associated structures, the applicant shall retain a licensed professional to conduct asbestos and lead paint surveys. These surveys shall be conducted prior to the disturbance or removal of any suspect asbestos-containing materials and lead-based paint, and these materials shall be characterized for asbestos and lead by a reliable method. All activities involving asbestos-containing materials and lead-based paint shall be conducted in accordance with governmental regulations, and all removal shall be conducted by properly licensed abatement contractors.	Less Than Significant with Mitigation
Impact HAZ-2: The project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact HAZ-3: The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HAZ-4: The project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact HAZ-5: The project would not be 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, and result in a safety hazard or excessive noise for people residing or working in the project area.	No Impact	No mitigation is necessary.	No Impact
Impact HAZ-6: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact HAZ-7: The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.9—Hydrology and Water Quality			
Impact HYD-1: The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact HYD-2: The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact HYD-3: The project could 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?	Potentially Significant	**MM HYD-3: Prepare Drainage Plan Prior to Grading** • In accordance with Division 914 of the Ordinance Code, the project applicant shall collect and convey all stormwater entering and/or originating on this property, without diversion and within an adequate storm drainage facility, to a natural watercourse having definable bed and banks, or to an existing adequate public storm drainage system that conveys the stormwater to a natural watercourse. Any proposed diversions of the watershed shall be subject to hearing body approval. Prior to issuance of a grading permit, the applicant shall submit improvement plans for proposed drainage improvements, and a drainage report with hydrology and hydraulic calculations to the Engineering Services Division of the Public Works Department for review and approval that demonstrates the adequacy of the in-tract drainage system and the downstream drainage system. The applicant shall verify the	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		adequacy at any downstream drainage facility accepting stormwater from this project between the site and the outfall of the downstream storm drain system to the Walnut Creek Channel prior to discharging runoff. If the downstream system(s) is not adequate to handle the Existing Plus Project condition for the required design storm, improvements shall be constructed to make the system adequate. The applicant shall obtain access rights to make any necessary improvements to off-site facilities. • Comply with all rules, regulations and procedures of the National Pollutant Discharge Elimination System (NPDES) for municipal, construction and industrial activities as promulgated by the California State Water Resources Control Board, or any of its Regional Water Quality Control Boards (San Francisco Bay—Region II); and • Submit a Final Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan (O+M Plan) to the Public Works Department, which shall be reviewed for compliance with the County's National Pollutant Discharge Elimination System (NPDES) Permit and shall be deemed consistent with the County's Stormwater Management and Discharge Control Ordinance (Division	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		1014) prior to issuance of a building permit. Improvement Plans shall be reviewed to verify consistency with the Final Stormwater Control Plan and compliance with Provision C.3 of the County's NPDES Permit and the County's Stormwater Management and Discharge Control Ordinance (Division 1014).	
Impact HYD-4: The project would not be located in a flood hazard zone, tsunami, or seiche zone, or risk release of pollutants due to project inundation.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact HYD-5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.10—Land Use and Planning			
Impact LAND-1: The project would not physically divide an established community.	No Impact	No mitigation is necessary.	No Impact
Impact LAND-2: The project would not cause a significant environmental impact due to conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.11—Noise			
Impact NOI-1: The project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Potentially Significant (construction noise only)	**MM NOI-1: Implement Noise-reduction Measures During Construction** To reduce potential construction noise impacts, the following multi-part mitigation measure shall be implemented for the project: • The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment. • The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited. • The construction contractor shall utilize “quiet” models of air compressors and other stationary noise sources where technology exists. • At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences. • The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the	Less Than Significant with Mitigation

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		staging area and noise-sensitive receptors nearest the project site. • Restrict noise-generating construction activities (including construction-related traffic, excluding interior work within the building once the building envelope is complete) at the project site and in areas adjacent to the project site to the hours of 7:30 a.m. to 5:00 p.m., Monday through Friday, unless otherwise approved by CDD, with no construction allowed on weekends, federal and State holidays.	
Impact NOI-2: The project could cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Potentially Significant (operational noise only)	**MM NOI-2: Install Mechanical Ventilation System** To reduce potential traffic and BART noise impacts, prior to issuance of building permits, the applicant shall submit evidence to the satisfaction of the Department of Conservation and Development to demonstrate that the project includes a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods.	Less Than Significant
Impact NOI-3: The project would not result in generation of excessive groundborne vibration or groundborne noise levels.	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact NOI-4: The project would not expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.	No Impact	No mitigation is necessary.	No Impact
Cumulative	Potentially Significant (operation noise only)	Implement MM NOI-2	Less Than Significant
Section 3.12—Population and Housing			
Impact POP-1: The project would not induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact POP-2: The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.13—Public Services			
Impact PUB-1: The project would not 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	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection.			
Impact PUB-2: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact PUB-3: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for schools.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact PUB-4: The project would not 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	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for other public facilities.			
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.14—Recreation			
Impact REC-1: The project would not 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.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact REC-2: The project would include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment.	Potentially Significant	Implement MM AIR-2, MM AIR-3, MM NOI-1, and MM TRANS-1a.	Less than Significant with Mitigation
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.15—Transportation			
Impact TRANS-1: The project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	Potentially Significant	**MM TRANS-1a:** Prepare and Implement Construction Traffic Control Plan Prior to issuance of building permits, the applicant shall prepare and submit a Construction Traffic Control Plan. The plan shall include the following items. The approved plan shall be implemented during construction. • Project staging plan to maximize on-site storage of materials and equipment	Significant and Unavoidable(intersection LOS) Less Than Significant with Mitigation (transit, roadway, bicycle, and pedestrian facilities)

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• Permitted construction hours • Location of construction staging • Identification of parking areas for construction employees, site visitors, and inspectors, including on-site locations • Provisions for street sweeping to remove construction related debris on public streets • A set of comprehensive traffic control measures including preparation of traffic control plans, as needed; scheduling of major truck trips and deliveries to avoid peak-hours; lane closure proceedings; signs, cones, and other warning devices for drivers; and designation of construction haul routes. • Survey of the pavement condition on roadways to be used as part of haul route prior to the commencement of any work on site. The survey shall include a video tape of the roadways. The applicant shall complete any remedial work prior to initiation of use and provide a bond assuring completion of the remediation work, the amount which shall be deemed sufficient by the Public Works Department. • The applicant shall provide a pavement analysis for those roads along the proposed haul routes or any alternate route(s) that are proposed to be utilized by hauling operation. This study shall analyze the existing	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		pavement conditions and determine what impact the hauling operation will have over the construction period of the project. The study shall provide recommendations to mitigate identified impacts. **MM TRANS-1b: Implement Las Juntas Way Improvements Prior to Final Inspection** Prior to requesting a final inspection, the following improvements shall be installed on Las Juntas Way between Coggins Drive and Del Hombre Lane: • The Iron Horse Trail crossing of Las Juntas Way shall be enhanced with one or more of the following measures, as approved by the Public Works Department: - Advance stop bars - Narrowed travel lanes - Curb extensions - Improved crosswalk lighting - A pedestrian/bicyclist actuated trail crossing warning device, - Other similar measures as approved by the Public Works Department. **MM TRANS-1c: Relocate and Align Del Hombre Lane Crosswalk Prior to Construction** Prior to requesting a final inspection, the project applicant shall install a crosswalk across Del Hombre Lane, with curb ramps on either end. The crosswalk's eastern	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		curb ramp shall be located south of the parking garage entry for the project and north of the corner of Del Hombre Lane and Honey Trail Lane. The applicant will work with the Public Works Department on the optimal location to serve pedestrians while minimizing impacts to existing trees on the west side of Del Hombre Lane. **MM TRANS-1d: Prepare Pedestrian Path Design and Lighting Plan Prior to Construction** Prior to issuance of building permits, the applicant shall prepare and submit plans to the Contra Costa County Public Works Department depicting street lighting along the project frontages to provide a lit pedestrian path of travel along the project frontage, connecting to the Iron Horse Trail. The approved plans shall be incorporated into the project.	
Impact TRANS-2: Project consistency with CEQA Guidelines Section 15064.3 subdivision (b) cannot be determined given that the County has not established a threshold with regard to VMT impact significance.	No finding is required.		

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact TRANS-3: The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact TRANS-4: The project would not result in inadequate emergency access.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Cumulative	Potentially Significant	Implement MM TRANS-1b	Significant and Unavoidable (intersection LOS) Less Than Significant with Mitigation (transit, roadway, bicycle, and pedestrian facilities)
Section 3.16—Tribal Cultural Resources			
Impact TRIB-1: The project would not cause a substantial adverse change in the significance of a Tribal Cultural Resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).	No Impact	No mitigation is necessary.	No Impact
Impact TRIB-2: The project would not cause a substantial adverse change in the significance of a tribal cultural 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.	No Impact	No mitigation is necessary.	No Impact
Cumulative	No Impact	No mitigation is necessary.	No Impact

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Section 3.17—Utilities and Service Systems			
Impact UTIL-1: The project could require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	Potentially Significant	Implement MM HYD-3	Less Than Significant with Mitigation
Impact UTIL-2: The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact UTIL-3: The project would not result in a determination by the wastewater treatment provider, which serves or may serve the project, that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact UTIL-4: The project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact UTIL-5: The project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste.	Less Than Significant	No mitigation is necessary.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant
Section 3.18—Wildfire			
Impact WILD-1: The project would not substantially impair an adopted emergency response plan or emergency evacuation plan.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact WILD-2: Due to slope, prevailing winds, and other factors, the project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact WILD-3: The project would not 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.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Impact WILD-4: The project 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.	Less Than Significant	No mitigation is necessary.	Less Than Significant
Cumulative	Less Than Significant	No mitigation is necessary.	Less Than Significant

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CHAPTER 1: INTRODUCTION

This Environmental Impact Report (EIR) for the Del Hombre Apartments Project (project) has been prepared in accordance with—and complies with—criteria, standards, and procedures of the California Environmental Quality Act (CEQA), as amended (California Public Resources Code [PRC], § 21000, *et seq*.) and the CEQA Guidelines (California Code of Regulations [CCR], Title 14, § 15000, *et seq*.). In accordance with Sections 21067, 15367, and 15050–15053 of the CEQA Guidelines, Contra Costa County (County) is the lead agency under whose authority this document has been prepared. As an informational document, this EIR is intended for use by the County and other public agency decision makers and members of the public in evaluating the potential environmental impacts of the project.

1.1 - Project Overview

The 2.37-acre project site consists of five parcels and is largely undeveloped but contains two single-family homes and an attached garage approximately 0.38 mile east of Interstate 680 (I-680) and 0.15 mile east of the Pleasant Hill/Contra Costa Centre BART station (see Exhibit 2-2). Several trees are located within the project site.

The project includes development of 284 new apartment units within a six-story podium apartment community. The existing two single-family homes and attached garage would be demolished, Del Hombre Lane and Roble Road would be widened, and Del Hombre Lane would be brought up to County public road standards. Primary vehicle access to the project site would be granted from Del Hombre Lane via the ground floor parking garage.

1.2 - Environmental Review Process

An EIR is an informational document used by a lead agency (in this case, the County) when considering approval of a project. The purpose of an EIR is to provide public agencies and members of the public with detailed information regarding the environmental effects associated with implementing a project. An EIR should analyze the environmental consequences of a project, identify ways to reduce or avoid the project's potential environmental effects, and identify alternatives to the project that can avoid or reduce impacts. Pursuant to CEQA, State and local government agencies must consider the environmental consequences of projects over which they have discretionary authority. This EIR provides information to be used in the planning and decision-making process. It is not the purpose of an EIR to recommend approval or denial of a project.

Before approval of the project, the County, as lead agency and the decision-making entity, is required to certify that this EIR has been completed in compliance with CEQA, that the information in the EIR has been considered, and that the EIR reflects the independent judgment of the County. Pursuant to CEQA, decision makers must balance the benefits of a project against its unavoidable environmental consequences. If environmental impacts are identified as significant and unavoidable, the County may still approve the project if it finds that social, economic, or other benefits outweigh the unavoidable impacts. The County would then be required to state in writing the specific reasons for approving the project, based on information in the EIR and other information

sources in the administrative record. This reasoning is called a "statement of overriding considerations" (PRC § 21081; CEQA Guidelines § 15093).

In addition, the County as lead agency must adopt a mitigation monitoring and reporting program (MMRP) describing the measures that were made a condition of project approval to avoid or mitigate significant effects on the environment (PRC § 21081.6; CEQA Guidelines § 15097). The MMRP is adopted at the time of project approval and is designed to ensure compliance with the project description and EIR mitigation measures during and after project implementation. If the County decides to approve the project, it would be responsible for verifying that the MMRP for this project is implemented. The EIR will be used primarily by the County during approval of future discretionary actions and permits.

This EIR provides a project-level analysis of the environmental effects of the Del Hombre Apartments Project. The environmental impacts of the project are analyzed in the EIR to the degree of specificity appropriate, in accordance with CEQA Guidelines Section 15146. This document addresses the potentially significant adverse environmental impacts that may be associated with the planning, construction, or operation of the project. It also identifies appropriate and feasible mitigation measures and alternatives that may be adopted to significantly reduce or avoid these impacts.

CEQA requires that an EIR contain, at a minimum, certain specific components. These components are contained in this EIR and include:

- Table of Contents
- Introduction
- Executive Summary
- Project Description
- Environmental Setting
- Significant Environmental Impacts
- Mitigation Measures
- Cumulative Impacts
- Significant Unavoidable Adverse Impacts
- Alternatives to the Proposed Project
- Growth-Inducing Impacts
- Effects Found Not to be Significant
- Areas of Known Controversy

Contra Costa County is designated as the lead agency for the project. CEQA Guidelines Section 15367 defines the lead agency as ". . . the public agency, which has the principal responsibility for carrying out or approving a project." Other public agencies may use this EIR in the decision-making or permit process and consider the information in this EIR along with other information that may be presented during the CEQA process.

This EIR was prepared by FirstCarbon Solutions (FCS), an environmental consultant. Prior to public review, it was extensively reviewed and evaluated by Contra Costa County. This EIR reflects the

independent judgment and analysis of Contra Costa County as required by CEQA. Lists of organizations and persons consulted and the report preparation personnel is provided in Chapter 7 of this EIR.

1.3 - Purpose and Legal Authority

1.3.1 - Notice of Preparation and Public Scoping Process

In accordance with Sections 15063 and 15082 of the CEQA Guidelines, Contra Costa County, as lead agency, sent the Notice of Preparation (NOP) to responsible and trustee agencies and interested entities and individuals on October 29, 2018, thus beginning the formal CEQA scoping process. The purpose of the scoping process is to allow the public and government agencies to comment on the issues and provide input on the scope of the EIR. The scoping period began on October 29, 2018, and ended on November 28, 2018, representing the statutory 30-day public review period. Three comment letters were received in response to the NOP. The NOP is contained in Appendix A. Comments are summarized in Table 1-1, with cross-references to applicable EIR sections where comments are addressed.

Pursuant to Section 15083 of the CEQA Guidelines, the Contra Costa County held a public scoping meeting on November 19, 2018, starting at 3:30 p.m. at Contra Costa County Department of Conservation and Development, 30 Muir Road, Martinez, California 94553. Attendees were given an opportunity to provide comments and express concerns about the potential effects of the project. No individuals provided verbal comments on the content of the EIR at the scoping meeting.

Table 1-1: Summary of EIR Scoping Comments

Agency/Organization	Author	Date	Comment Summary	Coverage in the DEIR
Public Agencies				
Native American Heritage Commission (NAHC)	Sharaya Souza, Staff Services Analyst	11/06/2018	• Discusses compliance with Assembly Bill (AB) 52 and Senate Bill (SB) 18 NAHC recommendations for Cultural Resource Assessments	• Section 3.16, Tribal Cultural Resources
Organizations				
Walden District Improvement Association	Jeffrey Peckham, President	11/30/2018	• Requests that the number of units be reduced to comply with current zoning • Project acreage is not adequate for number of units • Requests that the height be kept to six stories to comply with current zoning	• Section 3.10, Land Use and Planning • Section 3.15, Transportation

Table 1-1 (cont.): Summary of EIR Scoping Comments

Agency/Organization	Author	Date	Comment Summary	Coverage in the DEIR
			• Expresses concern related to vehicle access and notes that an entrance via Roble Road may be required • Requests the project incorporate 15 to 20 percent affordable housing units instead of the proposed 5 percent • Requests the project be broken down into condominiums (comment does not address a specific environmental issue.) • Requests the architecture blend with the surrounding neighborhoods • Requests the project be required to contribute to the Walden I maintenance fund	
Individuals				
N/A	Rebecca Gehres	11/04/2018	• Disagrees with removing right turn only lane off Interstate 680 • Requests an updated traffic study	• Section 3.15, Transportation
Source: Compiled by FCS 2018				

1.3.2 - Public Review

Upon completion of the public Draft EIR, Contra Costa County filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period (PRC § 21161). Concurrent with the NOC, the Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a

copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the Draft EIR, including the technical appendices, is available for review at Contra Costa County website (http://www.contracosta.ca.gov/delhombre), the office of Contra Costa County Department of Conservation and Development, and two alternative locations. The address for each location is provided below:

Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553-4601
Hours:
Monday through Thursday: 7:30 a.m.–5:00 p.m.
Friday: 7:30 a.m.–4:00 p.m.
Saturday and Sunday: Closed

Pleasant Hill Library
Contra Costa County Main Branch
1750 Oak Park Boulevard
Pleasant Hill, CA 94523
Hours:
Monday: 12:00 p.m.–8:00 p.m.
Tuesday: 1:00 p.m.–8:00 p.m.
Wednesday and Thursday: 11:00 a.m.–6:00 p.m.
Friday and Saturday: 10:00 a.m.–5:00 p.m.
Sunday: Closed

Office of County Supervisor Karen Mitchoff
2151 Salvio Street, Suite R
Concord, CA 94520
Hours:
Monday through Friday: 8:00 a.m.–5:00 p.m.; closed 12:00 p.m.–1:00 p.m.
Saturday and Sunday: Closed

Agencies, organizations, and interested parties have the opportunity to comment on the Draft EIR during the 45-day public review period. Written comments on the Draft EIR should be addressed to:

Jennifer Cruz, Senior Planner
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553-4601
Phone: 925.674.7790
Fax: 925.674.7258
Email: Jennifer.cruz@dcd.cccounty.us

Submittal of electronic comments in Microsoft Word or Adobe PDF format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to the public hearing before the Contra Costa County Board of Supervisors on the project, at which the certification of the Final EIR will also be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision makers for the project.

1.3.3 - Environmental Issues Determined Not To Be Significant

The NOP identified topical areas that were determined not to be significant. An explanation of why each area is determined not to be significant is provided in Chapter 4, Effects Found Not To Be Significant. These topical areas are as follows:

- Agriculture and Forestry Resources
- Mineral Resources

1.3.4 - Potentially Significant Environmental Issues

The NOP found that the following topical areas may contain potentially significant environmental issues that will require further analysis in the EIR. These sections are as follows:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

1.4 - EIR Document Organization

This EIR is organized into the following main sections:

- **Chapter ES: Executive Summary.** This Chapter includes a summary of the project and alternatives to be addressed in the EIR. A brief description of the areas of controversy and issues to be resolved, and overview of the Mitigation Monitoring and Reporting Program—in addition to a table that summarizes the impacts, mitigation measures, and level of significance after mitigation—are also included in this Chapter.
- **Chapter 1: Introduction.** This Chapter provides an introduction and overview describing the purpose of this EIR, its scope and components, and its review and certification process.
- **Chapter 2: Project Description.** This Chapter includes a detailed description of the project, including its location, site, and project characteristics. A discussion of the project objectives, intended uses of the EIR, responsible agencies, and approvals that are needed for the project are also provided.
- **Chapter 3: Environmental Impact Analysis.** This Chapter analyzes the environmental impacts of the proposed project. Impacts are organized into major topical areas. Each topical area includes a description of the environmental setting, regulatory framework, significance criteria, methodology, specific thresholds of significance, impact analyses, mitigation measures (when applicable), and significance conclusions as well as cumulative impacts associated with the

project, including the impacts of past, present, and probable future projects. The specific environmental topical sections that are addressed within Chapter 3 are as follows:

- **Section 3.1—Aesthetics:** Addresses potential visual impacts related to intensification and the overall increase in illumination produced by the project.
- **Section 3.2—Air Quality:** Addresses potential air quality impacts associated with project implementation and emissions of criteria pollutants. In addition, the section also evaluates project emissions of toxic air contaminants.
- **Section 3.3—Biological Resources:** Addresses potential impacts on habitat, vegetation, and wildlife; the potential degradation or elimination of important habitat; and impacts on listed, proposed, and candidate threatened and endangered species.
- **Section 3.4—Cultural Resources:** Addresses potential impacts related to historical resources, archaeological resources, and burial sites.
- **Section 3.5—Energy:** Addresses potential project impacts related to energy usage.
- **Section 3.6—Geology and Soils:** Addresses potential impacts related to soils and assesses the effects of project-related development in relation to geologic and seismic conditions. Also addresses potential impacts related to paleontological or unique geologic resources.
- **Section 3.7—Greenhouse Gas Emissions:** Addresses potential project emissions of greenhouse gases.
- **Section 3.8—Hazards and Hazardous Materials:** Addresses potential for the presence of hazardous materials or conditions on the project site and in the project area that may have the potential to impact human health and evaluates potential impacts related to wildfires.
- **Section 3.9—Hydrology and Water Quality:** Addresses potential impacts related to local hydrological conditions, including drainage areas and changes in flow rates.
- **Section 3.10—Land Use and Planning:** Addresses potential land use impacts associated with division of an established community and consistency with the Contra Costa General Plan and the Contra Costa County Ordinance Code.
- **Section 3.11—Noise:** Addresses potential noise impacts during construction and at project buildout related to mobile and stationary sources. The section also addresses the impact of noise generation on neighboring uses.
- **Section 3.12—Population and Housing:** Address potential impacts related to local housing and displacement.
- **Section 3.13—Public Services:** Addresses potential impacts related to public services, including fire protection, law enforcement, schools, parks, recreational facilities, and library facilities.
- **Section 3.14—Recreation:** Addresses potential impacts related to parks and park usage.
- **Section 3.15—Transportation:** Addresses potential impacts related to the local and regional roadway system, public transportation, bicycle, and pedestrian access.
- **Section 3.16—Tribal Cultural Resources:** Addresses potential project impacts related to tribal cultural resources.
- **Section 3.17—Utilities and Services Systems:** Addresses potential impacts related to service providers, including water supply, stormwater, wastewater, solid waste, and energy providers.
- **Section 3.18—Wildfire:** Addresses potential impacts related to wildfire including lands within State responsibility areas and lands classified as very high fire hazard severity zones.

- **Chapter 4: Effects Found Not To Be Significant.** This Chapter contains analysis of the topical sections not addressed in Chapter 3.
- **Chapter 5: Alternatives to the Proposed Project.** This Chapter compares the impacts of the project with two land-use project alternatives: the No Project Alternative and the Reduced Scale Alternative. An environmentally superior alternative is identified. In addition, alternatives initially considered but rejected from further consideration are discussed.
- **Chapter 6: Other CEQA Considerations.** This Chapter provides a summary of significant environmental impacts, including unavoidable and growth-inducing impacts as well as significant irreversible environmental changes.
- **Chapter 7: Persons and Organizations Consulted/List of Preparers.** This Chapter contains a full list of persons and organizations that were consulted during the preparation of the EIR. This Chapter also contains a full list of the authors who assisted in the preparation of the EIR, by name and affiliation.
- **Appendices.** The EIR appendices include notices and other procedural documents pertinent to the EIR, as well as supporting technical materials. The following supporting materials and technical studies and analyses were prepared for the project in support of preparation of this EIR:
  - NOP and EIR Public Scoping Comments (Appendix A)
  - Air Quality, Greenhouse Gas Emissions, and Energy Modeling Outputs, prepared by FirstCarbon Solutions (Appendix B)
  - Biological Resources Assessment, prepared and compiled by FirstCarbon Solutions (Appendix C)
  - Cultural Resources Assessment and Assembly Bill 52 consultation, prepared and compiled by FirstCarbon Solutions (Appendix D)
  - Geotechnical Report, prepared by ENGEO, Inc. (Appendix E)
  - Phase I and II Environmental Site Assessments, prepared by ENGEO, Inc. (Appendix F)
  - Preliminary Stormwater Control Plan and Drainage Memorandum and, prepared by BKF (Appendix G)
  - Noise Modeling Outputs, prepared by FirstCarbon Solutions (Appendix H)
  - Transportation Impact Assessment, prepared by Fehr & Peers (Appendix I)
  - Utility Due Diligence Memorandum, prepared by BKF (Appendix J)

1.5 - Documents Incorporated by Reference

As permitted by CEQA Guidelines Section 15150, this EIR has referenced several technical studies, analyses, and previously certified environmental documentation. Information from such documents, which have been incorporated by reference, has been briefly summarized in the appropriate section(s). The relationship between the incorporated part of the referenced document and the EIR has also been described as part of those summaries in the appropriate section(s). Documents and other sources that have been used in the preparation of this EIR include but are not limited to:

- Contra Costa County General Plan
- Contra Costa County Code of Ordinance

In accordance with CEQA Guidelines Section 15150(b), the Contra Costa County General Plan, Contra Costa County Code of Ordinances, and the referenced documents and other sources used in the preparation of the EIR are available for review at the Contra Costa County Department of Conservation and Development at the address shown in Section 1.3.2, Public Review.

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CHAPTER 2: PROJECT DESCRIPTION

The project applicant, The Hanover Company, proposes to build a 284-unit six-story podium apartment community on a 2.37-acre site located in central Contra Costa County and adjacent to the Pleasant Hill/Contra Costa Centre Bay Area Rapid Transit (BART) Station in unincorporated Walnut Creek.[1] The project will require approval of a General Plan Amendment from Multiple-Family Residential-Very High Density (MV) to Multiple-Family Residential-Very High Special Density (MS), a rezoning of the property from Single-Family Residential (R-15) and Planned Unit District (P-1) to Planned Unit District (P-1), a minor subdivision, and a Final Development Plan to allow the construction of the apartments including variances to the lot size for rezoning a less than 5-acre property to P-1 and setback from a public road, and an exception from Title 9 for drainage requirements. The project also includes the improvements to roads, demolition of the existing residential buildings, the removal of approximately 161 trees, and grading of approximately 29,000 cubic yards. The purpose of this Environmental Impact Report (EIR) is to identify potential environmental impacts of the proposed Del Hombre Apartments Project (referred to herein as the project) within Contra Costa County, California. This chapter provides a detailed overview of the project site location and setting, project objectives, project details, characteristics, and construction phasing. It also describes the intended uses of the EIR by agencies with permitting and approval authority over the project, as well as required permits and approvals.

2.1 - Project Location and Setting

2.1.1 - Location

Regional Location

Contra Costa County (County) is located in the eastern San Francisco Bay Area of California. The County is bordered to the north by Solano County, to the east by San Joaquin County, to the south by Alameda County, and to the west by San Pablo Bay and Marin County (Exhibit 2-1). The County covers 716 square miles and has historically been a suburban community serving major employment centers to the west and south. Major roadway networks including State Route (SR) 4, SR-24, SR-242, and Interstate 680 (I-680), provide regional access to surrounding areas. I-680 is a north-south, 12-lane highway that is the main point of access connecting Contra Costa County to the eastern Bay Area cities.

Local Setting

The project site is located at 3010, 3018, 3050, and 3070 Del Hombre Lane, and 112 Roble Road on the southeast corner of Del Hombre Lane and Roble Road (see Exhibit 2-2). The site is located within and surrounded by unincorporated Contra Costa County land. The project site and the immediate unincorporated Contra Costa County lands are surrounded to the east, west, north, and south by the City of Walnut Creek, to the northeast by the City of Concord, and to the northwest by the City of Pleasant Hill; United States Geological Survey (USGS) Walnut Creek 7.5’ Quadrangle/Las Juntas Land Grant (Latitude 37°55’ 45” North; Longitude 122°3’13” West). The project site is within the City of Walnut Creek Sphere of Influence (SOI). The site is bound by Del Hombre Lane to the west as well as

[1] The project site is 2.4 gross acres and 2.37 net acres.

the Iron Horse Regional Trail (just west of Del Hombre Lane), Roble Road to the north, Avalon Walnut Ridge apartments to the north and east, and Honey Trail to the south. The Pleasant Hill/Contra Costa Centre BART Station and I-680 are to the west of the project site; approximately 0.12 mile and 0.36 mile, respectively (see Exhibit 2-2).

2.1.2 - Existing Project Site Characteristics

The 2.37-acre project site consists of five parcels, as shown in Exhibit 2-3 and listed in Table 2-1.

Table 2-1: Parcels

Assessor's Parcel Numbers	Addresses	Ownership
148-170-042	3070 Del Hombre Lane	Reco Investors, LLC (Private)
148-170-037	112 Roble Road	Duncan (Private)
148-170-041	3050 Del Hombre Lane	3000 Del Hombre Holdings, LLC (Private)
148-170-001	3010 Del Hombre Lane	Kohler Trust et al. (Private)
148-170-022	3018 Del Hombre Lane	McKeen (Private)
Source: Contra Costa County 2018.		

The project site is relatively flat in elevation (86 feet above mean sea level) with a general topographic slope trending in the north-northwest direction[2]. The project site is currently occupied by two existing single-story residences (3018 Del Hombre Lane and 112 Roble Road), which were constructed in 1947 and 1970, respectively[3] and are 1,040 gross square feet (gsf) and 1,465 gsf, respectively.[4] The property at 3018 Del Hombre Lane has an attached garage that was constructed in 1947 and is 380 gsf.[5] There is also an unmaintained concrete path with an east-west orientation in the center of the project site that does not connect to anything on the project site. In addition, there are various fences and pole-mounted electrical lights, power, and telecommunication lines throughout the project site. There are no street lights currently on the project site.[6] The site contains 189 trees, predominantly valley oaks, followed by coast redwoods and blue gum.[7]

2.1.3 - Existing Land Use Designation and Zoning

Land Use Designation

The Contra Costa County General Plan (General Plan) designates the site Multiple-Family Residential Very High (MV) (Exhibit 2-4). Pursuant to the General Plan Land Use Element, the MV designation allows between 30.0 and 44.9 multiple-family units per net acre, and the site can range up to 1,451

[2] ENGEO Incorporated. 2018. Del Hombre Site: Phase I Environmental Site Assessment. March.
[3] ENGEO Incorporated. 2018. Del Hombre Site: Phase I Environmental Site Assessment. March.
[4] Contra Costa County Assessor's Parcel Map. 2018. Website: https://ccmap.cccounty.us/Html5/index.html?viewer=CCMAP. Accessed December 5, 2018.
[5] Zillow. 3018 Del Hombre Lane. Website: https://www.zillow.com/homedetails/3018-Del-Hombre-Ln-Walnut-Creek-CA-94597/18387555_zpid/. Accessed December 5, 2018.
[6] BKF Engineers. 2018. Del Hombre Utility Due Diligence. May.
[7] Hort Science. 2019. Tree Inventory Report, Del Hombre Lane Contra Costa County, CA. May.

square feet. Primary land uses consist of multiple-family residences including apartments and condominiums, as well as accessory buildings and structures ancillary to the primary uses. Secondary land uses that do not conflict with primary uses may also be allowed. These include accessory dwelling units, home occupations, and group care and/or childcare facilities.[8]

The project site has been planned for higher density residential uses since the 1980s when the adjacent Pleasant Hill BART Station Area Specific Plan (Specific Plan) was originally adopted by Contra Costa County.[9] Since that time, the area has experienced steady growth as the development envisioned in the Specific Plan has been constructed.

Zoning

The site is located within the Single-Family Residential (R-15) and Planned Unit District (P-1) Zoning Districts (Exhibit 2-5) on the County's Zoning Map. The R-15 Zoning District is a single-family residential district with a minimum lot size of 15,000 square feet, an average width and depth of 100 feet, and allows uses such as: a detached single-family dwelling on each lot and the accessory structures and uses normally auxiliary to accessory dwelling units, and other residential related uses.[10] For the portion of the site along Del Hombre Lane designated as a P-1, a Final Development Plan was approved for a development that allowed a 13-unit apartment complex and the removal of 19 trees and impacts to an additional 21 trees, which was never constructed.

2.1.4 - Surrounding Land Uses

The area around the project site has a suburban, transit-oriented residential character. Multiple-family apartments are located to the north (on Las Juntas Way and Santos Lane), east (on Roble Road and Santos Lane), and south (on Honey Trail). Block C of the Specific Plan, consisting of 200 apartment units, is currently under construction southwest of the project site across Del Hombre Lane. The Pleasant Hill/Contra Costa Centre BART Station and I-680 are located to the west of the project site, approximately 0.12 mile and 0.36 mile, respectively. The Iron Horse Regional Trail runs parallel to and immediately west of Del Hombre Lane and spans a distance of 32 miles. The Iron Horse Regional Trail begins in Concord near Highway 4 then runs south traversing the cities of Walnut Creek, Alamo, Danville, and San Ramon, where it terminates at Shadow Cliffs Regional Recreation Area.[11]

2.2 - Project Objectives

The objectives of the project are to:

- Address the regional housing and employment imbalance by providing 284 housing units to an underserved area.

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[8] Contra Costa General Plan, Chapter 3: Land Use Element. 2005 (reprint 2010), page 3-21. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30913/Ch3-Land-Use-Element?bidId=. Accessed November 14, 2018.

[9] Contra Costa County (prepared Heller Manus Architects). 1998. Amended Pleasant Hill BART Station Area Specific Plan. Website: http://www.cccounty.us/DocumentCenter/View/4272/Pleasant-Hill-bart-Specific-Plan?bidId=. Accessed December 5, 2018.

[10] Contra Costa County. 2018. Contra Costa County Code of Ordinances, Chapter 84-12.402-Uses-Permitted. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV84LAUSDI_CH84-12R-SIMIREDI. Accessed November 15, 2018.

[11] East Bay Regional Park District. 2018. Iron Horse Regional Trail. Website: https://www.ebparks.org/parks/trails/iron_horse/default.htm. Access November 15, 2018.

- Reduce traffic on area roads by increasing housing density in an area well served by regional public transportation (Bay Area Rapid Transit [BART]).
- Provide much needed affordable housing through the delivery of 36 affordable units.
- Provide housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents.
- Create an apartment community consisting of high-quality architecture that encourages the walkability within the neighborhood.
- Implement policies of importance to the County, as reflected in the Contra Costa County General Plan.
- Encourage infill redevelopment of underused sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

2.3 - Project Components

2.3.1 - Land Uses

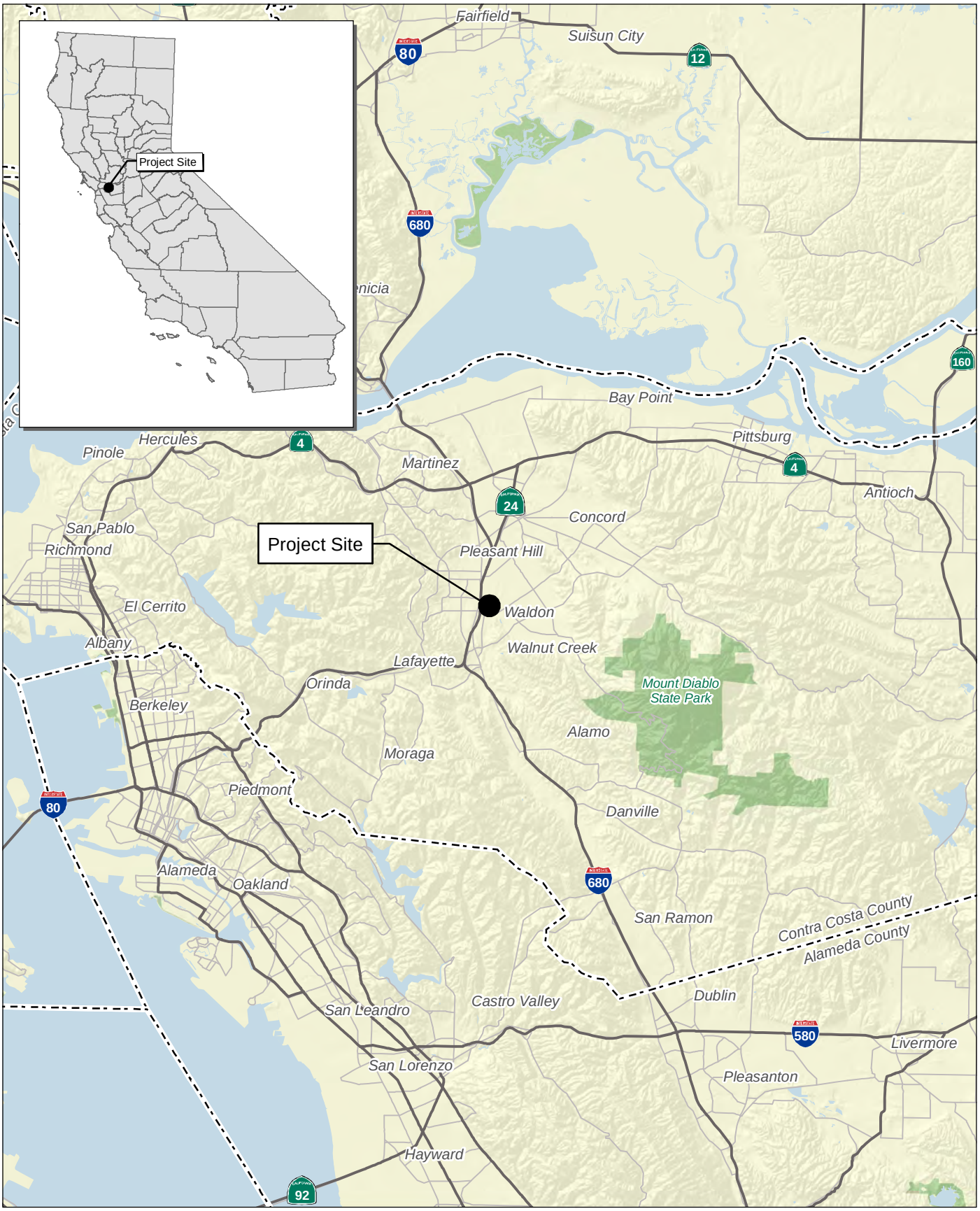
The project includes the demolition of the existing residential buildings (see Exhibit 2-6) and the following three new construction primary components:

- 284 multi-family residential units, including 36 affordable units;
- 9,442 square feet of amenity and recreational space; and
- 380 vehicle parking spaces and 75 bicycle parking spaces.

The site plan is shown on Exhibit 2-7. Table 2-2 summarizes the property locations, existing buildings and proposed land uses, and square footage for each project component.

Table 2-2: Summary of Existing and Proposed Development

Assessor's Parcel Numbers	Addresses	Existing Uses	Existing gsf	Proposed Uses	Proposed gsf	Net New gsf
148-170-042	3070 Del Hombre Lane	Vacant	—	Residential (284 multiple-family dwelling units); Amenities and Recreational (9,442 gsf); 380 vehicle parking spaces; and 75 bicycle parking spaces	425,879	422,994
148-170-037	112 Roble Road	Single-story residential house	1,465			
148-170-041	3050 Del Hombre Lane	Vacant	—			
148-170-001	3010 Del Hombre Lane	Vacant	—			
148-170-022	3018 Del Hombre Lane	Single-story residential house and attached garage	1,420			
Source: Contra Costa County 2018; BKF Engineers 2018.						



Source: Census 2000 Data, The CaSIL

FIRSTCARBON SOLUTIONS™

5 2.5 0 5 Miles

Exhibit 2-1
Regional Location Map

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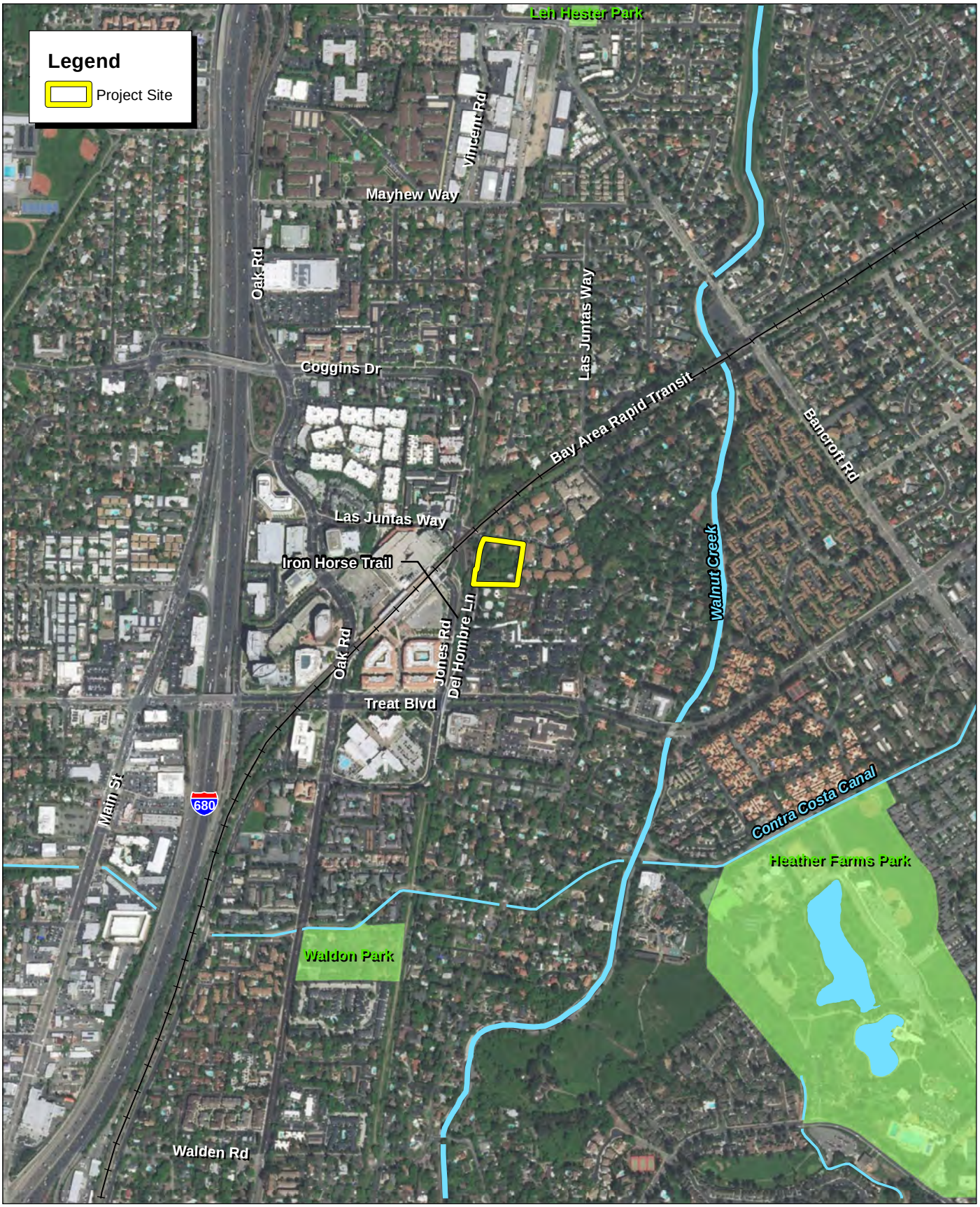

Source: ESRI Aerial Imagery.

FIRSTCARBON SOLUTIONS™

1,000 500 0 1,000 Feet

Exhibit 2-2
Local Vicinity Map
Aerial Base

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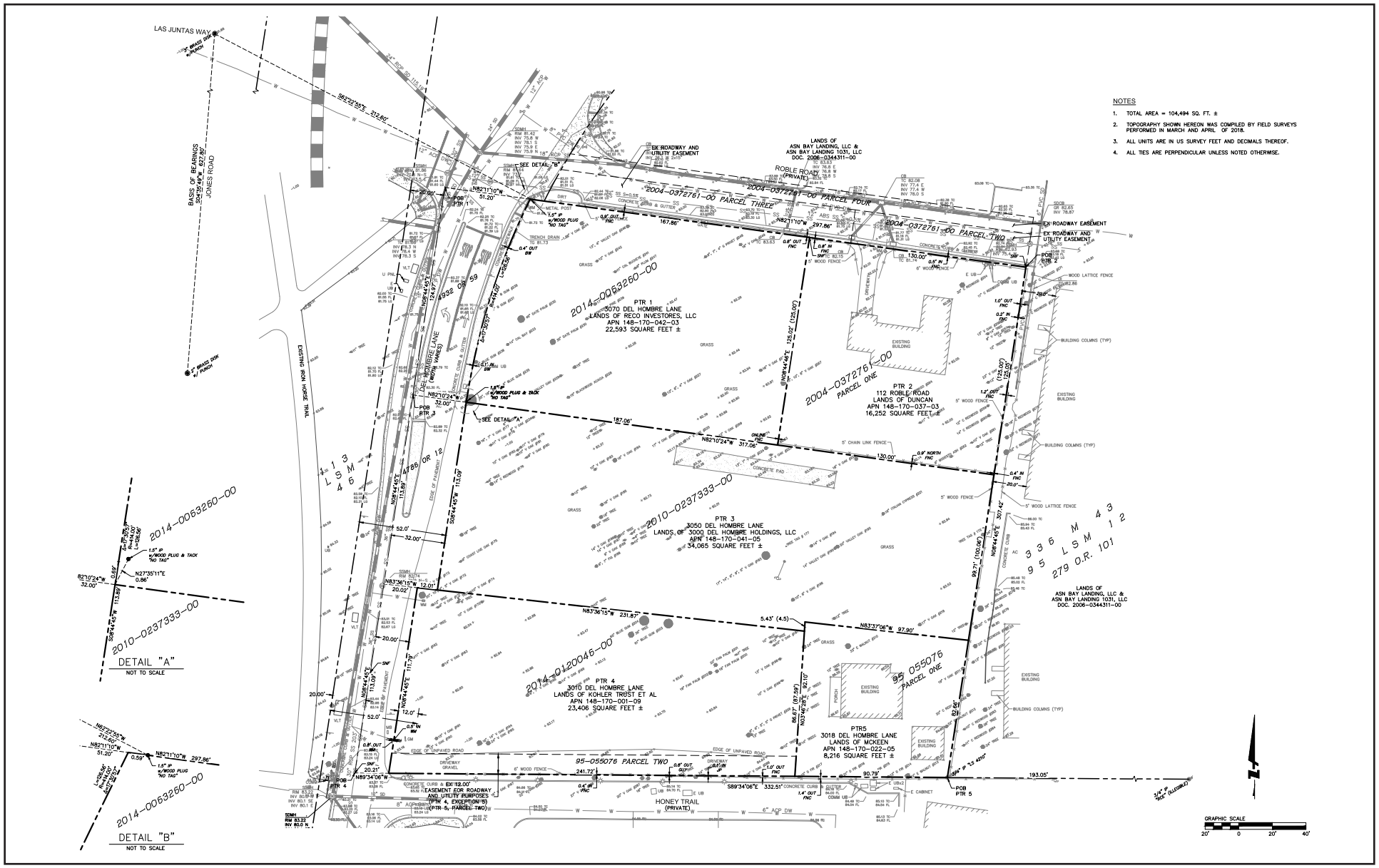

Source: BFK Engineers, Surveyors, Planners, November 2018.

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Exhibit 2-3
Assessors Parcels

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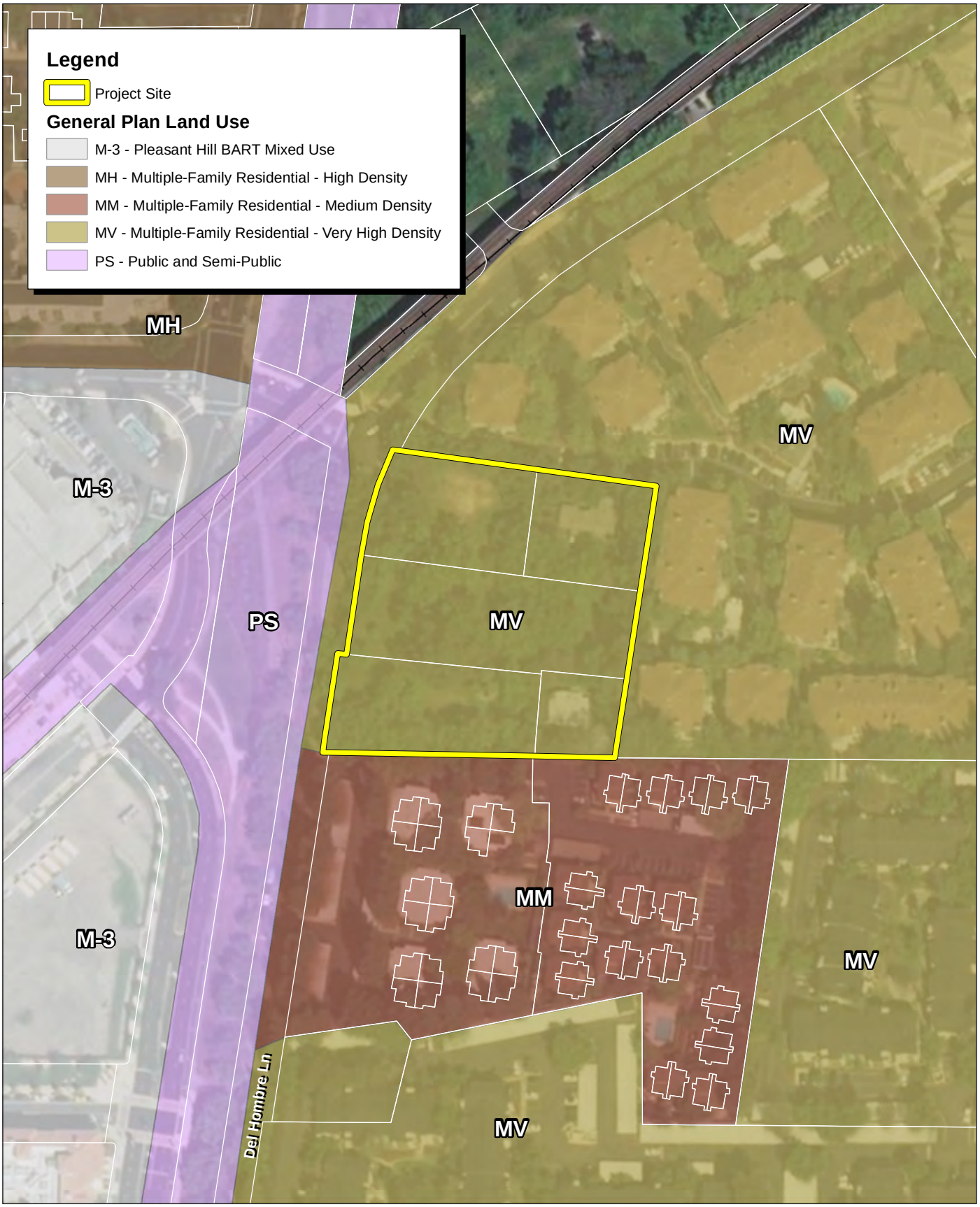

Source: ESRI Aerial Imagery. County of Contra Costa General Plan Land Use Data.

FIRSTCARBON SOLUTIONS™

150 75 0 150 Feet

Exhibit 2-4
Existing General Plan Land Use Designations

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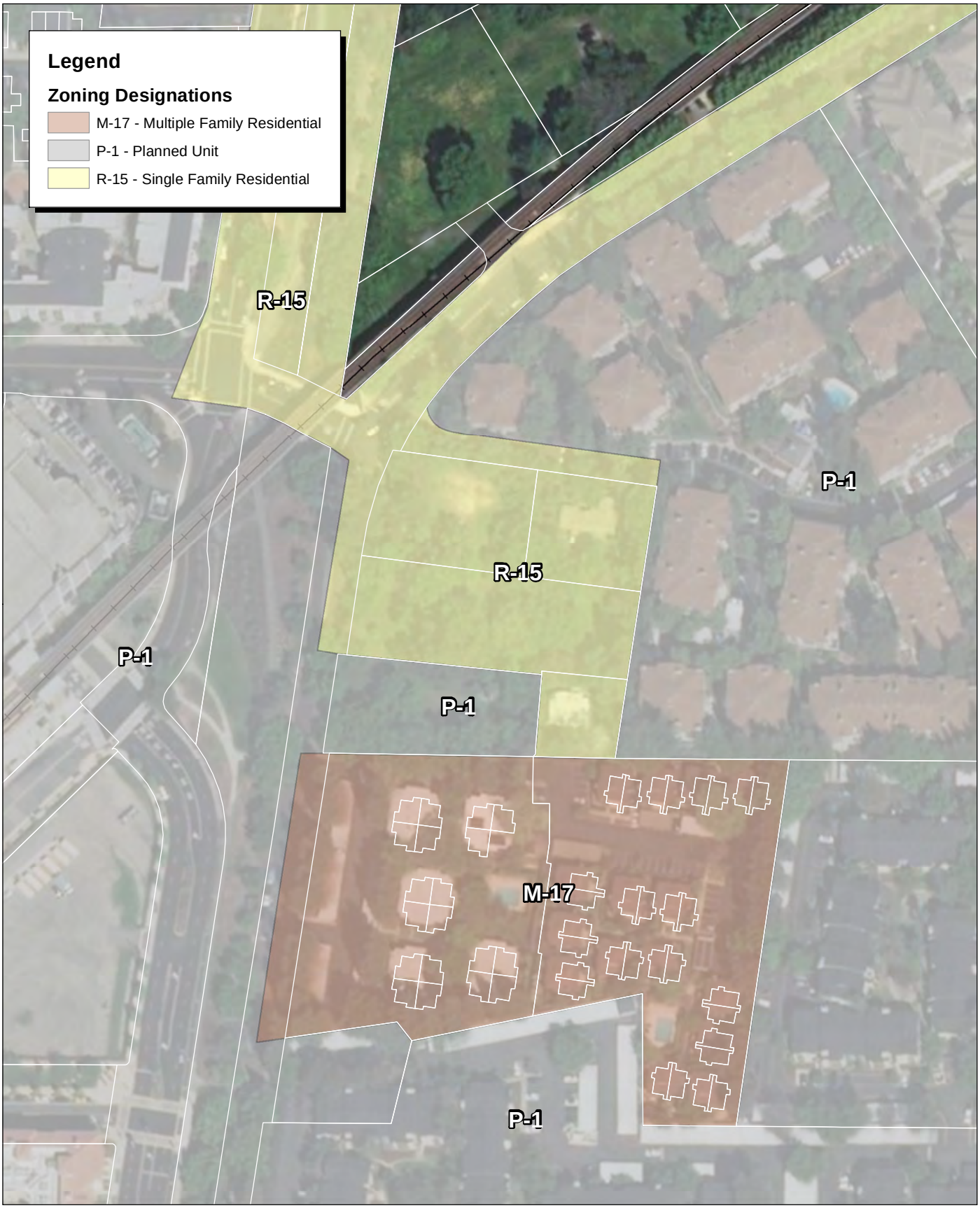

Source: ESRI Aerial Imagery. County of Contra Costa Zoning Data.

FIRSTCARBON SOLUTIONS™

150 75 0 150 Feet

Exhibit 2-5
Existing Zoning Code Designations

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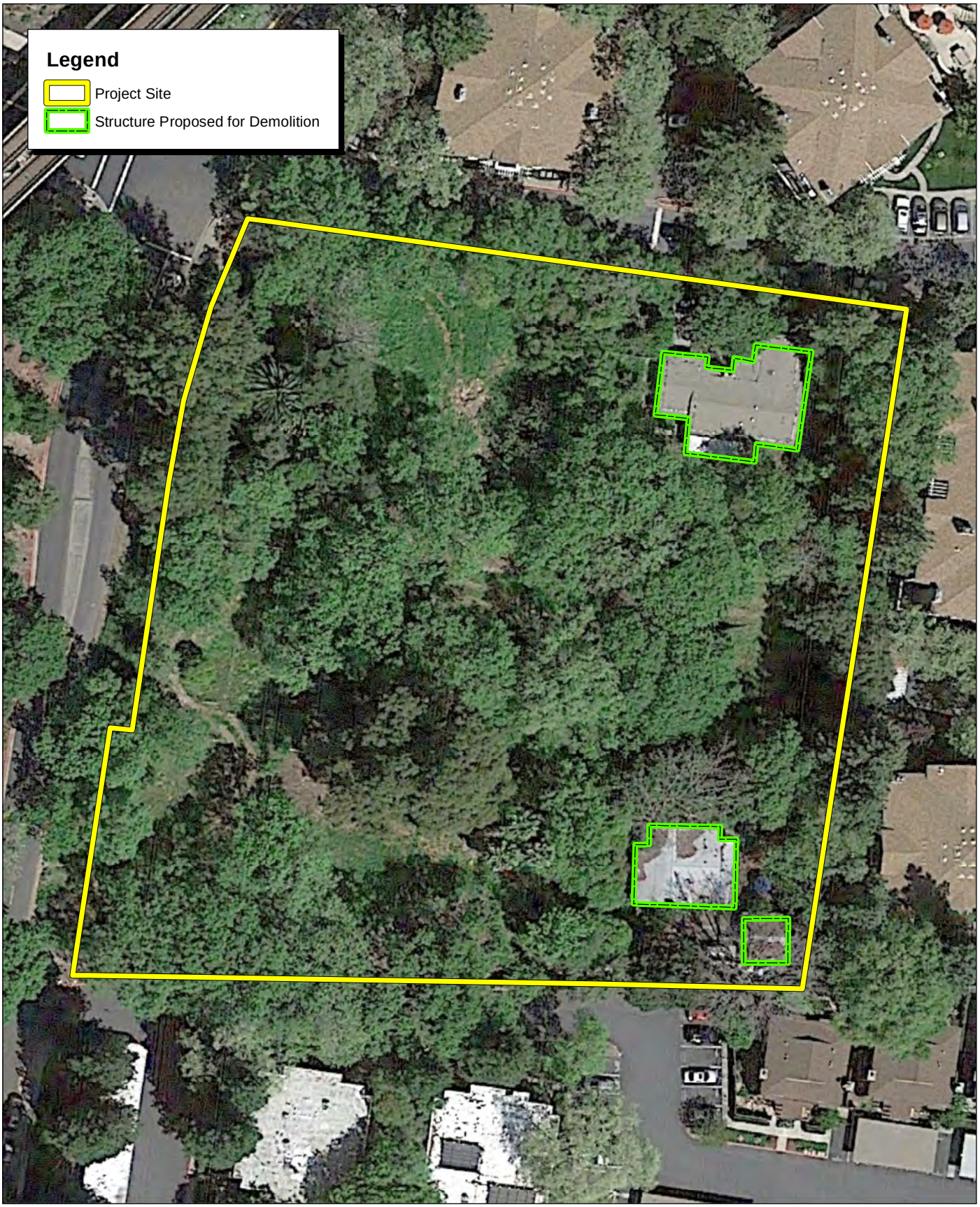

Source: Google Earth Aerial Imagery.

FIRSTCARBON SOLUTIONS™

60 30 0 60 Feet

Exhibit 2-6
Structures Proposed for Demolition

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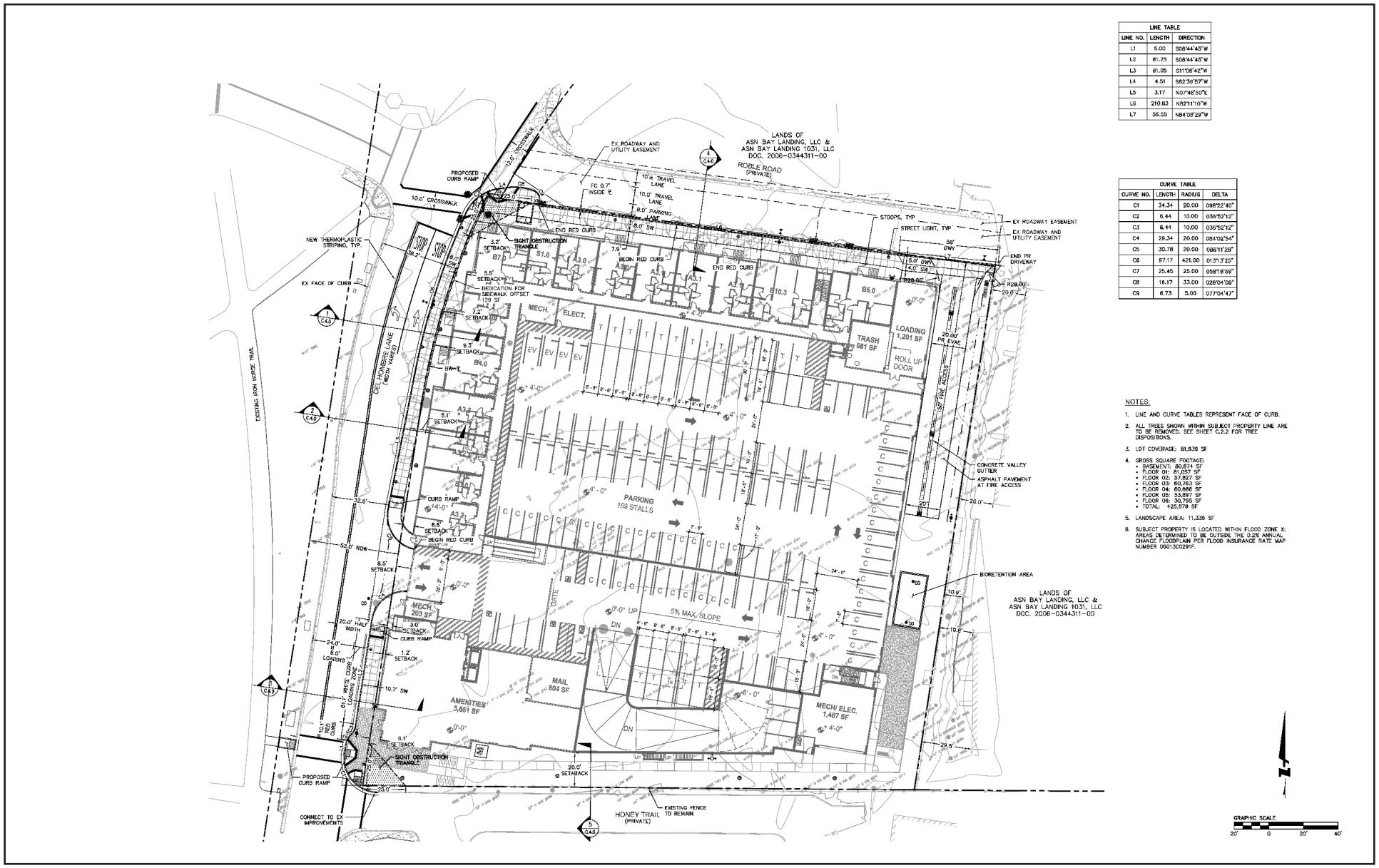

Source: BFK Engineers, Surveyors, Planners, July 2019.

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Exhibit 2-7
Site Plan

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Residential Uses

The project involves the construction of a six-story podium apartment building totaling approximately 425,879 gross square feet that would cover 81,639 square feet (or 79 percent) of the 2.37-acre site. Exhibit 2-7 shows the site plan and describes the location of the proposed residential building. The residential building would consist of 21 studio apartments, 178 one-bedroom apartments, and 85 two-bedroom apartments, totaling 284 units, with an average unit size of 863 square feet. The proposed residential units would include 36 affordable housing units: 24 moderate income and 12 very low income. The proposed residential unit count and size is summarized in Table 2-3.

Table 2-3: Proposed Dwelling Unit Summary

Type of Apartment	Moderate	Very Low	Market	Total Number of Units	Average Unit Size (net rentable square feet)
Studio	21	—	—	**21**	**592**
One Bedroom	3	8	167	**178**	**748**
Two Bedroom	—	4	81	**85**	**1,168**
Total	**24**	**12**	**248**	**284**	**244,856**

Ancillary Facilities and Recreational Uses

The project would include amenities to serve residents. There would be 9,442 square feet of amenity space (including a 804-square-foot mail room) located at the southwest corner of the project site that would be located in the same structure as the apartment units. Amenities may include a fitness room, a club room with a kitchen, a business center with conference rooms, and media rooms. The leasing office would be located within the amenity space on the first floor.

The outdoor recreation area would include a private swimming pool and two outdoor courtyard areas that would be available to residents and their guests. The swimming pool courtyard would be located in the center of the southern area of the site near the indoor amenity space. The other outdoor courtyard area would be provided in the center of the site and would be accessible from several common corridors on Floor 2. The outdoor amenities are discussed in greater detail below under “Landscape and Open Space.”

Parking Uses

The project would include two levels of parking. The lower level garage (basement level) would be below grade and would contain 221 parking spaces, mechanical storage space, and electrical equipment rooms. Floor 1 (ground floor) parking would have 159 parking spaces wrapped with apartment units along Del Hombre Lane and Roble Road, and provide bicycle racks (see Exhibit 2-8a and Exhibit 2-8b) as shown in Table 2-4.

Table 2-4: Proposed Vehicle and Bicycle Parking Summary

Type of Parking	Number of Stalls
Vehicle	
Standard	234
Compact	95
Tandem	31
Accessible	8
Electric Vehicle	12
Total	**380**
Bicycle	
Garage bike racks	56
On-sidewalk bike racks (10 spaces along Roble Road and 9 spaces in the southwest corner of the property just south of the amenity space)	19
Total	**75**

Parking would be provided pursuant to the parking requirements of California Senate Bill (SB) 1818, Chapter 928, Section 65915.p(1) that states:

> Upon the request of the developer no city, county, or city and county shall require a vehicular ratio, inclusive of handicapped and guest parking, of a development meeting the criteria of subdivision (b), that exceeds the following ratios:
> (A) Zero to one bedrooms: one on-site parking space
> (B) Two to three bedrooms: two on-site parking spaces

Therefore, with provision of 380 vehicle parking spaces, the project provides more vehicle parking spaces than the required 369 spaces.

Section 82-16.412 of the Contra Costa County Code sets forth the amounts of long-term and short-term bicycle parking that a project must provide. The County Code requires a multiple-family dwelling to provide space for 15 percent of the number of bedrooms for long-term parking, or two spaces (whichever is greater) and space for 5 percent of the number of bedrooms for short-term parking, or two spaces (whichever is greater).[12] Therefore, the project would be required to and would provide 56 long-term and 19 short-term spaces, for a total of 75 bicycle parking spaces.

[12] Contra Costa County Code. 2018. Chapter 82-16.412—Bicycle Parking. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV82GERE_CH82-16OREPA_82-16.412BIPA. Accessed November 26, 2018.

Source: BFK Engineers, Surveyors, Planners, May 16, 2019.

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Exhibit 2-8a
Proposed Parking-Basement

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Source: BFK Engineers, Surveyors, Planners, May 16, 2019.

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Exhibit 2-8b
Proposed Parking-Ground Floor

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2.3.2 - Land Use Designation and Zoning

Land Use Designation

As described above and shown on Exhibit 2-4, the General Plan designates the site Multiple-Family Residential-Very High Density (MV) and the Contra Costa County Zoning Map designates the site Single-Family Residential (R-15) and Planned Unit District (P-1) (Exhibit 2-5). The project requires a General Plan Amendment (GPA) to designate the site Multiple-Family Residential-Very High Special Density (MS). As stated in the General Plan, the MS land use designation "allows between 45.0 and 99.9 multiple-family units per net acre. Sites can range up to 967 square feet."[13]

Zoning

The project would also require rezoning the entire site to P-1. The P-1 zoning would allow flexibility with respect to use, building types, lot size, and open space, while ensuring the project complies with the General Plan and requirements as set forth in the Contra Costa County Code. It allows necessary public health and safety standards to be observed without inhibiting large-scale development.

Density Bonus

California SB 1818, Chapter 928, provides developers with a density bonus and other incentives for constructing lower income housing units within a development provided the developer meets certain requirements, as enumerated in Section 65915 (b) of the Government Code:

95915 (b) A city, county, or city and county shall grant a density bonus and incentives or concessions described in subdivision (d) when the applicant for the housing development seeks and agrees to construct at least any one of the following:

(1) Ten percent of the total units of a housing development for lower income households, as defined in Section 50079.5 of the Health and Safety Code.

(2) Five percent of the total units of a housing development for very low-income households, as defined in Section 50105 of the Health and Safety Code.

(3) A senior citizen housing development as defined in Sections 51.3 and 51.12 of the Civil Code.

(4) Ten percent of the total dwelling units in a condominium project as defined in subdivision (f) of, or in a planned development as defined in subdivision (k) of, Section 1351 of the Civil Code, for persons and families of moderate income, as defined in Section 50093 of the Health and Safety Code.

The project would provide 36 affordable units; representing 15 percent of the 237 units allowed by the proposed MS land use district and 12 of those (5 percent) would be affordable to very low-income households. Therefore, the project would be eligible for the State density bonus of 20 percent, and the total allowable unit count under the MS designation would increase from 237 units to 284 units.

[13] Contra Costa General Plan, Chapter 3: Land Use Element. 2005 (reprint 2010), page 3-22. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30913/Ch3-Land-Use-Element?bidId=. Accessed November 27, 2018.

By providing 5 percent of units as affordable to very low-income households, the project is also eligible for one development incentive or concession. The project would require a concession to provide the remaining affordable units (24 total) as affordable to moderate income. Contra Costa County Off-Street Parking Ordinance Section 82-16.404(b)(1)(c) requires driveway aisle widths of 25 feet for spaces with an angle of parking of 90 degrees. Pursuant to Section 65915(e) of the California Government Code, the project would request a reduction of this development standard to allow a driveway aisle width of 24 feet.

2.3.3 - Circulation and Access

Vehicle

Primary vehicle access to the project site would be from Del Hombre Lane via the ground floor parking garage. There is no other on-site vehicle circulation proposed. Del Hombre Lane is a two-lane public County local street that runs north-south along the project site frontage. There is a landscaped strip on the west side of the roadway that separates it from Iron Horse Regional Trail. The project would remove the existing median on Del Hombre Lane. Per Section 96-14.002 of the Contra Costa County Code,[14] Del Hombre Lane would need to be brought up to County public road standards. At a minimum, the project would be required to construct the Del Hombre Lane cross-section to match the cross-section of Del Hombre Lane to the south. In addition, the project would include improvements on Las Juntas Way between Coggins Drive and Del Hombre Lane. These improvements would remove to 4 spaces of on-street parking, which would be re-located. Four spaces would be located on Del Hombre Lane at the southeast corner of the project site (within the County right-of-way). The required roadway improvements for Del Hombre Lane and Las Juntas Way are discussed in more detail in Section 3.15, Transportation.

Secondary emergency access would be provided from the rear of the building from Roble Road. Roble Road is a two-lane private street that runs east-west along the northern project site boundary with on-street parking on the north side of the street. The project would widen Roble Road by 3 feet to the south to provide a 28-foot-wide pavement cross section. The required roadway improvements for Roble Lane are discussed in more detail in Section 3.15, Transportation.

Off-site Roadway Improvements

There would be an additional 0.15 acres of asphalt paving for roadway improvements along Del Hombre Lane and Honey Trail, but these improvements would be off-site and are not included in the overall acreage calculation for the project.

[14] Contra Costa County Code. 2018. Chapter 96-16.002—Improvement of county streets. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT9SU_DIV96IM_CH96-14MI_96-14.002IMCOST. Accessed November 26, 2018.

Transit

Bus

The Central Contra Costa Transit Authority (County Connection) provides local bus service within Central Contra Costa County. Local Routes 7, 9, 11, 14, 15, 18, 311, and 316 would provide local bus service to the project site.[15,16]

The closest bus stops to the project site for these aforementioned routes are the bus stops located adjacent to the Pleasant Hill/Contra Costa Centre BART Station on Coggins Drive approximately 0.12 mile east of the project site.

In addition, Americans with Disability Act (ADA) paratransit Service, also known as County Connection LINK paratransit (LINK paratransit) is a door-to-door service available to local residents. The service accommodates people who are unable to independently use the transit system. LINK paratransit is designed to serve the needs of individuals with disabilities within Central Contra Costa County.[17]

Rail

BART provides rail transit service within Contra Costa County and also provides regional connections to Alameda, San Francisco, and San Mateo Counties. The Richmond/Daly City—Millbrae Line (Orange Line) and the Antioch/San Francisco International Airport—Millbrae line (Yellow Line) are the two train lanes that serve the 12 stations within Contra Costa County. The Pleasant Hill/Contra Costa Centre BART Station, which is served by the Yellow Line, would serve the project site and is located approximately 0.12 mile east of the project site.

Bicycle

There are no designated bicycle lanes proposed as part of the project, and no bicycle circulation would be available on-site.

In the project area, the Iron Horse Regional Trail is a Class I multi-use path just west of Del Hombre Lane that spans a distance of 32 miles and connecting East Bay cities including Concord, Walnut Creek, Alamo, Danville, and San Ramon. A Class II bike route runs the length of Bancroft Road (approximately 1.7 miles) from Hookston Road to where it terminates and turns into Walnut Avenue and can be accessed from the project site by taking Coggins Drive to Jones Road to Treat Boulevard and traveling northeast on Treat Boulevard. There is a Class III facility on Treat Boulevard starting at the intersection of Sheppard Road and Treat Boulevard, and the Class III facility terminates at the intersection of Treat Boulevard and Turtle Creek Road (approximately 3.7 miles). A roadside sign at the intersection of Arkell Road and Treat Boulevard denotes Treat Boulevard as a bike route.[18] There is also a Class III facility on Jones Road that continues on Jones Road as it turns into Coggins Drive and continues as Oak Park Boulevard. Jones Road does not include any “sharrows,” a road marking

[15] County Connection. 2018. Weekday System Map. Website: https://countyconnection.com/wp-content/themes/countyconnection/schedules/CCCTA_Weekday.pdf. Accessed November 26, 2018.
[16] County Connection. 2018. Weekend System Map. Website: https://countyconnection.com/wp-content/themes/countyconnection/schedules/CCCTA_Weekend.pdf. Accessed November 26, 2018.
[17] County Connection. 2018. County Connection LINK paratransit. Website: https://countyconnection.com/link/. Accessed November 26, 2018.
[18] FirstCarbon Solutions. 2019. In-person site visit conducted by Spencer Pignotti.

that indicates roads are to be shared by cars and bicyclists, but it does include signage indicating that Jones Road is a bike facility. The Class III facility terminates at the intersection of Oak Park Boulevard and Pleasant Hill Road (approximately 1.8 miles).[19,20]

Pedestrian

The apartment units would be connected via hallways (at least 5 feet in width) that would also provide access to the amenity spaces. Stairs and elevators would provide access for pedestrian between levels. A pedestrian walkway would connect the outdoor courtyard area to the pool.

Del Hombre Lane (west) has a sidewalk on the east side of the road for the first approximately 125 feet south of the intersection with Las Juntas Way and Roble Road. Honey Trail (south) has a sidewalk on the south side of the road, and Roble Road (north) has a sidewalk on the north side of the road. Santos Lane, the street closest to the eastern edge of the project site, has sidewalks on the eastern side of the street that span the length of the street (approximately 950 feet). Las Juntas Way, just north of the project site, provides sidewalks on the southern side of the street for the approximately 888-foot segment of road between Del Hombre Lane and Cherry Lane. North of Cherry Lane, the sidewalk on Las Juntas Way is intermittent. As mentioned previously, the Iron Horse Regional Trail is a multi-use path located just west of Del Hombre Lane.

The project would construct an 8-foot-wide sidewalk on the eastern side of Del Hombre (along the project frontage). The sidewalk would widen to 10.6 feet farther south of the garage access. The project would also construct an 8-foot-wide sidewalk on the southern side of Roble Road. The sidewalks would be ADA accessible.

2.3.4 - Design, Landscaping, and Lighting

Building Design and Height

The building would be constructed in a uniform architectural style that would employ materials that are currently utilized in the surrounding development. The building would be six stories tall with a maximum height of 77 feet. Exterior building materials would consist of cement plaster, wood, vinyl (windows), metal, and foam trim, and the roof would employ a Spanish style roof tile design. Stairs and elevators would provide access for users between levels.

The basement level would house electrical and mechanical rooms for equipment storage, storage space for tenants, and garage bike storage (56 bikes). Below-grade transformers would be located under the sidewalks along Del Hombre Lane and Roble Road. The ground floor lobby would be accessed through pedestrian doors off the Del Hombre Lane sidewalk. Additional access to the lobby would be provided via elevator from the basement level. The ground floor would include electrical and mechanical rooms as well as a trash room and loading space complete with a roll up door, amenity space, and a mail room. The units would be located on Floors 1 through 6. A roof deck measuring 735 square feet would also be provided on Floor 6.

[19] Contra Costa Transportation Authority (prepared by Fehr & Peers and Eisen | Letunic). 2009. 2009 Contra Costa Countywide Bicycle and Pedestrian Plan.

[20] City of Walnut Creek. 2013. Walnut Creek Bike Map. Website: http://www.walnut-creek.org/home/showdocument?id=5166. Accessed November 27, 2018.

Landscaping and Open Space

There are a total of 189 trees representing 27different species across the project site. The foliage present on the project site can be characterized as a mixed oak woodland, dominated by valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia*), in conjunction with a variety of other mature, adult tree species. .[21] The project would remove approximately 161 trees (approximately 145 code-protected trees and approximately 16 trees that are not code-protected). A total of 14 trees would be planted along Honey Trail, Del Hombre Lane, and Roble Road (see Exhibit 2-9a). If the trees are located within the public right-of-way, they will need to meet Public Works Landscape Guidelines. Screening bushes would also be planted along Honey Trail. A small dog run would be constructed along the eastern boundary of the project site at the southeastern corner, and a large dog run would be constructed just north of the small dog run. Bioretention swales would be installed north of large dog run. They would be separated by a cement path.

There would be two courtyard areas provided on Floor 2 (see Exhibit 2-9b). The first area would include outdoor seating, a bocce ball court, private patios connected to the apartment units, a fireplace, and fire pits. A pool would be provided in the other courtyard in the center of the southern portion of the project site with outdoor beds and lounges. Porcelain tile paving would be used in both courtyard areas. An assortment of trees would be interspersed throughout the courtyard areas and would include palm trees, shade trees, and other decorative trees. A roof deck measuring 735 square feet would also be provided on Floor 6 (see Exhibit 2-9c) as well as palm trees.

Table 2-5 provides a summary of project site coverage.

Table 2-5: Project Site Coverage

Project Component Type	Square Feet	Percent Coverage
Roof/Podium	76,131	71
Landscaped Areas	11,247	11
Planter on Podium	5,414	5
Pavement	14,087	13
Bioretention	456	< 1[1]
Total	**107,335**	**100**

Notes:
[1] This number equals 0.42 percent.
Numbers over one have been rounded to the nearest whole number.
Source: BKF Engineers 2018

Lighting and Signage

The proposed signage would be on the building and would be lit using channel lighting. There are no monument signs proposed as part of the project. Signage would include a project identification sign,

[21] Hort Science. 2018. Tree Inventory Report, Del Hombre Lane Contra Costa County, CA. April.

a sign over the leasing office area, and directional signs located throughout the development. Lighting would be located throughout the project site. Exterior lighting would be located around and within the project site. Lampposts would be evenly dispersed within the project site, with safety lighting, as needed throughout the site. A 14-foot pole light standard would be used for the proposed development. In addition, the applicant would be required to construct street lights on Del Hombre Lane. The street lights would meet the Contra Costa County Public Works Street Light Design Guidelines.

2.3.5 - Infrastructure Improvements

All existing on-site utility poles would be removed. A Preliminary Utility Plan is provided as Exhibit 2-10 and a Preliminary Stormwater Control Plan is provided as Exhibit 2-11.

Domestic Water

The Contra Costa Water District (CCWD) would supply the project site with potable water. There is an 8-inch water line in Roble Road just north of the project site, an 8-inch water line in Del Hombre Lane just west of the project site, and 6-inch and 8-inch water lines in Honey Trail just south of the project site. The project would construct two 30-foot-long fire hydrant laterals that would connect with the existing water line along the west side of the project site within Del Hombre Lane in two different locations. The site would also construct a 20-foot-long fire hydrant to connect with the existing 8-inch water line in Honey Trail in one location. A 29-foot-long water lateral for the potable water service would also be constructed on the eastern boundary of the project site within the property line. It would connect with the existing 8-inch water line in Roble Road. A 92-foot-long water lateral for fire service connected to the 8-inch water main in Del Hombre Lane would also be constructed.

Two fire hydrants serve the project site: one on the northeast corner of the intersection of Roble Road and Del Hombre Lane, and the other on the northeast corner of the intersection of Honey Trail and Del Hombre Lane. Because of the size of the building and the construction type, it is anticipated that three fire hydrants would be required to serve the project site, and the project would construct an additional four hydrants adjacent to the project site and an automatic wet standpipe. The specific locations of the four additional adjacent fire hydrants is unknown at this time.[22]

Stormwater Drainage

Contra Costa County Public Works would serve the project site. The project site is located within Drainage Area (DA) 44 and drains generally towards the northwest. An existing public storm drain line runs along the west side of Del Hombre Lane, and there is an existing private storm drain system that runs along the north side of Roble Road. Both storm drains connect to a manhole at the intersection of Las Juntas Way, Del Hombre Lane, and Roble Road.

The project would drain most of the site to an underground detention pipe system along the northern edge of the property and northern half of the eastern edge of the property. The detention system would be designed per the Contra Costa County's Clean Water Program C.3 Guidebook to comply with the County's Stormwater Management and Discharge Control Ordinance (§ 1014) and the C.3

[22] BKF Engineers. 2018. Del Hombre Utility Due Diligence. May.

requirements in the County's Municipal Separate Storm Sewer System (MS4) National Pollutant Elimination System (NPDES) Permit. The detention system is only necessary for C.3 purposes and would not be necessary to meet collection and conveyance requirements as set forth in the Contra Costa County Ordinance Code Division 914. Runoff from the project would be stored the detention system that would drain through a high-flowrate media filter before it is pumped to the proposed storm drain pipe that would connect to the existing manhole structure in the intersection of Las Juntas Way and Del Hombre Lane. The pump is intended to regulate flow to pre-project levels by limiting the flowrate. An 18-inch overflow pipe is also proposed to accommodate larger storms.

The project would divert additional runoff from DA44 to DA44B via an existing 24-inch storm drain pipe that connects to the 84-inch storm drain line in the Iron Horse Trail.[23] Such a diversion would conflict with Contra Costa County Code 914-2.004. The project includes an exception request in conjunction with the tentative map (pursuant to Contra Costa County Code, Chapter 92.6). In addition, the underground detention basin would be privately maintained. Because the detention system is only necessary to meet C.3 requirements and is not necessary to meet collection and conveyance requirements as set forth in the Contra Costa County Ordinance Code Division 914, the detention system would not require an exception.

The project would also include 456-square-feet of landscaped bioretention areas. The incorporation of landscaped bioretention areas are intended to absorb stormwater to prevent off-site flow at a high speed while preventing pollutants from entering into nearby creeks and are required to meet C.3 requirements in County's MS4 NPDES Permit. These structures capture stormwater by utilizing natural vegetation and porous soil to mimic natural soil infiltration processes.

Sanitary Sewer

Utility infrastructure for the project site is anticipated to include connections to the existing Contra Costa County's sanitary sewer system, which is operated by the Central Contra Costa County Sanitary District (Central San) to collect sewage from the project site. The project would construct a 33-foot-long sanitary sewer line that would connect with the existing 30-inch sanitary sewer line along the west side of the project site within Del Hombre Lane. Central San does not allow 8-inch tee or wye connection directly to a 30-inch sewer main, and all connections would be made at one of two manholes: (1) the manhole located towards the southwest corner of the project site in Del Hombre Lane, or (2) the manhole at the intersection of Del Hombre Lane and Roble Road at the northwest corner of the project site.[24]

Solid Waste and Recycling Collection

The Central Contra Costa Solid Waste Authority (CCCSWA) provides solid waste and residential recycling services for areas within Contra Costa County. CCCSWA holds franchise agreements with waste franchises that provide solid waste collection and disposal of residential and commercial solid waste. RecycleSmart would provide solid waste removal services for the project site. RecycleSmart

[23] BKF Engineers. 2018. Del Hombre Apartment Project—Annexation to Drainage Area 44B. October.
[24] BKF Engineers. 2018. Del Hombre Utility Due Diligence. May.

is contracted with Republic Services for the collection, transfer, and disposal of residential and commercial garbage, recycling, and organics.[25]

Power and Telecommunications

Electricity and natural gas services for the project would be provided by Pacific Gas and Electric Company (PG&E). The project would tie into two PG&E boxes. The first PG&E box would replace the existing primary PG&E box and propose a new trench directly across Del Hombre Lane on the southern portion of the site to tie into the two underground transformers. The second PG&E box would tie into the existing J-box across Del Hombre Lane on the northwest corner of the project site, with a proposed trench along Roble Road to tie into the underground transformers. The gas meter would be placed in the southwest corner of the project on the southern facing wall and would tie-into an existing 2-inch gas mainline 10 feet off the property line via a bell hole on Del Hombre Lane on the southwest corner of the project. Phone and internet services would be provided by various companies, including AT&T, Xfinity Comcast, and Verizon.

2.3.6 - Phasing and Construction

The project would include construction of a total of 284 apartment units in one phase over a period of 24 months (2 years) starting in July 2020 and ending in July 2022. All demolition of existing structures, site preparation, and grading for the entire project area would also be completed at this time. Approximately 29,400 cubic yards of material would be cut, and 400 cubic yards would be used for fill. The remaining 29,000 cubic yards of material would be exported during construction of the project. As specific construction schedules and detailed information is not known at this time, conservative default assumptions will be used for purposes of analyzing and modeling construction durations and equipment. The assumed construction schedule and parameters are provided in Appendix B, Air Quality, Greenhouse Gas Emissions, and Energy Supporting Information.

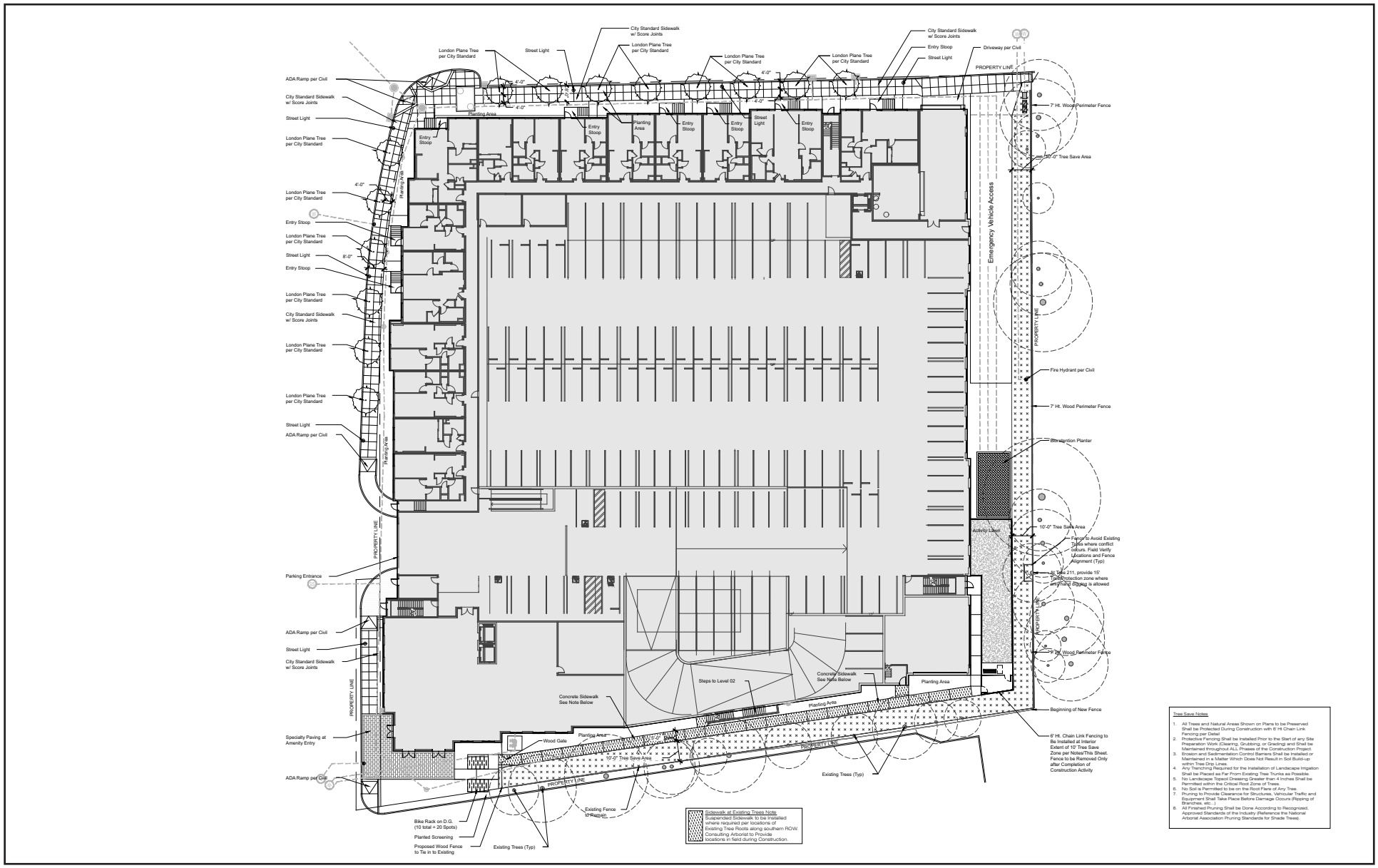
There would be one emergency generator utilized for approximately 3 months during project construction, which would no longer be used once the site is under permanent power.

2.4 - Required Actions and Approvals

Discretionary approvals and permits are required by the lead agency, Contra Costa County, for implementation of the project and include the following:

- EIR Certification
- General Plan Amendment
- Rezoning
- Final Development Plan
- Vesting Tentative Map
- Variances to lot size and setback from public road
- Tree Removal Permit
- Exception to drainage requirements

[25] RecycleSmart. 2018. Accessed November 27, 2018. Website: https://www.recyclesmart.org/.



Source: GWH Landscape Architects, May 16, 2019.

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Exhibit 2-9a
Landscape Plan-Ground Floor

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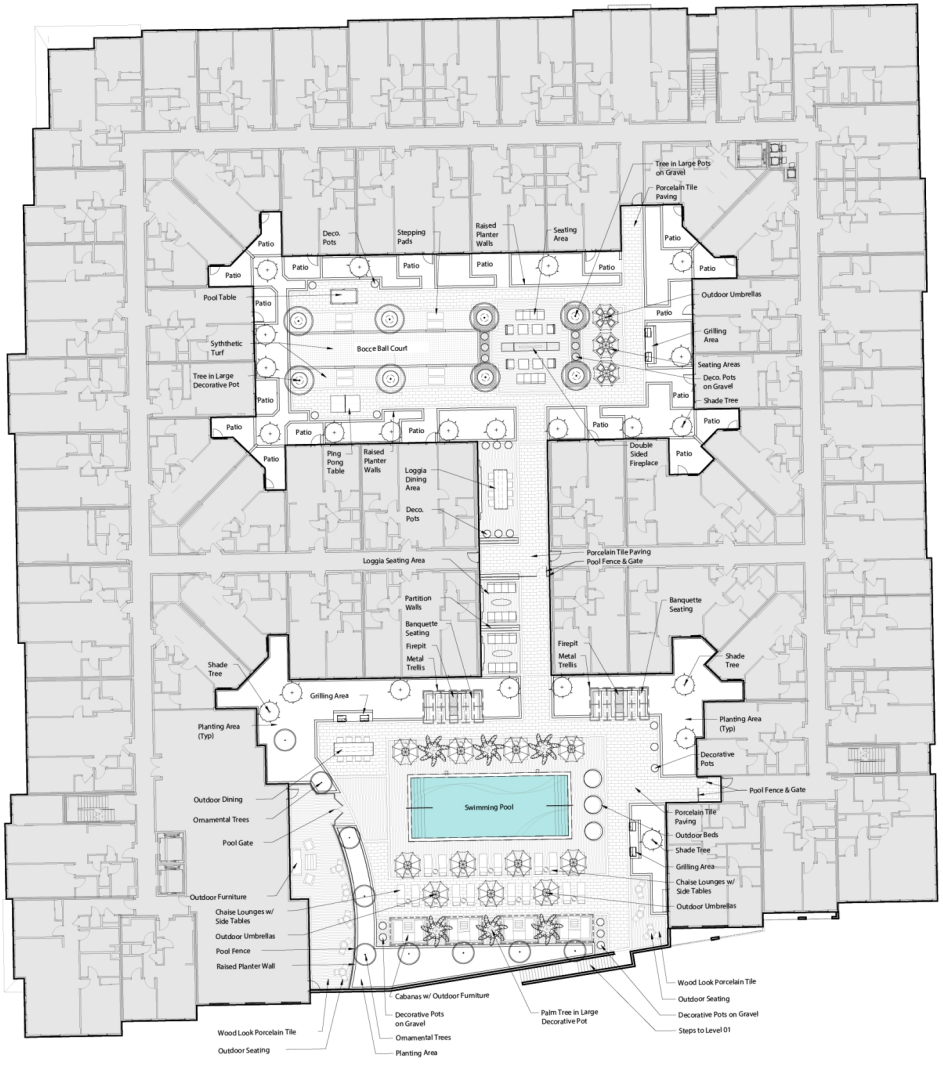

Source: GWH Landscape Architects, May 16, 2019.

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Exhibit 2-9b
Landscape Plan-Floor 2

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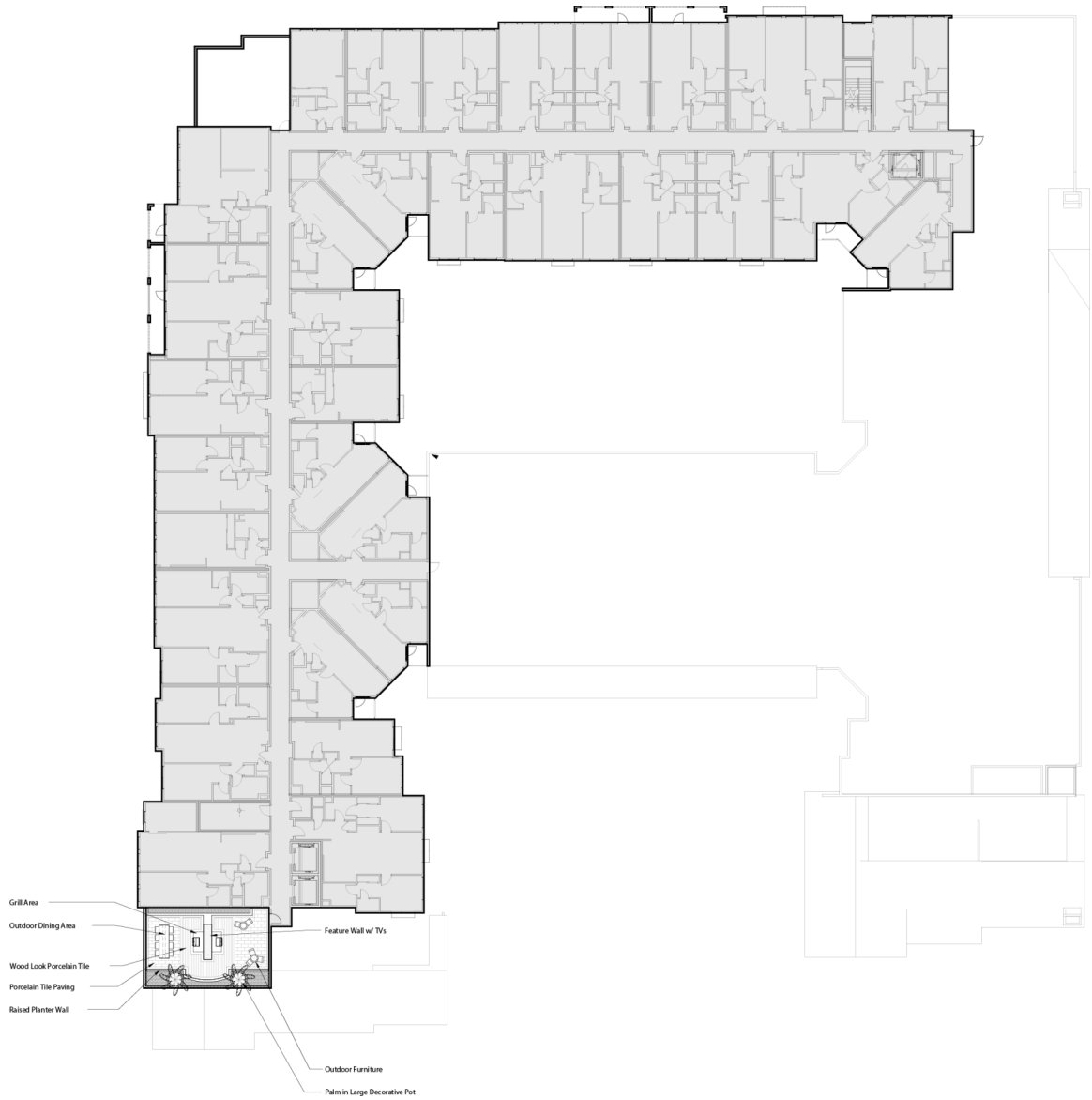

Source: GWH Landscape Architects, May 16, 2019.

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Exhibit 2-9c
Landscape Plan-Floor 6

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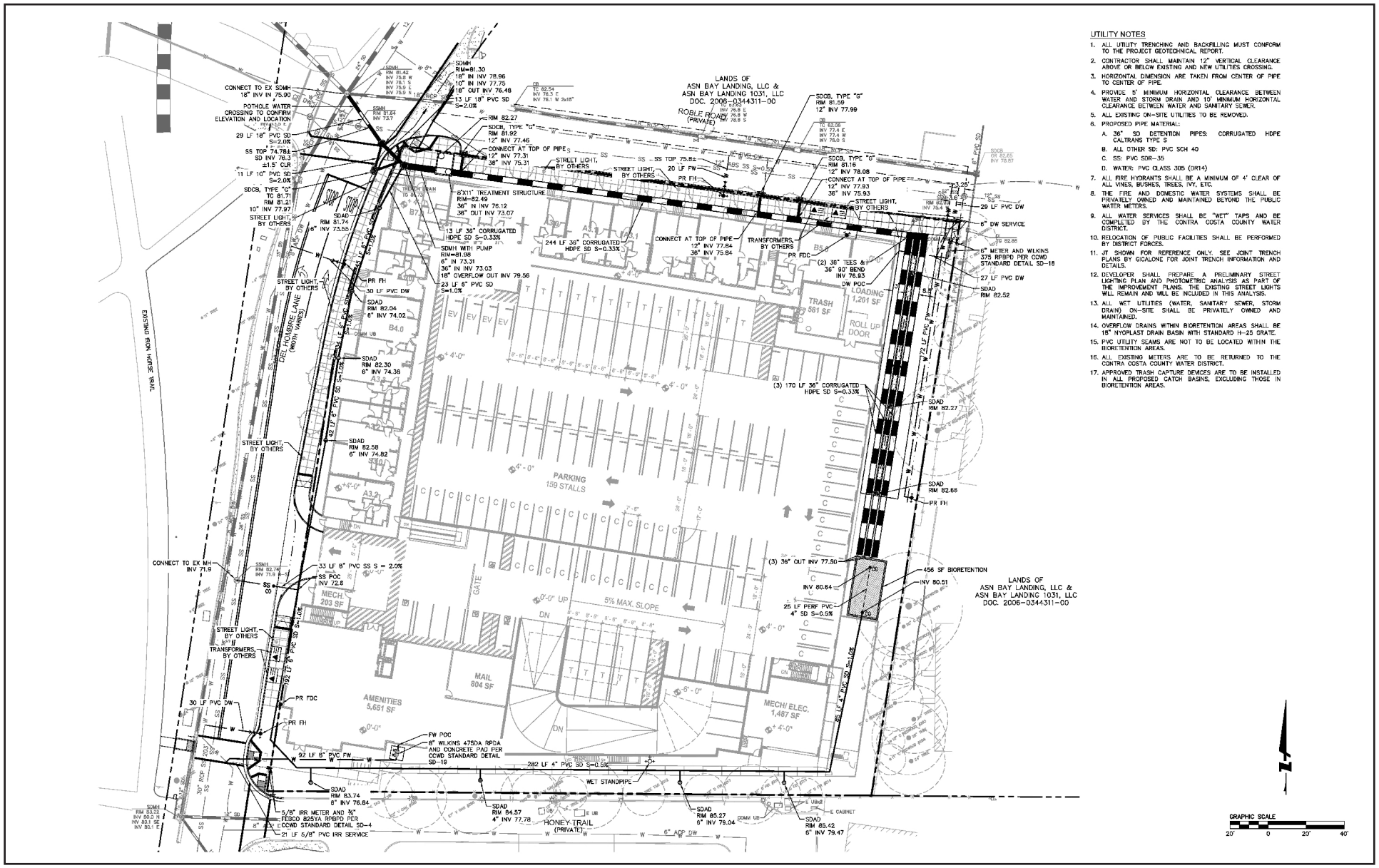

Source: BFK Engineers, Surveyors, Planners, July 2019.

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Exhibit 2-10
Preliminary Utility Plan

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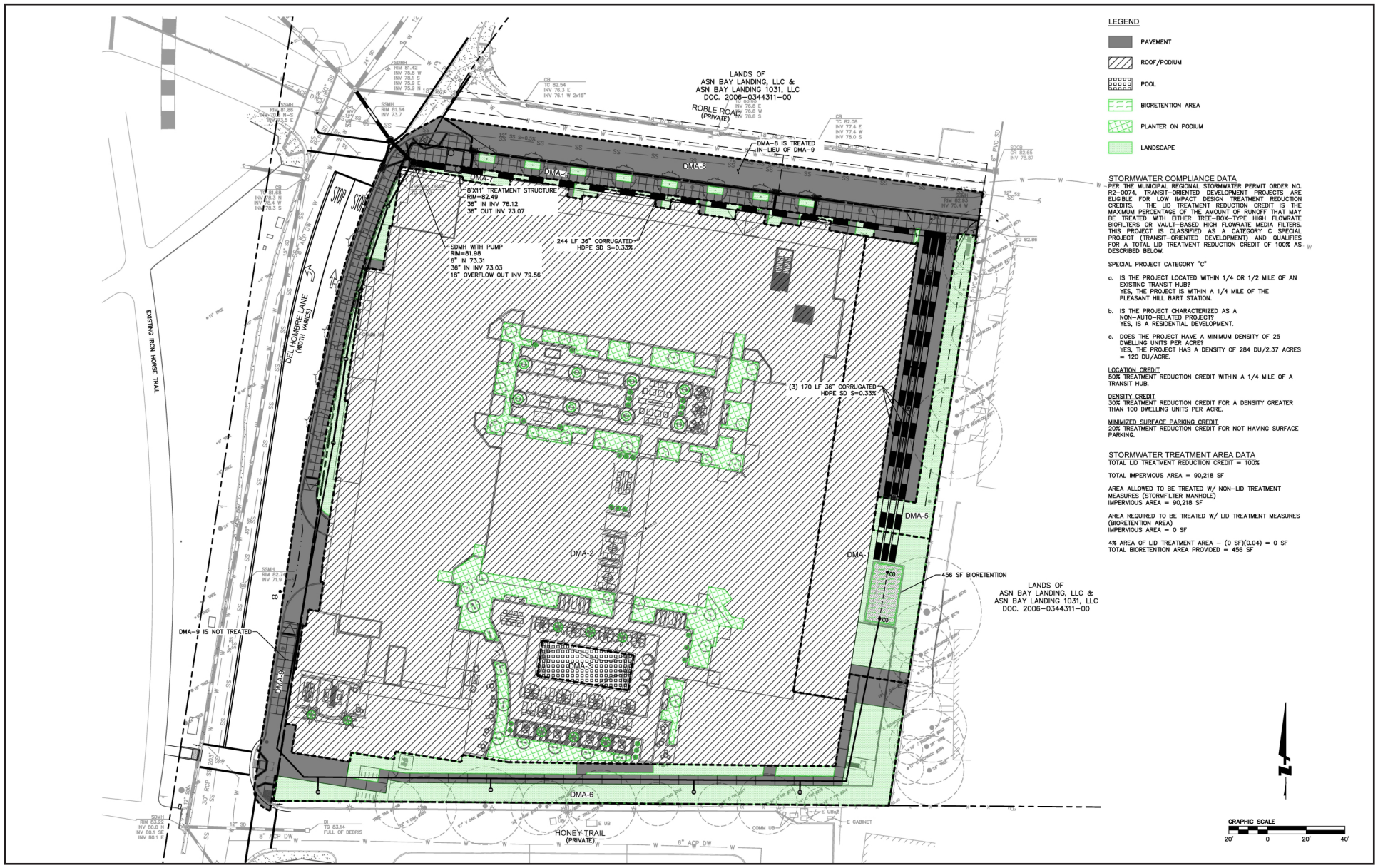

Source: BFK Engineers, Surveyors, Planners, July 2019.

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Exhibit 2-11
Preliminary Stormwater Control Plan

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In addition, the following ministerial actions would be required by Contra Costa County for implementation of the project:

- Demolition permits
- Grading permits
- Building permits

A number of other agencies in addition to Contra Costa County will serve as Responsible and Trustee Agencies, pursuant to CEQA Guidelines Section 15381 and Section 15386, respectively. This Draft EIR will provide environmental information to these agencies and other public agencies, which may be required to grant approvals or coordinate with other agencies, as part of project implementation. These agencies may include but are not limited to the following:

- California Department of Transportation
- California Department of Fish and Wildlife
- City of Walnut Creek
- City of Pleasant Hill
- Contra Costa County Fire Protection District
- Contra Costa County Local Agency Formation Commission
- Contra Costa County Water District
- Bay Area Air Quality Management District
- BART
- San Francisco Bay Regional Water Quality Control Board

2.5 - Intended Uses of the Draft EIR

This Draft EIR has been prepared by Contra Costa County to assess the potential environmental impacts that may arise in connection with actions related to implementation of the project. Pursuant to CEQA Guidelines Section 15367, Contra Costa County is the lead agency for the project and has discretionary authority over the project and project approvals. The Draft EIR is intended to address proposed public infrastructure improvements and future development that are within the parameters of the project. This document will also serve as a basis for soliciting comments and input from members of the public and public agencies regarding the project. The Draft EIR will be circulated for a minimum of 45 days, during which period comments concerning the analysis contained in the Draft EIR should be sent to:

Jennifer Cruz, Senior Planner
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553
Tel: 925.674.7790
Fax: 925.674.7258
Email: Jennifer.cruz@dcd.cccounty.us

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CHAPTER 3: ENVIRONMENTAL IMPACT ANALYSIS

This Chapter sets forth the physical and regulatory environmental setting and addresses the environmental impacts of the project with respect to 18 environmental resource areas. The discussions of the environmental setting describe the present physical conditions, or baseline conditions, in the project area. The baseline used for the analysis of environmental impacts under the California Environmental Quality Act (CEQA) reflects the conditions present at the time the Notice of Preparation (NOP) for this Environmental Impact Report (EIR) was published. The potential impacts of the project are compared against the existing baseline conditions for each environmental resource.

Environmental Topics Addressed in this EIR

The project is analyzed in this EIR from the perspective of the following 18 environmental resource areas:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Format of the Environmental Analysis

Each resource area analyzed in this Chapter includes the subsections summarized below.

Introduction

This subsection summarizes what will be discussed in the respective environmental topic section, states what informational documents are used as the basis for the section, and indicates what related comments, if any, were received during the EIR public scoping period.

Environmental Setting

This subsection describes the existing, baseline physical conditions of the project site and surroundings (e.g., existing land uses, transportation conditions, noise environment) with respect to each resource topic at the time the NOP was issued. Conditions are described in sufficient detail and breadth to allow a general understanding of the environmental impacts of the project.

Regulatory Framework

This subsection describes the relevant federal, State, and local regulatory requirements that are directly applicable to the environmental topic being analyzed.

Impacts and Mitigation Measures

This subsection evaluates the potential for the project to result in direct and indirect adverse impacts on the existing physical environment, with consideration of both short-term and long-term impacts. The analysis covers all phases of the project, including construction and operation. The significance thresholds for environmental impacts are defined at the beginning of this subsection, and the discussion of the approach to the analysis explains how the significance thresholds have been applied to evaluate the impacts of the project.

Indirect impacts are discussed only for those resources for which they have the potential to occur (e.g., population and housing, cultural resources, air quality, and biological resources). Both project-level and cumulative impacts are analyzed. Project-level impacts could result from actions related to implementation of the project. Cumulative impacts could result from implementation of the project in combination with other cumulative projects in the study area. As discussed in "Cumulative Impacts," below, the projects listed in Table 3-1, in conjunction with the project, are considered the cumulative scenario for the analysis of cumulative impacts.

Impacts are analyzed and the respective assessment and findings are included in this Draft EIR, applying the following levels of significance:

- **No Impact.** A conclusion of No Impact is reached if no potential exists for impacts or if the environmental resource does not occur in the project area or the area of potential impacts.
- **Less Than Significant Impact.** This determination applies if the impact does not exceed the defined significance criteria or would be eliminated or reduced to a less than significant level through compliance with existing local, State, and federal laws and regulations. No mitigation is required for impacts determined to be less than significant.
- **Less Than Significant Impact with Mitigation.** This determination applies if the project would result in a significant impact, exceeding the established significance criteria, but feasible mitigation is available that would reduce the impact to a less than significant level.
- **Significant and Unavoidable Impact.** This determination applies if the project would result in an adverse impact that exceeds the established significance criteria, and no feasible mitigation is available to reduce the impact to a less than significant level. Therefore, the residual impact would be significant and unavoidable.
- **Significant and Unavoidable Impact with Mitigation.** This determination applies if the project would result in an adverse impact that exceeds the established significance criteria, and although feasible mitigation might lessen the impact, the residual impact would be significant, and, therefore, the impact would be unavoidable.

Impacts are defined in terms of their context and intensity. Context is related to the uniqueness of a resource; intensity refers to the severity of the impact. Where applicable, best management practices or project improvement measures, or both, are incorporated into the project to limit the potential for a significant impact. Where necessary, mitigation measures are identified for significant impacts to limit the degree or lower the magnitude of the impact; rectify the impact by repairing,

rehabilitating, or restoring the affected environment; or compensate for the impact by replacing or providing substitute resources or environments. These impacts conclude with a finding of Less than Significant Impact with Mitigation. Where no mitigation measures are necessary, relevant impacts are concluded to be Less than Significant or to have No Impact.

As part of the impact analysis, mitigation measures are identified, where feasible, for impacts considered significant or potentially significant consistent with CEQA Guidelines Section 15126.4, which states that an EIR "shall describe feasible measures which could minimize significant adverse impacts." CEQA requires that mitigation measures have an essential nexus and be roughly proportional to the significant impact identified in the EIR. The project sponsor is required to implement all identified mitigation measures identified in this chapter, and the lead agency (in this case, Contra Costa County) is responsible for overseeing the project sponsor's implementation of such mitigation measures. Pursuant to CEQA Guidelines Section 15126.4, mitigation measures are not required for environmental impacts that are found not to be significant.

Impacts are numbered and shown in bold type. The corresponding mitigation measures, where identified, are numbered and indented, and follow the impact statements. Impacts and mitigation measures are numbered consecutively within each topic and include an abbreviated reference to the impact section (e.g., "LAND" for Land Use and Planning). The following abbreviations are used for individual topics:

- Aesthetics (AES)
- Air Quality (AIR)
- Biological Resources (BIO)
- Cultural Resources (CUL)
- Geology and Soils (GEO)
- Greenhouse Gas Emissions (GHG)
- Hazards and Hazardous Materials (HAZ)
- Hydrology and Water Quality (HYD)
- Noise (NOI)
- Transportation (TRANS)
- Utilities and Service Systems (UTIL)

Cumulative Impacts

The discussion of cumulative impacts in this subsection analyzes the cumulative impacts of the project, taken together with other past, present, and reasonably foreseeable future projects producing related impacts. The goal of this analysis is to determine whether the overall long-term impacts of all such projects would be cumulatively significant, and to determine whether the project itself would cause a "cumulatively considerable" incremental contribution to any such cumulatively significant impacts. To determine whether the overall long-term impacts of all such projects would be cumulatively significant, the analysis generally considers the following:

- The area in which impacts of the project would be experienced;
- The impacts of the project that are expected in the area;

- Other past, proposed, and reasonably foreseeable projects that have had or are expected to have impacts in the same area;
- The impacts or expected impacts of these other projects; and
- The overall impact that can be expected if the individual impacts from each project are allowed to accumulate.

"Cumulative impacts" refers to two or more individual impacts that, when considered together, are considerable, or that compound or increase other environmental impacts (CEQA Guidelines § 15355). Cumulative impacts can result from individually minor but collectively significant impacts taking place over time (40 Code of Federal Regulations [CFR] 1508.7). If the analysis determines that the potential exists for the project, taken together with other past, present, and reasonably foreseeable future projects, to result in a significant or adverse cumulative impact, the analysis then determines whether the project's incremental contribution to any significant cumulative impact is itself significant (i.e., "cumulatively considerable"). The cumulative impact analysis for each individual resource topic is presented in each resource section of this Chapter immediately after the description of the direct project impacts and identified mitigation measures.

Table 3-1 lists the relevant cumulative projects considered for the environmental analysis, and Exhibit 3-1 shows the locations of the cumulative projects (projects 1 through 10).

Table 3-1: Cumulative Projects

No.	Project	Characteristics	Project Development			
			Units	Square Footage	Location	Status
Contra Costa County						
1	Avalon Walnut Creek Village (Pleasant Hill BART Specific Plan, Block C)	Residential units and retail space	200 residential	70,194	1001 Harvey Drive, No. 156	Approved
2	Avalon Walnut Creek (Pleasant Hill BART Specific Plan, Block A)	Office building	—	290,000	Block bound by Wayne Drive, Oak Road, and BART tracks	Approved
City of Pleasant Hill						
3	Cambria Hotel	Hotel	155 guest rooms	—	3131 North Main Street (intersection of Oak Park Boulevard and Main Street)	Pending
4	Pleasant Hill Day Care Center	Daycare facility	72 students	5,117	409 Boyd Road (Boyd Road at Kahrs Avenue)	Approved

Table 3-1 (cont.): Cumulative Projects

No.	Project	Characteristics	Project Development			
			Units	Square Footage	Location	Status
5	Fountainhead Montessori Day Care	Daycare facility	72 students	—	1715-1725 Oak Park Boulevard (northeast corner of Oak Park Boulevard and Monticello Avenue)	Approved
6	Development of Housing Element Opportunity Site	Multi-family residential development	200 multi-family homes	—	Between Cleaveland Road and Beatrice Road	Pending
7	Oak Park/ Monticello Mixed-Use Project	Library relocation, development of single-family homes and accessory units and public park with two sports fields	34 single-family, 7 accessory dwelling	—	Northeast intersection of Oak Park Boulevard and Monticello Avenue	Pending
8	Griggs Multi-Family Development	General Plan Amendment and Related Entitlements for a 220 multi-family project	220 multi-family homes	—	85 Cleaveland Road	Pending
City of Walnut Creek						
9	Habitat for Humanity Townhomes—Las Juntas	Multi-family residential development	42 multi-family homes	89,298	1250 Las Juntas Way	Pending
10	Volvo Cars Walnut Creek	Auto dealership and carwash/detail building	—	30,360	2791 North Main Street	Pending
Caltrans						
11	Interstate 680 (I-680) Southbound High Occupancy Vehicle (HOV) Lane Gap Closure Project	Improvements to I-680 HOV Lane to close gap on the southbound lane	—	—	I-680 between North Main Street and Rudgear Road	Approved
12	I-680 Northbound HOV Lane Gap Closure Project	Improvements to I-680 HOV Lane to close gap on the northbound lane	—	—	Between North Main Street and Marina Vista	Approved

Sources: Contra Costa County 2019; City of Walnut Creek 2019; City of Pleasant Hill 2019; Caltrans 2019; compiled by FirstCarbon Solutions (FCS) 2019

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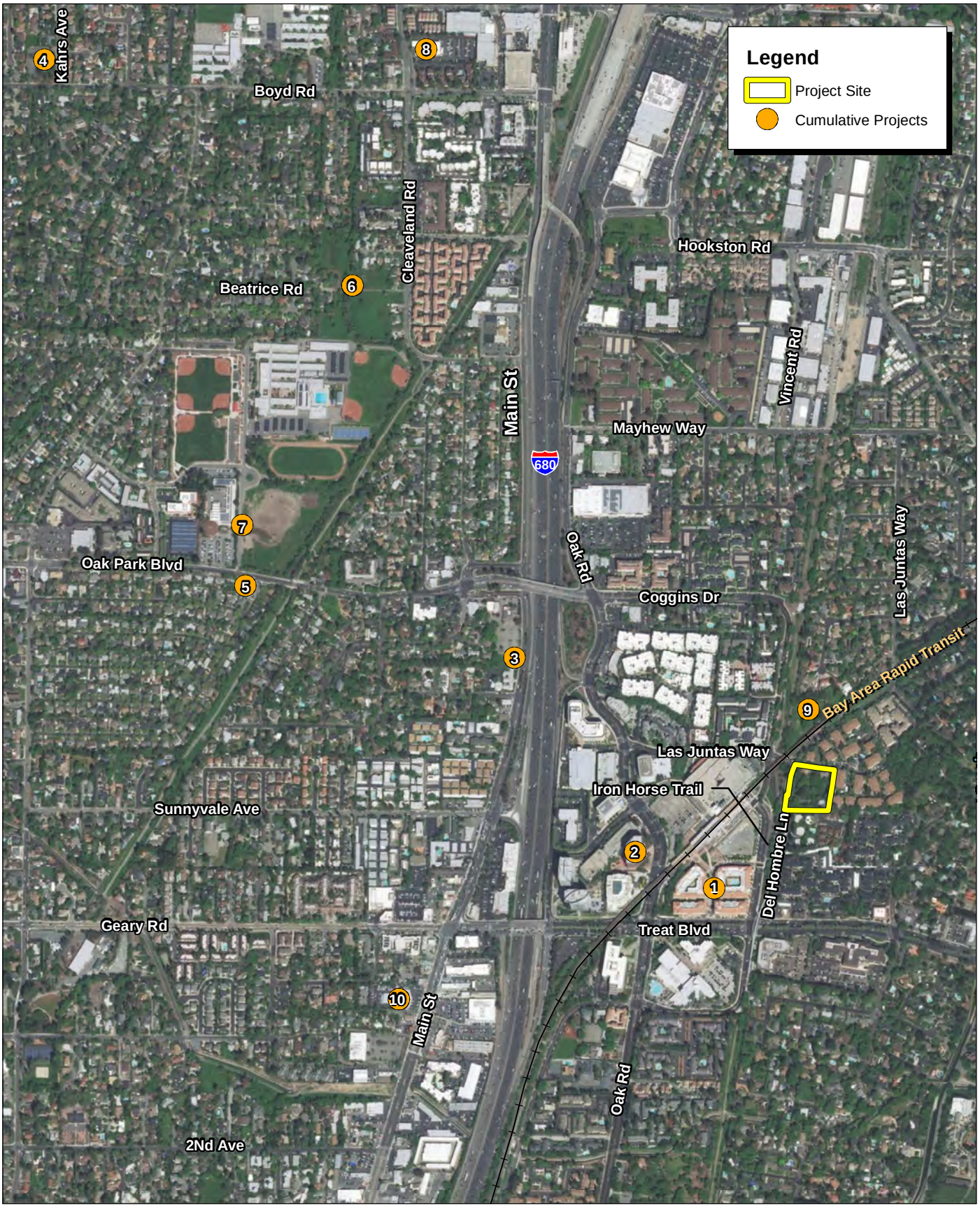

Source: ESRI Aerial Imagery.

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1,000 500 0 1,000 Feet

Exhibit 3-1
Cumulative Projects Location Map

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3.1 - Aesthetics

3.1.1 - Introduction

This section describes the existing aesthetics, light, and glare conditions in the project area, as well as the relevant regulatory framework. This section also evaluates the possible impacts related to aesthetics that could result from implementation of the project. Information included in this section is based on-site reconnaissance and photo inventory, visual simulations prepared specifically for the project and included in this section, as well as the Contra Costa County General Plan and the Contra Costa County Ordinance Code. No public comments were received during the Environmental Impact Report (EIR) scoping period related to aesthetics.

3.1.2 - Environmental Setting

Visual Character

Visual character in the California Environmental Quality Act (CEQA) context is an impartial description of the defining physical features, landscape patterns, and distinctive physical qualities within a landscape. Visual character is informed by the composition of land, vegetation, water, and structure and their relationship (or dominance) to one another, and by prominent elements of form, line, color, and texture that combine to define the composition of views. Visual character-defining resources and features within a landscape may derive from notable landforms, vegetation, land uses, building design and façade treatments, transportation facilities, overhead utility structures and lighting, historic structures or districts, or panoramic open space.

Contra Costa County

Contra Costa County includes a variety of topographical features such as the San Francisco Bay, Delta estuary complex, and is within the Central Coast Range Geomorphic Province of California. The County covers a total of 805 square miles of land and water. The elevation of Contra Costa County ranges from 98 feet below sea level to 3,849 above sea level. The topography includes low lying and relatively flat coastal terrain from the San Francisco Bay/Delta estuary complex to major ridgelines along the Diablo Range, a subdivision of the Pacific Coast Ranges, preserved for character including the summit of Mount Diablo, rising to an elevation of 3,849 feet above mean sea level, making it the most prominent topographical feature in the County. The physical environment of the County ranges from urban to rural. The western and central county areas are characterized by urban and suburban development. The eastern County area is characterized primarily by agricultural and open space areas.

Project Site

The project site is located in central Contra Costa County at 3010, 3018, 3050, 3070 Del Hombre Lane and 112 Roble Road on the southeast corner of Del Hombre Lane and Roble Road. The project site is primarily undeveloped within unincorporated Contra Costa County. Mount Diablo forms the eastern backdrop for the County, rising to an elevation of 3,849 above sea level, making it the most prominent topographical feature in the project vicinity.[1] The surrounding area consists of

[1] California Department of Parks and Recreation. 2000. Mount Diablo State Park Brochure. Website: https://www.parks.ca.gov/pages/517/files/mtDiabloBrochure.pdf. Accessed November 13, 2018.

residential, commercial, and office development. The Bay Area Rapid Transit (BART) Pleasant Hill/Contra Costa Centre Station is also located approximately 400 feet west of the project site.

Scenic Resources

Scenic resources typically involve prominent, unique, and identifiable natural features in the environment (e.g., trees, rock outcroppings, islands, ridgelines, channels of water, and aesthetically appealing open space) and cultural features or resources (e.g., regional or architecturally distinctive buildings, or structures that serve as a focal point of interest).

Contra Costa County

The Open Space Element of the Contra Costa County General Plan identifies the main scenic resources within the County as the scenic ridges, hillsides, and rock outcroppings, such as Shell Ridge and Lime Ridge, as well as the San Francisco Bay/Delta estuary system.[2]

Project Site

There are no scenic resources, as defined by the Contra Costa County General Plan, located on the project site. The nearest designated scenic resources to the project site are Shell Ridge, located approximately 2.35 to the miles southeast, and Lime Ridge, located approximately 2.70 miles to the northeast.

Views

Views may be generally described as panoramic views of a large geographic area, for which the field of view can be wide and extend into the distance. Associated vantage points provide an orientation from publically accessible locations. Examples of distinctive views include urban skylines, valleys, mountain ranges, or large bodies of water.

Contra Costa County

State Route 24 (SR-24) and the portion of Interstate 680 (I-680), south of the SR-24 junction, are officially designated State Scenic Highways and are identified as such in Figure 5-4 of the Contra Costa County General Plan.[3,4] Mount Diablo, rising to an elevation of 3,849, is the most prominent topographical feature in the area. There are also Shell Ridge and Lime Ridge, both designated as scenic ridgeways by the Contra Costa County General Plan. Intervening development, vegetation, and the flat topography of the project site obstructs views of Mount Diablo, Shell Ridge, and Lime Ridge from the project site.

Project Site

In May 2018, FirstCarbon Solutions (FCS) conducted field visits to the existing project site to observe and document the existing visual quality and character of the area. Exhibit 3.1-1 identifies and describes specific viewpoint locations near the project site that provide a representative cross section of visual images and information about the existing aesthetic conditions of the immediate

[2] Contra Costa County. 2005. Contra Costa County General Plan 2005–2020.
[3] California Department of Transportation (Caltrans). California Scenic Mapping System. Website: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed November 14, 2018.
[4] Contra Costa County. 2005. Contra Costa County General Plan 2005–2020, Transportation and Circulation Element.

surrounding area. These locations represent publically accessible views that may be visible to a variety of observers in the area, ranging from motorists traveling along Coggins Drive, pedestrians walking along the Pleasant Hill BART Station platform, or walkers and cyclists along the Iron Horse Regional Trail. As summarized in Table 3.1-1, there are various publicly accessible locations in the Contra Costa County area with views toward and/or through the project site. Exhibit 3.1-2 through Exhibit 3.1-3 demonstrate the existing views from the identified viewpoints.

Table 3.1-1: Summary of Viewpoint Locations for Existing Views

Viewpoint Number	View Description
1	Existing view from Iron Horse Regional Trail looking northeast toward project site.
2	Existing view from the intersection of Las Juntas Way and Coggins Drive looking southeast toward project site.
3	Existing view from Pleasant Hill/Contra Costa Centre BART Station looking northeast toward project site.
Source: FCS 2019	

View 1—Existing View from Iron Horse Regional Trail Looking Northeast toward Project Site

The viewpoint along Iron Horse Regional Trail, a public trail, is located along the western boundary of the project site, shown in Exhibit 3.1-2, Photograph A. The viewpoint is located southwest of the project site and facing toward center of the project site. Existing views of the project site consist primarily of vegetation, trees, and a fence running through the project site. Del Hombre Lane and Honey Trail are visible.

View 2—Existing View from the intersection of Las Juntas Way and Coggins Drive Looking Southeast toward Project Site

The viewpoint at the intersection of Las Juntas Way and Coggins Drive is located northwest of the project site, adjacent to a residential apartment area, as shown in Exhibit 3.1-2,Photograph B. The existing view of the project site is partially obstructed by the overhead BART rail structure, but primarily consists of open Las Juntas Way and vegetation in the project site.

View 3—Existing View from Pleasant Hill/Contra Costa Centre BART Station Looking Northeast toward Project Site

This viewpoint is located from the elevated BART station platform adjacent to Coggins Drive, shown in Exhibit 3.1-3. Existing northeastward view of the project site is partially obstructed by trees and the development of Block C project of the Specific Plan, which consists of 200 apartment units, is currently under construction. Views of these ridgelines are not currently available through the existing multi-family residential development recently constructed between the Pleasant Hill BART Station and the view of Mount Diablo. The view primarily consists of the intersection of Coggins Drive and Jones Road, and vegetation.

Other General Existing Views from Public Streets, Parks, and Open Space Areas

Jones Road, Coggins Drive, and Del Hombre Lane are publicly accessible roads located west of the project site. The project site is visible for pedestrians and motorists travelling along these roadways. Several trees along the Iron Horse Regional Trail and trees along the eastern boundary of the project site partially obstruct existing western views of the site. There are no public streets, parks, or open space areas with existing views of the site to the north, east, or south of the project site.

Light and Glare

In the context of CEQA Guidelines, light is nighttime illumination that stimulates sight and makes things visible, and glare is difficulty seeing in the presence of bright light such as direct or reflected sunlight.

Project Site Vicinity

The primary sources of nighttime light in the surrounding area are from vehicle headlights traveling along Del Hombre Lane and other surrounding roadways as well as exterior lighting associated with the Pleasant Hill BART Station. There are also streetlights and buildings with outdoor security lighting in the project area.

There are some large reflective surfaces associated with buildings in the project area that contribute daytime glare to within the project area.

Project Site

The two single-family residences on the project site may include exterior nighttime lighting; however, such lighting is likely minimal or nonexistent. There are no streetlights currently on the project site or on the Del Hombre Lane. There are some outdoor lighting fixtures on adjacent multi-family apartment sites. There is no lighting along the adjacent Iron Horse Trail. No other features on the project site produce light or glare.

3.1.3 - Regulatory Framework

Federal

No federal plans, policies, regulations, or laws related to aesthetics are applicable to the project.

State

California Scenic Highway Program

The State Legislature created the California Scenic Highway Program, maintained by the California Department of Transportation (Caltrans), in 1963. The purpose of the State Scenic Highway Program is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. The State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been officially designated. The status of a proposed State Scenic Highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway.

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Exhibit 3.1-1
View Point Location Map

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A: View 1 Existing - View from Iron Horse Regional Trail Looking East toward the Project Site.

B: View 2 Existing - View from Coggins Drive/Las Juntas Way Looking Southeast toward the Project Site.

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Exhibit 3.1-2
Existing View 1 and 2

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View 3 Existing - View from Pleasant Hill/Contra Costa Center BART Station Platform Looking Northeast toward the Project Site.

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Exhibit 3.1-3
Existing View 3

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Local

Contra Costa County General Plan

Land Use Element

The Contra Costa County General Plan Land Use Element establishes the following goals and policies related to aesthetics:

- **Goal 3-C:** To encourage aesthetically and functionally compatible which reinforces the physical character and desired images of the County.
- **Goal 3-J:** To encourage a development pattern that promotes the individuality and unique character of each community in the County.
- **Policy 3-18:** Flexibility in the design of projects shall be encouraged in order to enhance scenic qualities and provide for a varied development pattern.
- **Policy 3-24:** Housing opportunities shall be improved through encouragement of distinct styles, desirable amenities, attractive design and enhancement of neighborhood identity.
- **Policy 3-25:** Innovation in site planning and design of housing developments shall be encouraged in order to upgrade quality and efficiency of residential living arrangements and to protect the surrounding environment.

Transportation and Circulation Element

The Contra Costa County General Plan Transportation and Circulation Element establishes the following goals and policies related to aesthetics:

- **Policy 5-49:** Scenic views observable from scenic routes shall be conserved, enhanced, and protected to the extent possible.
- **Policy 5-50:** The existing system of scenic routes shall be enhanced to increase the enjoyment and opportunities for scenic pleasure driving to major recreational and cultural centers throughout this and adjacent counties.
- **Policy 5-53:** Design flexibility shall be encouraged as one of the governing elements for aesthetic purposes in the construction of roads within the scenic corridor.
- **Policy 5-54:** For lands designated for urban use along scenic routes, planned unit developments shall be encouraged in covenant with land development projects.

Open Space Element

The Contra Costa County General Plan Open Space Element establishes the following goals and policies related to aesthetics:

- **Policy 9-4:** Where feasible and desirable, major open space components shall be combined and linked to form a visual and physical system in the County.
- **Policy 9-5:** The visual identities of urban communities shall be preserved through the maintenance of existing open space areas between cities and/or communities.
- **Goal 9-D:** To preserve and protect areas of identified high scenic value, where practical, and in accordance with the Land Use Element map.
- **Goal 9-E:** To protect major scenic ridges, to the extent practical, from structures, roadways, or other activities which would harm their scenic qualities.

- **Policy 9-10:** In areas designated for urban development, the principles outlined below shall be applied in the review of development proposals.[5]
- **Policy 9-12:** In order to conserve the scenic beauty of the County, developers shall generally be required to restore the natural contours and vegetation of the land after grading and other land disturbances. Public and private projects shall be designed to minimize damages to significant trees and other visual landmarks.
- **Policy 9-13:** Providing public facilities for outdoor recreation should remain an important land use objective in the County, as a method of promoting high scenic quality, for air quality maintenance, and to enhance outdoor recreation opportunities of all residents.
- **Policy 9-27:** Physical and visual public access to established scenic routes shall be protected.

Contra Costa County Ordinance Code

The Contra Costa County Zoning Map zones the site Planned Unit District (P-1) and Single-Family Residential (R-15).

Planned Unit District (P-1)

As stated in Chapter 84-66.204, the intent of the P-1 district is to allow "diversification in the relationship of various uses, buildings, structures, lot sizes and open space while insuring (sic) substantial compliance with the general plan and the intent of the county code in requiring adequate standards necessary to satisfy the requirements of the public health, safety and general welfare. These standards shall be observed without unduly inhibiting the advantages of large-scale or special area planning."[6]

As summarized in Table 3.1-2, Article 84-66.602 establishes requirements for new and alterations to existing land uses, structures, and site development within the P-1 zoning district.

Table 3.1-2: P-1 District Development Standards

Development Feature	Requirement
Area (Minimums)	
Residential	5 acres for residential uses except that a mobile home subdivision shall have a minimum of 10 acres.
Nonresidential	10 acres for nonresidential uses.
Mixed	15 acres for mixed residential and nonresidential uses.
Office	No minimum for office uses which do not require heavy vehicular delivery or have easy automobile site access including some ancillary retail, service and residential uses when consistent with the Contra Costa County General Plan.

[5] In Policy 9-10, "principles outlined below" refers to Policy 9-14 through Policy 9-27.
[6] Contra Costa County. 2018. Contra Costa County Ordinance Code, Chapter 84-66.204-Intent and Purpose. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV84LAUSDI_CH84-66PLUNDI. Accessed November 15, 2018.

Table 3.1-2 (cont.): P-1 District Development Standards

Development Feature	Requirement
Density	
Residential	In computing the net development area to set residential densities, use the general plan as a guide and exclude areas set aside for churches, schools, streets, commercial use or other nonresidential use, but include areas set aside for common open space, outdoor recreation or parks.
Source: Contra Costa County Ordinance Code, Articles 84-66.6 and 84-66.8 (2018).	

Chapter 816-6—Tree Protection and Preservation

The Tree Protection and Preservation Ordinance of Contra Costa County (Chapter 816-6) provides for the preservation of protected trees and requires a permit for activities such as trenching, grading or fill within the drip line of any protected tree, or the removal, destruction, trimming or topping of any protected tree. Heritage trees are defined as a tree 72 inches (approximately 6.5 inches in diameter) or more in circumference measured 4.5 feet above natural grade, or any tree or group of trees particularly worthy of protection and specifically designated as such by the Board of Supervisors. No replacement ratio for removed or affected trees is identified in the ordinance.

3.1.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 CEQA Guidelines Appendix G, to determine whether impacts related to aesthetics are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Have a substantial adverse effect on a scenic vista?

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a State scenic highway?

c) In a non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If in an urbanized area, 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?

Approach to Analysis

This analysis provides a discussion of the visual impacts associated with the project and the area surrounding the project site. Several variables affect the degree of visibility, visual contrast, and ultimately project impacts: (1) scale and size of facilities, (2) viewer types and activities, (3) distance and viewing angle, and (4) influences of adjacent scenery or land uses. Viewer response and sensitivity

vary depending on viewer attitudes and expectations. Viewer sensitivity is distinguished among project viewers in identified scenic corridors and from publically accessible recreational and plaza areas. Recreational areas and scenic corridors are considered to have relatively high sensitivity.

As part of this analysis, various areas in the project site vicinity and central Contra Costa County area were screened as potential viewpoint locations, based on whether the existing project site is visible from these locations and the degree to which viewers at those locations would be sensitive to proposed physical changes at the project site during the proposed construction and operational periods. A set of locations that constitute a representative cross-section of views experienced by a representative cross section of observers was chosen for the analysis. Views from these locations were photographed and are included in this EIR to illustrate existing conditions. Consequently, visual change discussions were provided for these same views to facilitate project impact determinations. Project design drawings and information about height and massing were also relied upon to identify whether or when the proposed structures would result in visual impacts. The Contra Costa County General Plan and Contra Costa County Ordinance Code were also evaluated to determine applicable policies and design requirements for the project.

Light and Glare

The analysis of light and glare impacts in this section focuses on the nature and magnitude of changes in light and glare conditions of the project site and surrounding area. If the light and glare conditions of the project and the existing environment are similar, then the visual compatibility would be high. If the light and glare conditions of the project strongly contrast with the existing light and glare or applicable policies and guidelines, then light and glare compatibility would be low and significant impacts may result. Relevant urban design policies and guidelines are used to provide conclusions with regard to the significance of project- and cumulative-level light and glare impacts.

Specific Thresholds of Significance

The County does not have quantitative thresholds for evaluation of aesthetics; however, the following qualitative thresholds are used to evaluate the significance of aesthetics impacts resulting from implementation of the project.

- Block existing views from a County-designated scenic roadway toward a County-designated scenic resource (e.g., ridgeline).
- Be inconsistent with the character of the plan area or existing development in the surrounding area or would substantially alter existing natural topography.
- Increase existing nighttime light or daytime glare sources in the plan area or vicinity in a manner that would substantially affect nighttime or daytime views.
- Reduce sunlight or introduce shadows to public parks and plazas, routinely usable outdoor spaces associated with recreational land uses, pedestrian-oriented commercial spaces such as outdoor eating areas, and existing solar facilities.

Impact Evaluation

Scenic Vistas

Impact AES-1: The project would not have a substantial adverse effect on a scenic vista.

Construction

A significant impact would occur if the project construction would have a substantial adverse effect on a scenic vista[7] as defined and identified in the Contra Costa County General Plan. Scenic vistas as identified in the Contra Costa County General Plan are discussed below. The on-site vegetation that would be removed as a part project construction is not designated as a scenic vista. Thus, the removal of the existing vegetation would not adversely impact existing views of scenic vistas within the project vicinity. Therefore, no temporary construction impact related to scenic vistas would occur.

Operation

A significant impact would occur if the project operation would have a substantial adverse effect on a scenic vista as defined and identified in the Contra Costa County General Plan. The Contra Costa County General Plan, in lieu of identifying scenic vistas, identifies scenic roads as they also afford publicly available views. A scenic road is defined as having a highway, road, drive, or street that, in addition to its transportation function, provides opportunities for the enjoyment of natural and human-made scenic resources. Scenic roads direct views to areas of exceptional beauty, natural resources or landmarks, or historic or cultural interest. In the Contra Costa County General Plan, the nearest scenic route is SR-242, a protected road located approximately 2.06 miles north. In addition, SR-24 is a designated scenic route in the Contra Costa County General Plan and is located 2.57 miles to the southwest. Due to the distance, the project would not be visible from these scenic routes.[8]

The Contra Costa County General Plan's Open Space Element includes provisions to prohibit development on scenic ridges, hillsides and rock outcroppings where structures would interrupt the skyline and alteration of slopes greater than 26 percent. There are no scenic ridges, hillsides and rock outcroppings on the project site.

The nearest designated scenic ridgelines to the project site are Shell Ridge, located approximately 2.35 to the miles southeast, and Lime Ridge, located approximately 2.70 miles to the northeast. Intervening development obstructs existing views of these scenic ridges from the project site or immediate surrounding area. Views from the Pleasant Hill BART Station towards Mount Diablo is already obstructed by the recently constructed multi-family developments at the station area; therefore, the roofline of the project would not impede views of these scenic ridgelines (see existing view shown in Exhibit 3.1-3 and proposed view shown in Exhibit 3.1-5). Thus, the project would not significantly impact designated scenic resources, including views of and views from scenic ridgelines located in the project vicinity. Therefore, impacts related to scenic vistas would be less than significant.

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[7] A scenic vista is defined as a view point that provides expansive views of a highly valued landscape for the benefit of the general public.

[8] Contra Costa County. 2005. Contra Costa County General Plan, Transportation and Circulation Element. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30915/Ch5-Transportation-and-Circulation-Element?bidId=. Accessed February 28, 2019.

Level of Significance

Less Than Significant

Scenic Highways

Impact AES-2:	**The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a State scenic highway.**

Construction

A significant impact would occur if project construction would substantially damage scenic resources as seen from a designated scenic highway. The project site is located approximately 0.36 mile east of I-680 and is not visible from that highway. In addition, I-680 is not designated as a State Scenic Highway, as further discussed below.[9] In addition, there are no scenic resources, as defined by the Contra Costa County General Plan, located on the project site. Thus, demolition, grading, and tree removal during construction could not result in adverse impacts to scenic resources. Therefore, no temporary construction impact related to scenic resources within a State scenic highway would occur.

Operation

A significant impact would occur if project operation would substantially damage scenic resources as seen from a designated scenic highway.

The project site is located approximately 0.36 mile east of I-680. This portion of I-680 is not an officially designated as a State Scenic Highway. There are no other officially designated State Scenic Highway or County scenic roadways in or adjacent to the project site. The nearest officially designated State Scenic Highway is SR-24, located approximately 2.65 miles southwest, and the portion I-680 south of SR-24, located approximately 2.57 miles south of the project site.[10] The nearest County-designated scenic route is SR-242, a protected road located approximately 2.06 miles north.[11] There are also no scenic resources, as defined by the Contra Costa County General Plan, located on the project site, of which a view would be available from a scenic highway or roadway. In addition, the project site is surrounded by suburban, transit-oriented development. Given the absence of scenic highways proximate to the project site, the lack of designated scenic resources (i.e., ridgelines, hillsides, rock outcroppings) on the project site, and the presence of intervening development between the project site and the nearest scenic highways, the project would not adversely affect views from a State Scenic Highway. Thus, a less than significant impact would occur related to scenic resources within a State Scenic Highway.

Level of Significance

Less Than Significant

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[9] California Department of Transportation (Caltrans). California Scenic Highway Mapping System—Contra Costa County. Website: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed February 27, 2019.

[10] *Ibid*.

[11] Contra Costa County. 2005. Contra Costa County General Plan, Transportation and Circulation Element. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30915/Ch5-Transportation-and-Circulation-Element?bidId=. Accessed February 28, 2019.

Visual Character

Impact AES-3: **The project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings or conflict with applicable zoning and other regulations governing scenic quality.**

Construction

Construction of the project would include demolition of the existing residential buildings, the removal of several trees and potential impacts to trees to be preserved (described in greater detail in Section 3.3, Biological Resources), and grading of approximately 29,000 cubic yards. Thus, the construction could temporarily affect existing visual character or quality of the project site and area. However, the area surrounding the project site has a transit-oriented residential character with multi-family apartments located to the north (on Las Juntas Way and Santos Lane), east (on Roble Road and Santos Lane), and south (on Honey Trail) as well as on Block C of the Pleasant Hill BART Specific Plan, which is under construction, to the southwest. The construction of the project would similarly temporarily affect visual character and quality of the area, given that local views from the Pleasant Hill BART Station, the Iron Horse Regional Trail, and proximate public sidewalks would include on-going construction of multi-family land uses in this transit-oriented residential neighborhood. Construction-related impacts related to degradation of existing visual character or quality of the project site and area would be temporary and less than significant.

Operation

The analysis of operational impacts addresses both consistency with zoning and other regulations governing scenic quality, as well as changes to the existing visual character and quality.

The area surrounding the project site has a suburban, transit-oriented residential character. Multi-family apartments are located to the north (on Las Juntas Way and Santos Lane), east (on Roble Road and Santos Lane), and south (on Honey Trail) and on Block C of the Specific Plan, which is being developed, to the southwest. The Pleasant Hill BART Station is located 0.12 mile west of the project site.

The project would construct a six-story podium apartment building in a uniform architectural style that would employ materials that are currently utilized in the surrounding development. The building would be six stories tall with a maximum height of 77 feet. Exterior building materials would consist of cement plaster, wood, vinyl (windows), metal, and foam trim, and the roof would employ a Monaco roof tile design.

The project includes construction of two courtyard areas on Floor 2. The courtyard areas would include outdoor seating, a bocce ball court, private patios connected to the apartment units, a fireplace and fire pits. A pool would be provided in the center of the southern portion of the project site with outdoor beds and lounges. Porcelain tile paving would be used in the outdoor courtyard area as well as the pool area. An assortment of trees would be interspersed throughout the courtyard areas and would include palm trees, shade trees, and other decorative trees. A roof deck with capacity for 39 tenants would also be provided as well as palm trees. A small dog run would be constructed along the eastern boundary of the project site at the southeastern corner, and a large dog run would be constructed just north of the small dog run. Bioretention swales would also be installed north of the large dog run.

Contra Costa County General Plan and Contra Costa County Ordinance Code

The area around the project site has a suburban, transit-oriented residential character. The Contra Costa County General Plan designates the project site as Multiple-Family Residential-Very High Density (MV). Pursuant to the General Plan Land Use Element, the MV designation allows between 30.0 and 44.9 multiple-family units per net acre, and site can range up to 1,451 square feet. Primary land uses consist of multiple-family residences including apartments and condominiums as well as accessory buildings and structures ancillary to the primary uses. The project is requesting an amendment to the Contra Costa County General Plan to re-designate the project site from MV to Multiple-Family Residential-Very Special High (MS) that would allow between 45.0 and 99.9 multiple-family units per acre.

In addition, the project site is currently zoned Residential (R-15) and Planned Unit District (P-1) by the Contra Costa County Zoning Ordinance. The project would rezone the entire site to P-1. The P-1 zoning would allow flexibility with respect to use, building types, lot size, and open space while ensuring the project complies with the Contra Costa County General Plan and requirements as set forth in the Contra Costa County Ordinance Code.

The project site has been planned for higher density residential uses since the 1980s when the adjacent Pleasant Hill BART Station Area Specific Plan (Specific Plan) was originally adopted by Contra Costa County. Block C of the Specific Plan, consisting of 200 apartment units, is currently under construction southwest of the project site across Del Hombre Lane. The Pleasant Hill/Contra Costa Centre BART station is located to the west of the project site, approximately 0.12 mile. The Iron Horse Regional Trail runs parallel to and immediately west of Del Hombre Lane. . The project includes removal of trees as part of site preparation, and planting of new trees along Honey Trail, Del Hombre Lane, and Roble Road on the project site. As the construction of the project requires the removal of a tree(s) subject to the Contra Costa County Tree Protection and Preservation Ordinance, Chapter 816-6, tree permits would be required prior to the removal or any impacts of such protected trees and is further discussed Section 3.3, Biological Resources. Screening bushes would also be planted along Honey Trail on the project site.

View 1—View from Iron Horse Regional Trail Looking Northeast toward Project Site

Exhibit 3.1-4, Photograph A depicts a publicly accessible view of the project, as seen by pedestrians travelling north along the Iron Horse Regional Trail. The proposed six-story apartment building would replace the existing views of vegetation on the project site. As depicted, a sidewalk with new London plane trees would be installed along Del Hombre Lane and screening bushes would be planted along Honey Trail. Impacts to this view would be less than significant, as the project would not substantially degrade the existing residential character of the surrounding area.

View 2—View from Intersection of Las Juntas Way and Coggins Drive Looking Southeast toward Project Site

Exhibit 3.1-4, Photograph B depicts a publicly accessible view of the project, as seen by pedestrians and motorists looking southeast from the intersection of Las Juntas Way and Coggins Drive. The proposed six-story apartment building would replace the existing views of vegetation on the project site. The view of the project would be partially obstructed by the existing overhead BART rail structure. Although the project would be slightly taller than the immediate surrounding apartment buildings, it would be consistent with the multi-family residential character of the surrounding area.

A: View 1 Proposed - View from Iron Horse Regional Trail Looking East toward the Project Site.

B: View 2 Proposed - View from Coggins Drive/Las Juntas Way Looking Southeast toward the Project Site.

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Exhibit 3.1-4
Proposed View 1 and 2

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View 3 Proposed - View from Pleasant Hill/Contra Costa Center BART Station Platform Looking Northeast toward the Project Site.

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Exhibit 3.1-5
Proposed View 3

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Impacts to this view would be less than significant, as the project would not substantially degrade the existing residential character of the surrounding area.

View 3—View from Pleasant Hill/Contra Costa Centre BART Station Looking Northeast toward Project Site

Exhibit 3.1-5 depicts a publicly accessible view of the project the elevated Pleasant Hill BART Station platform adjacent to Coggins Drive. The proposed six-story apartment building would replace the existing views of vegetation on the project site. The building would not obstruct views of any ridgelines or foothills, as the existing view toward Mount Diablo and adjacent ridgelines is already blocked by the existing residential multi-family residential development recently constructed in between the Pleasant Hill BART Station and the view of Mount Diablo. Impacts to this view would be less than significant, as the project would not substantially degrade the existing residential character of the surrounding area.

Other General Existing Views from Public Streets, Parks, and Open Space Areas

Jones Road, Coggins Drive, and Del Hombre Lane are publicly accessible roads located west of the project site. The project site is visible for pedestrians and motorists travelling along these roadways. Several trees along the Iron Horse Regional Trail and trees along the eastern boundary of the project site partially obstruct existing western views of the site. There are no public streets, parks, or open space areas with existing views of the site to the north, east, or south of the project site. Although the project would be slightly taller than the immediate surrounding apartment buildings, it would be consistent with the multi-family residential character of the surrounding area. Impacts to this view would be less than significant, as the project would not substantially degrade the existing urbanized residential character of the surrounding area. Therefore, impacts to other general views would be less than significant and the project would not substantially degrade the existing visual character or quality of the site and its surroundings.

Summary

The project would result in a continuation of higher density multi-family development around the Pleasant Hill BART station that would be consistent with scenic quality regulations and also reinforce the visual character of the area as a transit-oriented residential neighborhood. Therefore, impacts related to consistency with applicable scenic quality regulations and visual quality and character would be less than significant.

Level of Significance

Less Than Significant

Light and Glare

Impact AES-4:	**The project could create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.**

Construction

Impacts related to degradation of existing visual character or quality of the project site and area are limited to operational impacts. No respective construction impacts would occur.

Operation

The project would have a significant impact if substantial light or glare would adversely affect nighttime or daytime views, respectively, in the area. Potential sources of light associated with the project would consist of typical sources of lighting associated with a residential development including lighting from the apartment building and from vehicles traveling to and from the project site. Exterior lighting would be located around and within the project site. Lampposts would be evenly dispersed within the project site, with safety lighting, as needed throughout the site. A 14-foot pole light would be used for the proposed development. The 14-foot pole lights would primarily be located within the bocce ball courtyard, which would be enclosed on all four sides, and the swimming pool courtyard, which would be enclosed by three sides of the building. Light spillage from these locations would be limited by existing trees along the adjacent properties, the proposed screening bushes along Honey Trail, and the proposed London plane trees along Del Hombre Lane and Roble Road. Furthermore, this lighting would be consistent with that of adjoining residential areas. In addition, per MM AES-4, exterior lighting would be directed downward and away from adjacent properties and public/private right-of-way to prevent excessive light spillover. Therefore, with implementation of MM AES-4, lighting impacts would be less than significant.

Glare resulting from the proposed residences' windows would be minimal and would be partially obscured by landscaping, depending on the time of day and the location of the reflecting light source. Furthermore, residential glass typically has a low reflectivity rate. Glare may also occur from on-site vehicles; however, such glare would be transient, depending upon the time of day and location of the vehicle. In addition, MM AES-4 requires exterior lighting be directed downward and away from adjacent properties and public/private right-of-way to prevent glare. As such, glare impacts would be less than significant with mitigation.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM AES-4 Exterior Lighting

Proposed exterior lighting shall be directed downward and away from adjacent properties and public/private right-of-way to prevent glare or excessive light spillover.

Level of Significance After Mitigation

Less Than Significant with Mitigation

3.1.5 - Cumulative Impacts

The geographic scope of the cumulative aesthetics analysis is the visible area surrounding the project site. The analysis also considers the foreseeable development projects listed in Table 3-1 (See Chapter 3.0: Environmental Setting) in the unincorporated Contra Costa County area in addition to the project.

Visual Character and Views

The development projects listed in Table 3-1 are mostly residential and commercial in nature. The project and the projects listed in Table 3-1 propose urban development, but only Cumulative Projects 1 and 9 would be located within the same visible area. Project 1 is located approximately 0.11 mile southwest of the project site and Project 9 is located approximately 0.10 mile north of the project site. The project and cumulative projects 1 and 9 would develop multi-family residential residences. Both of these projects are adjacent to the Pleasant Hill BART Station and surrounded by residential developments. The area surrounding projects 1 and 9 consists of residential, commercial, and office development. Projects 1 and 9 would be consistent with the suburban, transit-oriented character of the surrounding area.

The project and Cumulative Project 1 would be subject to the same County codes and guidelines related to building heights, setbacks, undergrounding of utilities, landscaping, signage, and permitted land uses. Cumulative Project 9 would be subject to the codes and guidelines associated with the City of Walnut Creek related to building heights, setbacks, undergrounding of utilities, landscaping, signage, and permitted land uses. As such, the project, in conjunction with other planned and approved projects, would result in a less than significant cumulative impact with respect to visual character and views.

Light and Glare

The development projects listed in Table 3-1 are mostly residential and commercial in nature. The project and the projects listed in Table 3-1 propose urban development, but only Cumulative Projects 1 and 9 would be located within the same visible area. Cumulative Project 1 is located approximately 0.11 mile southwest of the project site and Cumulative Project 9 is located approximately 0.10 mile north of the project site. The project and Cumulative Projects 1 and 9 would include streetlights and exterior and interior residential lighting. Cumulative Project 1 is currently being constructed in compliance with County requirements for exterior lighting. Exterior lighting associated with Cumulative Project 9 would be subject to the City of Walnut Creek Municipal Code 10-2.3.407(L), which requires lighting to be designed in a manner such that the light source is shielded from view .[12] Cumulative Project 9 would also be required to comply with the City of Walnut Creek's Design Review process, which would consider glare impacts and ensure that they are addressed by site planning and design.[13] As such, the project, in conjunction with other planned and approved projects, would result in a less than significant cumulative impact with respect to light and glare.

Level of Cumulative Significance

Less Than Significant

[12] City of Walnut Creek. Revised 2019. Walnut Creek Municipal Code. Website: https://www.codepublishing.com/CA/WalnutCreek/#!/WalnutCreek10/WalnutCreek1002C.html#10-2.3.407. Accessed April 25, 2019.

[13] City of Walnut Creek. 1996. Design Review Guidelines. Website: http://www.walnut-creek.org/home/showdocument?id=4968. Accessed April 25, 2019.

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3.2 - Air Quality

3.2.1 - Introduction

This section describes existing air quality conditions regionally and locally as well as the relevant regulatory framework. This section also evaluates the possible impacts related to air quality that could result from implementation of the project. Information included in this section is based on project-specific air quality modeling results included in Appendix B. No public comments were received during the Environmental Impact Report (EIR) scoping period related to air quality.

3.2.2 - Environmental Setting

Regional Geography and Climate

Contra Costa County is located within the San Francisco Bay Area Air Basin (Air Basin or SFBAAB). The Air Basin is approximately 5,600 square miles in area and consists of nine counties that surround the San Francisco Bay, including all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties; the southwestern portion of Solano County; and the southern portion of Sonoma County. The San Francisco Bay Area (Bay Area) has a Mediterranean climate characterized by mild, dry summers and mild, moderately wet winters; moderate daytime onshore breezes, and moderate humidity.

A semi-permanent, high-pressure area centered over the northeastern Pacific Ocean dominates the summer climate of the West Coast. Because this high-pressure cell is persistent, storms rarely affect the California coast during the summer. Thus, the conditions that persist along the coast of California during summer are a northwest airflow and negligible precipitation. A thermal low-pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the Bay Area much of the summer.

The steady northwesterly flow around the eastern edge of the Pacific High (a high-pressure cell) exerts stress on the ocean surface along the west coast. This induces upwelling of cold water from below the surface. Upwelling produces a band of cold water off San Francisco that is approximately 80 miles wide. During July, the surface waters off San Francisco are 3 degrees Fahrenheit (°F) cooler than those off Vancouver, British Columbia, more than 900 miles to the north. Air approaching the California coast, already cool and moisture-laden from its long trajectory over the Pacific, is further cooled as it flows across this cold bank of water near the coast, thus accentuating the temperature contrast across the coastline. This cooling is often sufficient to produce condensation—a high incidence of fog and stratus clouds along the northern California coast in summer.

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the gap in the western Coast Ranges, known as the Golden Gate, and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate. This channeling of the flow through the Golden Gate[1] produces a jet that sweeps eastward but widens

[1] A strait on the West Coast of North America that connects the San Francisco Bay to the Pacific Ocean.

downstream, producing southwest winds at Berkeley and northwest winds at San José; a branch curves eastward through the Carquinez Straits and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Golden Gate, the Carquinez Strait, or San Bruno Gap. For example, the average wind speed at San Francisco International Airport from 3:00 a.m. to 4:00 p.m. in July is about 20 miles per hour (mph), compared with only about 8 mph at San José and less than 7 mph at the Farallon Islands.

The sea breeze between the coast and the Central Valley[2] commences near the surface along the coast in late morning or early afternoon; it may first be observed only through the Golden Gate. Later in the day, the layer deepens and intensifies while spreading inland. As the breeze intensifies and deepens, it flows over the lower hills farther south along the peninsula. This process frequently can be observed as a bank of stratus clouds "rolling over" the coastal hills on the west side of the Bay. The depth of the sea breeze depends in large part upon the height and strength of the inversion. The generally low elevation of this stable layer of air prevents marine air from flowing over the coastal hills. It is unusual for the summer sea breeze to flow over terrain exceeding 2,000 feet in elevation.

In winter, the SFBAAB experiences periods of storminess, moderate-to-strong winds, and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, weak onshore flows in the afternoon, and otherwise light and variable winds.

A primary factor in air quality is the mixing depth (the vertical air column available for dilution of contaminant sources). Generally, the temperature of air decreases with height, creating a gradient from warmer air near the ground to cooler air at elevation. This is caused by most of the sun's energy being converted to sensible heat at the ground, which in turn warms the air at the surface. The warm air rises in the atmosphere, where it expands and cools. Sometimes, however, the temperature of air actually increases with height. This condition is known as temperature inversion, because the temperature profile of the atmosphere is "inverted" from its usual state. Over the SFBAAB, the frequent occurrence of temperature inversions limits mixing depth and, consequently, limits the availability of air for dilution.

Air Pollutant Types, Sources, and Effects

Criteria Air Pollutants

Concentrations of criteria air pollutants are used as indicators of air quality conditions. Air pollutants are termed criteria air pollutants if they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. According to the United States Environmental Protection Agency (EPA), criteria air pollutants are ozone, particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), carbon monoxide (CO), lead, and sulfur dioxide (SO_2). Table 3.2-1 provides a summary of the types, sources, and effects of criteria air pollutants of national and California concern.

[2] A flat valley that dominates the geographical center of California stretching 450 miles from north-northwest to south-southeast, inland from and parallel to the Pacific Ocean coast. It is bounded by the Sierra Nevada to the east and the Coast Range to the west.

Table 3.2-1: Description of Criteria Pollutants of National and California Concern

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Ozone	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), nitrous oxides (NO_X), and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_X) are mobile sources (on-road and off-road vehicle exhaust).	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.
Particulate matter (PM_{10}) Particulate matter ($PM_{2.5}$)	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is 1-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about 1/13 the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.
Nitrogen dioxide (NO_2)	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides—NO_X (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). NO_X is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_X can react with compounds to form nitric acid and related small particles and result in PM related health effects.	NO_X is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. NO_2 forms quickly from NO_X emissions. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contributions to atmospheric discoloration; increased visits to hospital for respiratory illnesses.

Table 3.2-1 (cont.): Description of Criteria Pollutants of National and California Concern

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Carbon monoxide (CO)	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.
Sulfur dioxide (SO_2)	SO_2 is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_X) include SO_2 and sulfur trioxide. Sulfuric acid is formed from SO_2, which can lead to acid deposition and can harm natural resources and materials. Although SO_2 concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because SO_2 is a precursor to sulfate and PM_{10}.	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of SO_2. The gas can also be produced in the air by dimethyl sulfide and hydrogen sulfide. SO_2 is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The SO_2 levels in the State are well below the maximum standards.	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.
Lead	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.

Source: South Coast Air Quality Management District (SCAQMD) 2007a; California Environmental Protection Agency (Cal/EPA) 2002; California Air Resources Board (ARB) 2009; United States Environmental Protection Agency (EPA) 2003, 2009a, 2009b, 2010, 2011a, and 2012; National Toxicology Program 2011a and 2011b

Toxic Air Contaminants

Concentrations of toxic air contaminants (TAC) are also used as indicators of air quality conditions. TACs are defined as air pollutants that may cause or contribute to an increase in mortality or serious illness or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at very low concentrations. TACs can cause long-term health effects (such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage) or short-term acute affects (such as eye watering, respiratory irritation, runny nose, throat pain, or headaches). For those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which some adverse health impacts are not expected to occur. This contrasts with the criteria pollutants such as nitrogen dioxide and carbon dioxide for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards.

TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to a particular TAC. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk is typically expressed as excess cancer cases per million exposed individuals, typically over a lifetime exposure or other prolonged duration. For noncarcinogenic substances, there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels may vary depending on the specific pollutant. Acute and chronic exposure to noncarcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to an acceptable reference exposure levels.

To date, the California Air Resources Board (ARB) has designated nearly 200 compounds as TACs. The ARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most important being diesel particulate matter (DPM) from diesel-fueled engines. Common TACs of national and California concern include: DPM, volatile organic compounds (VOCs), benzene, asbestos, hydrogen sulfide, sulfates, visibility-reducing particulates, vinyl chloride, and lead. Table 3.2-2 provides a summary of the types, sources, and effects of TACs of national and California concern.

Table 3.2-2: Description of Toxic Air Contaminants of National and California Concern

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Diesel Particulate Matter (DPM)	DPM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.	Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.
VOCs	Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.	Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.

Table 3.2-2 (cont.): Description of Toxic Air Contaminants of National and California Concern

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Benzene	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a "Group A" carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. Benzene occurs naturally in gasoline at one to two percent by volume. The primary route of human exposure is through inhalation.	Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.
Asbestos	Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite.	Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States.	Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs). Exposure to asbestos can occur during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present.
Hydrogen Sulfide	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.

Table 3.2-2 (cont.): Description of Toxic Air Contaminants of National and California Concern

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Sulfates	The sulfate ion is a polyatomic anion with the empirical formula SO42−. Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of SO_2. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.
Visibility Reducing Particles	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal; and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravates existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.
Vinyl Chloride	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.

Table 3.2-2 (cont.): Description of Toxic Air Contaminants of National and California Concern

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Lead	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.
Source: South Coast Air Quality Management District (SCAQMD) 2007a; California Environmental Protection Agency (Cal/EPA) 2002; California Air Resources Board (ARB) 2009; United States Environmental Protection Agency (EPA) 2003, 2009a, 2009b, 2010, 2011a, and 2012; National Toxicology Program 2011a and 2011b.			

Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature inversions interact with the physical features of the landscape to determine the movement and dispersal of air pollutant emissions and, consequently, their effect on air quality.

Regional Air Quality

The Bay Area Air Quality Management District (BAAQMD) is the regional agency with jurisdiction for regulating air quality within the nine-county SFBAAB.

Air Pollutant Standards and Attainment Designations

Air pollutant standards have been identified by the EPA and the ARB for the following six criteria air pollutants that affect ambient air quality: ozone, NO_2, CO, SO_2, lead, and particulate matter (PM), which is subdivided into two classes based on particle size: PM equal to or less than 10 microns in diameter (PM_{10}), and PM equal to or less than 2.5 microns in diameter ($PM_{2.5}$). These air pollutants are called "criteria air pollutants," because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. California has also established standards for toxic air contaminants such as visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 3.2-3 presents the National Ambient Air Quality Standards (NAAQS) and California ambient air quality standards (CAAQS) for these aforementioned air pollutants. Note that there are no State or federal air quality standards for VOCs, benzene, or DPM.

Table 3.2-3: Federal and State Air Quality Standards in the SFBAAB

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]
Ozone	1 Hour	0.09 ppm	—
	8 Hour	0.070 ppm	0.070 ppm[f]
Nitrogen dioxide[b] (NO_2)	1 Hour	0.18 ppm	0.100 ppm
	Annual	0.030 ppm	0.053 ppm
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm
	8 Hour	9.0 ppm	9 ppm
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm
	3 Hour	—	0.5 ppm
	24 Hour	0.04 ppm	0.14 (for certain areas)
	Annual	—	0.030 ppm (for certain areas)
Lead[e]	30-day	1.5 µg/m^3	—
	Quarter	—	1.5 µg/m^3
	Rolling 3-month average	—	0.15 µg/m^3
Particulate matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3
	Mean	20 µg/m^3	—
Particulate matter ($PM_{2.5}$)	24 Hour	—	35 µg/m^3
	Annual	12 µg/m^3	12.0 µg/m^3
Visibility-reducing particles	8 Hour	See note below[d]	
Sulfates	24 Hour	25 µg/m^3	—
Hydrogen sulfide	1 Hour	0.03 ppm	—
Vinyl chloride[e]	24 Hour	0.01 ppm	—

Notes:
ppm = parts per million (concentration) µg/m^3 = micrograms per cubic meter Annual = Annual Arithmetic Mean
30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3-Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] To attain the 1-hour nitrogen dioxide 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 parts per billion (0.100 ppm).

[c] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 part per billion (ppb). The 1971 SO_2 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.

[d] Visibility reducing particles: 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.

[e] 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.

[f] The EPA Administrator approved a revised 8-hour ozone standard of 0.07 ppb on October 1, 2015. The new standard went into effect 60 days after publication of the Final Rule in the Federal Register. The Final Rule was published in the Federal Register on October 26, 2015 and became effective on December 28, 2015.

Source of effects, properties, and sources: South Coast Air Quality Management District (SCAQMD) 2007a; California Environmental Protection Agency (Cal/EPA) 2002; California Air Resources Board (ARB) 2009; United States Environmental Protection Agency (EPA) 2003, 2009a, 2009b, 2010, 2011a, and 2012; National Toxicology Program 2011a and 2011b. Source of Standards: California Air Resources Board (ARB) 2013c.

Ambient air pollutant concentrations in the SFBAAB are measured at air quality monitoring stations operated by the ARB and BAAQMD. In general, the SFBAAB experiences low concentrations of most pollutants compared to federal or State standards.

Both the EPA and ARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. "Attainment" status refers to those regions that are meeting federal and/or State standards for a specified criteria pollutant. "Nonattainment" refers to regions that do not meet federal and/or State standards for a specified criteria pollutant. "Unclassified" refers to regions where there is not enough data to determine the region's attainment status for a specified criteria air pollutant. Each standard has a different definition, or "form" of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

The current attainment designations for the SFBAAB are shown in Table 3.2-4. The SFBAAB is designated as nonattainment for the State ozone, PM_{10}, and $PM_{2.5}$, standards and nonattainment for the national ozone and $PM_{2.5}$ standards.

Table 3.2-4: San Francisco Bay Area Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment
Sulfates	Attainment	N/A
Hydrogen Sulfates	Unclassified	N/A
Visibility-reducing Particles	Unclassified	N/A
Lead	N/A	Attainment

Source: Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. January. Website: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed February 8, 2019.

Air Quality Index

The health impacts of the various air pollutants of concern can be presented in a number of ways. The clearest comparison is to the State and federal ozone standards. If concentrations are below the standard, it is safe to say that no health impact would occur to anyone. When concentrations exceed the standard, impacts will vary based on the amount by which the standard is exceeded. The EPA developed the Air Quality Index (AQI) as an easy-to-understand measure of health impacts compared with concentrations in the air. Table 3.2-5 provides a general description of the health impacts of ozone at different concentrations.

Table 3.2-5: Air Quality Index and Health Effects from Ozone

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI—51–100—Moderate	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
Concentration 55–70 ppb	**Health Effects Statements**: Unusually sensitive individuals may experience respiratory symptoms.
	Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI—101–150—Unhealthy for Sensitive Groups	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
Concentration 86–105 ppb	**Health Effects Statements**: Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
AQI—151–200—Unhealthy	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
Concentration 86–105 ppb	**Health Effects Statements**: Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI—201–300—Very Unhealthy	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
Concentration 106–200 ppb	**Health Effects Statements**: Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
Source: Air Now. 2015. AQI Calculator: AQI to Concentration. Website: http://www.airnow.gov/index.cfm?action=resources.aqi_conc_calc. Accessed July 2, 2018.	

Local Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature inversions interact with the physical features of the landscape to determine the movement and dispersal of air pollutant emissions and, consequently, their effect on air quality.

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. The air quality monitoring station closest to the project site is the Concord-Treat Boulevard Avenue Air Monitoring Site, which is located approximately 1.5 miles northeast of the project site. Table 3.2-6 summarizes the recorded ambient air data at the representative monitoring stations for years 2015 through 2017, which is the most current data available at the time of this writing. As Table 3.2-6 shows, the recorded data show exceedances of the California standards for ozone (1-hour, and 8-hour) and national standards for 8-hour ozone and $PM_{2.5}$ (24-hour) on multiple occasions from 2015 through 2017. No exceedances of either the State or national standards were recorded for CO, NO_2, SO_2, or PM_{10}. No recent monitoring data for Contra Costa County or the San Francisco Air Basin was available for CO or SO_2. Generally, no monitoring is conducted for pollutants that are no longer likely to exceed ambient air quality standards.

Table 3.2-6: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2015	2016	2017
Ozone[(1)]	1 Hour	Max 1 Hour (ppm)	0.088	**0.095**	0.082
		Days > State Standard (0.09 ppm)	0	1	0
	8 Hour	Max 8 Hour (ppm)	**0.074**	**0.075**	0.070
		Days > State Standard (0.07 ppm)	4	2	0
		Days > National Standard (0.070 ppm)[(2)]	2	2	0
CO	8 Hour	Max 8 Hour (ppm)	ND	ND	ND
		Days > State Standard (9.0 ppm)	ND	ND	ND
		Days > National Standard (9 ppm)	ND	ND	ND
NO_2[(1)]	Annual	Annual Average (ppm)	0.007	0.006	0.006
	1 Hour	Max 1 Hour (ppm)	0.033	0.0336	0.0406
		Days > State Standard (0.18 ppm)	0	0	0
SO_2	Annual	Annual Average (ppm)	ND	ND	ND
	24 Hour	Max 24 Hour (ppm)	ND	ND	ND
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})[(1)]	Annual	Annual Average (µg/m^3)	14	14	13
	24 hour	24 Hour (µg/m^3)	24.0	19.0	41.0
		Days > State Standard (50 µg/m^3)	0	0	ID
		Days > National Standard (150 µg/m^3)	0	0	ID

Table 3.2-6 (cont.): Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2015	2016	2017
Fine particulate matter ($PM_{2.5}$)[1]	Annual	Annual Average (µg/m^3)	8.8	5.9	12.0
	24 Hour	24 Hour (µg/m^3)	31.0	20.7	**89.4**
		Days > National Standard (35 µg/m^3)	0	0	6

Notes:
> = exceed ppm = parts per million µg/m^3 = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
Bold = exceedance
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
(1) Concord-Treat Boulevard
(2) On October 1, 2015, the EPA strengthened the NAAQS for ground-level ozone to 70 parts per million through the adoption of a new standard. The Final Rule went into effect on December 28, 2015.
Source: California Air Resources Board (ARB). 2018. iADAM: Air Quality Data Statistics, Concord–Treat Boulevard BAAQMD Air Monitoring Site. Website: https://www.arb.ca.gov/adam. Accessed February 27, 2019.

Air Pollution Sensitive Receptors

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others are. Land uses such as residences, schools, day care centers, hospitals, nursing and convalescent homes, and parks are considered to be the most sensitive to poor air quality, because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would be exposed to air pollution 24 hours per day, 350 days per year, for 70 years. BAAQMD defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, day care centers, hospitals, and senior-care facilities.

Project Site Vicinity

The project site is surrounded by existing residences to the north, east, and south of the project site. The closest off-site air pollution sensitive receptors in the vicinity of the project site include multi-family apartments adjacent to and east of the project site. Specifically, the closest residences to the project site are located approximately 20 feet east of the project site.

Project Site

There are currently two residences that are considered air pollution sensitive receptors located on the project site.

Existing Air Pollutant Emissions

Project Site Vicinity

The primary sources of air pollutants (both criteria air pollutant and TACs) in the project site vicinity are the building-related energy use and motor-related vehicle trips associated with the local residential uses. Other sources of emissions include space and water heating, landscape maintenance, and consumer products from nearby residential use as well as the emissions associated with rail travel along the Bay Area Rapid Transit (BART) right-of-way northwest of the project site. It should be noted that BART operates electric-powered trains and, hence, is not considered a major generator of TAC emissions.

Project Site

The source of air pollutants (both criteria air pollutant and TACs) currently at the project site are primarily from building-related energy use and motor-related vehicle trips associated with the two on-site residences.

3.2.3 - Regulatory Framework

Federal

Clean Air Act

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970, and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are particulate matter, ground-level ozone, CO, sulfur oxides, nitrogen oxides, and lead. The EPA calls these pollutants criteria air pollutants, because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards (EPA 2014)[3]. The federal standards are called NAAQS. The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards.

The federal standards were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

The Clean Air Act also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies.

[3] United States Environmental Protection Agency (EPA). 2014. Clean Air Act Requirements and History. Website: https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history. Accessed April 25, 2016.

EPA Emission Standards for New Off-Road Equipment

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, the EPA established emission standards for hydrocarbons, NO_X, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the EPA, as well as by the ARB. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

State

California Air Quality Control Plan (State Implementation Plan)

An SIP is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The SIP for the State of California is administered by the ARB, which has overall responsibility for Statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for regional air districts—an air district prepares their federal attainment plan, which is sent to the ARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

Areas designated nonattainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional State and local regulation is required to achieve the standards.

California Clean Air Act

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and continue to be some of the most severe in the nation, and required additional actions beyond the federal mandates. The ARB administers CAAQS for the 10 air pollutants designated in the CCAA. The 10 State air pollutants are the six federal standards listed above as well visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The EPA authorized California to adopt its own regulations for motor vehicles and other sources that are more stringent than similar federal regulations implementing the CAA. Generally, the planning requirements of the CCAA are less stringent than the federal CAA; therefore, consistency with the CAA will also demonstrate consistency with the CCAA.

Other ARB responsibilities include but are not limited to overseeing local air district compliance with California and federal laws; approving local air quality plans; submitting SIPs to EPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

California Health and Safety Code Section 39655 and California Code of Regulations Title 17 Section 93000 (Substances Identified as Toxic Air Contaminants)

The ARB identifies substances as TACs as defined in Health and Safety Code Section 39655 and listed in Title 17, Section 93000 of the California Code of Regulations, "Substances Identified As Toxic Air Contaminants." A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. In general, for those TACs that may cause cancer, there are thresholds set by regulatory agencies below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards. According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs for the State of California can be attributed to relatively few compounds, the most important of which is DPM from diesel-fueled engines.

California Low-emission Vehicle Program

The ARB first adopted Low-Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 State Implementation Plan. In 2012, the ARB adopted the LEV III amendments to California's LEV regulations. These amendments, also known as the Advanced Clean Car Program include more stringent emission standards for model years 2017 through 2025 for both criteria pollutants and greenhouse gas (GHG) emissions for new passenger vehicles.[4]

California On-road Heavy-duty Vehicle Program

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. The ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others.[5]

California In-use Off-road Diesel Vehicle Regulation

On July 26, 2007, the ARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale.

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[4] California Air Resources Board (ARB). 2013. Clean Car Standards—Pavley, Assembly Bill 1493. Website: http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed February 14, 2017.

[5] California Air Resources Board (ARB). 2013. The California Almanac of Air Quality and Emissions—2013 Edition. Website: http://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm. Accessed February 14, 2017.

Performance requirements of the rule are based on a fleet's average NO_X emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements, making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

The latest amendments to the Truck and Bus regulation became effective on December 31, 2014. The amended regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks.[6]

California Airborne Toxics Control Measure for Asbestos

The ARB has adopted Airborne Toxics Control Measures for sources that emit a particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of Best Management Practices (BMPs) to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos, and the project involves the demolition of existing buildings totaling approximately 14,100 square feet. BAAQMD Regulation 11 Rule 2 controls emissions from demolition and renovation of buildings and structures that may contain asbestos, and the manufacture of materials known to contain asbestos.

Asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that

[6] California Air Resources Board (ARB). 2015. On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Website: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed March 14, 2019.

has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an Air Toxics Control Measure for construction, grading, quarrying, and surface mining operations, requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity.

Verified Diesel Emission Control Strategies

The EPA's and ARB's tiered off-road emission standards only apply to new engines and off-road equipment can last several years. The ARB has developed Verified Diesel Emission Control Strategies (VDECS), which are devices, systems, or strategies used to achieve the highest level of pollution control from existing off-road vehicles, to help reduce emissions from existing engines. VDECS are designed primarily for the reduction of diesel PM emissions and have been verified by the ARB. There are three levels of VDECS, the most effective of which is the Level 3 VDECS. Tier 4 engines are not required to install VDECS because they already meet the emissions standards for lower tiered equipment with installed controls.

California Diesel Risk Reduction Plan

The ARB Diesel Risk Reduction Plan has led to the adoption of new State regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010, and 85 percent by 2020.[7]

Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), also known as the Hot Spots Act. To date, the ARB has identified more than 21 TACs, and has adopted the EPA's list of Hazardous Air Pollutants as TACs.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), a partnership between the ARB and local air districts, issues grants to replace or retrofit older engines

[7] California Air Resources Board (ARB). 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles. Website: http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf. Accessed March 14, 2019.

and equipment with engines and equipment that exceed current regulatory requirements to reduce air pollution. Money collected through the Carl Moyer Program complements California's regulatory program by providing incentives to effect early or extra emission reductions, especially from emission sources in environmental justice communities and areas disproportionately affected by air pollution. The program has established guidelines and criteria for the funding of emissions reduction projects. Within the SFBAAB, BAAQMD administers the Carl Moyer Program. The program establishes cost-effectiveness criteria for funding emission reductions projects, which under the final 2017 Carl Moyer Program Guidelines are $30,000 per weighted ton of NO_X, ROG, and PM.[8]

Regional

BAAQMD California Environmental Quality Act Air Quality Guidelines

BAAQMD is the primary agency responsible for ensuring that air quality standards (NAAQS and CAAQS) are attained and maintained in the SFBAAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB. BAAQMD prepares ozone attainment plans for the national ozone standard, clean air plans for the California standard, and PM plans to fulfill federal air quality planning requirements. BAAQMD also inspects stationary sources of air pollution; responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the Clean Air Act, the Clean Air Act Amendments of 1990, and the California Clean Air Act.

BAAQMD developed quantitative thresholds of significance for its California Environmental Quality Act (CEQA) Guidelines in 2010, which were also included in its updated 2011 Guidelines. BAAQMD's adoption of the 2010 thresholds of significance was later challenged in court. In an opinion issued on December 17, 2015, related to the BAAQMD CEQA Guidelines, the California Supreme Court held that CEQA does not generally require an analysis of the impacts of locating development in areas subject to environmental hazards unless the project would exacerbate existing environmental hazards. The Supreme Court also found that CEQA requires the analysis of exposing people to environmental hazards in specific circumstances, including the location of development near airports, schools near sources of toxic contamination, and certain exemptions for infill and workforce housing. The Supreme Court also held that public agencies remain free to voluntarily conduct this analysis not required by CEQA for their own public projects (CBIA v. BAAQMD (2016) 2 Cal.App.5th 1067, 1083).

In view of the Supreme Court's opinion, BAAQMD published a new version of its CEQA Guidelines in May 2017. The BAAQMD CEQA Guidelines state that local agencies may rely on thresholds designed to reflect the impact of locating development near areas of toxic air contamination where such an analysis is required by CEQA or where the agency has determined that such an analysis would assist in making a decision about the project. However, the thresholds are not mandatory and agencies should apply them only after determining that they reflect an appropriate measure of a project's impacts. BAAQMD's guidelines for implementation of the thresholds are for informational purposes only, to assist local agencies.

[8] California Air Resources Board (ARB). 2017. 2017 Carl Moyer Program Guidelines. Website: https://www.arb.ca.gov/msprog/moyer/guidelines/current.htm. Accessed June 2, 2018.

BAAQMD Particulate Matter Plan

To fulfill federal air quality planning requirements, BAAQMD adopted a $PM_{2.5}$ emissions inventory for year 2010 at a public hearing on November 7, 2012. The Bay Area Clean Air Plan also included several measures for reducing PM emissions from stationary sources and wood burning. On January 9, 2013, EPA issued a final rule determining that the Bay Area has attained the 24-hour $PM_{2.5}$ NAAQS, suspending federal SIP planning requirements for the SFBAAB.[9] Despite this EPA action, the SFBAAB will continue to be designated as nonattainment for the national 24-hour $PM_{2.5}$ standard until the BAAQMD submits a redesignation request and a maintenance plan to the EPA, and the EPA approves the proposed redesignation.

The Air Basin is designated nonattainment for the State PM_{10} and $PM_{2.5}$ standards, but it is currently unclassified for the federal PM_{10} standard and nonattainment for federal $PM_{2.5}$ standards. The EPA lowered the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006, and designated the Air Basin as nonattainment for the new $PM_{2.5}$ standard effective December 14, 2009.

On December 8, 2011, the ARB submitted a "clean data finding" request to the EPA on behalf of the Bay Area. If the clean data finding request is approved, then EPA guidelines provide that the region can fulfill federal $PM_{2.5}$ SIP requirements by preparing either a redesignation request and a $PM_{2.5}$ maintenance plan, or a "clean data" SIP submittal. Because peak $PM_{2.5}$ levels can vary from year to year based on natural, short-term changes in weather conditions, the BAAQMD believes that it would be premature to submit a redesignation request and $PM_{2.5}$ maintenance plan at this time. Therefore, the BAAQMD will prepare a "clean data" SIP to address the required elements, including:

- An emission inventory for primary $PM_{2.5}$, as well as precursors to secondary PM formation
- Amendments to the BAAQMD's New Source Review regulation to address $PM_{2.5}$

BAAQMD 2017 Clean Air Plan

On May 2017, the BAAQMD adopted the final Bay Area 2017 Clean Air Plan. The 2017 Clean Air Plan was prepared by the BAAQMD in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). The goals of the 2017 Clean Air Plan are to reduce regional air pollutants and climate pollutants to improve the health of Bay Area residents for the next decades. The 2017 Clean Air Plan aims to lead the region into a post-carbon economy, continue progress toward attaining all state and federal air quality standards, and eliminate health risk disparities from air pollution exposure in Bay Area communities. The Plan includes 85 distinct control measures to help the region reduce air pollutants and has a long-term strategic vision that forecasts what a clean air Bay Area will look like in year 2050. The 2017 Clean Air Plan envisions a future where by the year 2050:

- Buildings will be energy efficient—heated, cooled and powered by renewable energy.

[9] United States Environmental Protection Agency (EPA). 2013. Federal Register. Determination of Attainment for the San Francisco Bay Area Nonattainment Area for the 2006 Fine Particle Standard; California; Determination Regarding Applicability of Clean Air Act Requirements. Website: https://www.federalregister.gov/documents/2013/01/09/2013-00170/determination-of-attainment-for-the-san-francisco-bay-area-nonattainment-area-for-the-2006-fine. Accessed June 5, 2018.

- Transportation will be a combination of electric vehicles, both shared and privately owned; autonomous public transit fleets; with a large share of trips by bicycling, walking, and transit.
- The Bay Area will be powered by clean, renewable electricity and will be a leading incubator and producer of clean energy technologies leading the world in the carbon-efficiency of our products.
- Bay Area residents will have developed a low-carbon lifestyle by driving electric vehicles, living in zero net energy homes, eating low-carbon foods and purchasing goods and services with low carbon content.
- Waste will be greatly reduced, waste products will be re-used or recycled and all organic waste will be composted and put to productive use.

The focus of control measures includes aggressively targeting the largest source of GHG, ozone pollutants and particulate matter emissions—transportation. This includes more incentives for electric vehicle infrastructure, off-road electrification projects such as Caltrain and shore power at ports, and reducing emissions from trucks, school buses, marine vessels, locomotives and off-road equipment. Additionally, the Air District will continue to work with regional and local governments to reduce vehicle miles traveled through the further funding of rideshare, bike and shuttle programs.

BAAQMD Regulations

Regulation 2, Rule 5 (New Source Review Permitting)

The BAAQMD regulates backup emergency generators, fire pumps, and other sources of TACs through its New Source Review (Regulation 2, Rule 5) permitting process (BAAQMD 2016).[10] Although emergency generators are intended to be used only during periods of power outages, monthly testing of each generator is required; however, the BAAQMD limits testing to no more than 50 hours per year. Each emergency generator installed is assumed to meet a minimum of Tier 2 emission standards (before control measures). As part of the permitting process, the BAAQMD limits the excess cancer risk from any facility to no more than 10 per 1-million-population for any permits that are applied for within a 2-year period and would require any source that would result in an excess cancer risk greater than 1 per 1 million to install BACT for Toxics.

Regulation 8, Rule 3 (Architectural Coatings)

This rule governs the manufacture, distribution, and sale of architectural coatings and limits the reactive organic gases content in paints and paint solvents. Although this rule does not directly apply to the project, it does dictate the ROG content of paint available for use during the construction.

Regulation 8, Rule 15 (Emulsified and Liquid Asphalts)

Although this rule does not directly apply to the project, it does dictate the reactive organic gases content of asphalt available for use during the construction through regulating the sale and use of asphalt and limits the ROG content in asphalt.

[10] Bay Area Air Quality Management District (BAAQMD). 2016. NSR [New Source Review Permitting]. Website: http://www.baaqmd.gov/permits/permitting-manuals/nsr-permitting-guidance. Accessed March 4, 2019.

Regulation 1, Rule 301 (Odorous Emissions)

The BAAQMD is responsible for investigating and controlling odor complaints in the Bay Area. The agency enforces odor control by helping the public to document a public nuisance. Upon receipt of a complaint, the BAAQMD sends an investigator to interview the complainant and to locate the odor source if possible. The BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or more confirmed complaints per year averaged over 3 years is considered to have a substantial effect on receptors.

Several BAAQMD regulations and rules apply to odorous emissions. Regulation 1, Rule 301 is the nuisance provision that states that sources cannot emit air contaminants that cause nuisance to a number of persons. Regulation 7 specifies limits for the discharge of odorous substances where the BAAQMD receives complaints from 10 or more complainants within a 90-day period. Among other things, Regulation 7 precludes discharge of an odorous substance that causes the ambient air at or beyond the property line to be odorous after dilution with 4 parts of odor-free air, and specifies maximum limits on the emission of certain odorous compounds.

Plan Bay Area

On July 18, 2013, ABAG and the MTC approved the Plan Bay Area. The Plan Bay Area includes integrated land use and transportation strategies for the region and was developed through OneBayArea, a joint initiative between ABAG, BAAQMD, MTC, and the San Francisco Bay Conservation and Development Commission. The plan's transportation policies focus on maintaining the extensive existing transportation network and utilizing these systems more efficiently to handle density in Bay Area transportation cores.[11] Assumptions for land use development used are taken from local and regional planning documents. Emission forecasts in the Bay Area Clean Air Plan rely on projections of vehicle miles traveled, population, employment, and land use projections made by local jurisdictions during development of Plan Bay Area. The Plan Bay Area 2040 was adopted July 2017 and updates Plan Bay Area.

Plan Bay Area 2040, published by the MTC and ABAG, is a long-range integrated transportation and land use/housing strategy through 2040 for the Bay Area. Plan Bay Area 2040 functions as the sustainable communities' strategy mandated by Senate Bill (SB) 375. As a regional land use plan, Plan Bay Area 2040 aims to reduce per-capita greenhouse gas emissions through the promotion of more compact, mixed-use residential and commercial neighborhoods located near transit. Plan Bay Area 2040 is a limited and focused update that builds upon a growth pattern and strategies developed in the original Plan Bay Area (adopted by MTC in 2013) but with updated planning assumptions that incorporate key economic, demographic, and financial trends from the last four years.

Contra Costa County

Contra Costa County General Plan

The Contra Costa County General Plan establishes goals, objectives, and policies associated with air quality. Those goals and policies that are relevant to this analysis are listed below.

[11] Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC). 2013. Plan Bay Area. Website: https://www.planbayarea.org/previous-plan.

Conservation Element

- **Goal 8-K:** To encourage the use of renewable resources where they are compatible with the maintenance of environmental quality.
- **Goal 8-L:** To reduce energy use in the County to avoid risks of air pollution and energy shortages which could prevent orderly development.
- **Goal 8-AA**: To meet Federal Air Quality Standards for all air pollutants.
- **Goal 8-AB**: To continue to support Federal, State and regional efforts to reduce air pollution in order to protect human and environmental health.
- **Goal 8-AC**: To restore air quality in the area to a more healthful level.
- **Goal 8-AD**: To reduce the percentage of Average Daily Traffic (ADT) trips occurring at peak hours.
- **Policy 8-101**: A safe, convenient and effective bicycle and trail system shall be created and maintained to encourage increased bicycle use and walking as alternatives to driving.
- **Policy 8-102**: A safe and convenient pedestrian system shall be created and maintained in order to encourage walking as an alternative to driving.
- **Policy 8-107**: New housing in infill and peripheral areas which are adjacent to existing residential development shall be encouraged.

Transportation and Circulation Element

- **Goal 5-D**: To maintain and improve air quality above air quality standards.
- **Goal 5-I**: To encourage use of transit.
- **Goal 5-J**: To reduce single-occupant auto commuting and encourage walking and bicycling.
- **Goal 5-L**: To reduce GHG emissions from transportation sources through provision of transit, bicycle, and pedestrian facilities.
- **Policy 5-3**: Transportation facilities serving new urban development shall be linked to and compatible with existing and planned roads, bicycle facilities, pedestrian facilities and pathways of adjoining areas, and such facilities shall use presently available public and semi-public rights of way where feasible.
- **Policy 5-23**: All efforts to develop alternative transportation systems to reduce peak period traffic congestion shall be encouraged.
- **Policy 5-24**: Use of alternative forms of transportation, such as transit, bike and pedestrian modes, shall be encouraged in order to provide basic accessibility to those without access to a personal automobile and to help minimize automobile congestion and air pollution.
- **Policy 5-25**: Improvement of public transit shall be encouraged to provide for increased use of local, commuter and intercity public transportation.

3.2.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 CEQA Guidelines Appendix G, to determine whether impacts related to air quality are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

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?

Approach to Analysis

Emission factors represent the emission rate of a pollutant over a given time or activity; for example, grams of NO_X per vehicle mile traveled (VMT) or grams of NO_X per horsepower hour of equipment operation. The ARB has published emission factors for on-road mobile vehicles/trucks in the EMFAC mobile source emissions model and emission factors for off-road equipment and vehicles in the OFFROAD emissions model. Activity levels are a measure of how active a piece of equipment is and can be represented as the amount of material processed, elapsed time that a piece of equipment is in operation, horsepower of a piece of equipment used, or VMT per day. An air emissions model (or calculator) combines the emission factors and the various levels of activity and outputs the emissions for the various pieces of equipment.

The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was developed in collaboration with the South Coast Air Quality Management District and other air districts throughout the State. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with construction and operation from a variety of land uses.

The modeling follows BAAQMD guidance where applicable from its CEQA Air Quality Guidelines. The models used in this analysis are summarized as follows:

- Construction criteria pollutant and precursor emissions: CalEEMod, version 2016.3.2
- Operational criteria pollutant and precursor emissions: CalEEMod, version 2016.3.2
- Construction TAC emission air dispersion assessment: EPA AERMOD dispersion model, version 18081

The following criteria air pollutants and precursors are assessed in this analysis:

- Reactive organic gases (ROG)
- Nitrogen oxides (NO_X)
- Carbon monoxide (CO)
- Particulate matter less than 10 microns in diameter (PM_{10})
- Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)

Note that the project would emit ozone precursors ROG and NO_X. However, the project would not directly emit ozone, since it is formed in the atmosphere during the photochemical reactions of the ozone precursors.

Construction-related Criteria Pollutants

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from both on-site and off-site activities. On-site emissions consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Additionally, paving operations and application of architectural coatings would release ROG emissions. Off-site emissions result from motor vehicle exhaust from delivery vehicles, worker traffic and road dust (PM_{10} and $PM_{2.5}$).

Schedule

The project would construct multi-family housing, an enclosed parking structure, and the necessary utility and roadway infrastructure. Construction was assumed to take place 5 days per week and 8 hours per day from July 2020 to July 2022. Construction activities would include demolition, site preparation, grading, building construction, paving, architectural coating. Additional grading and paving would be associated with the additional 0.15 acre of asphalt paving for roadway improvements along Del Hombre Lane and Honey Trail. The construction start date, total construction duration, and construction equipment usage were adjusted to match estimates provided by the project applicant. The construction schedule used to estimate emissions is shown in Table 3.2-7.

Table 3.2-7: Conceptual Construction Schedule

Construction Activity	Conceptual Construction Schedule		Working Days
	Start Date	End Date	
Demolition	7/13/2020	8/23/2020	30
Site Preparation	8/24/2020	9/20/2020	20
Grading	9/21/2020	1/10/2021	80
Building Construction	1/11/2021	5/8/2022	345
Architectural Coating	2/14/2022	6/5/2022	80
Paving	6/6/2022	7/3/2022	20
Off-site Roadway Improvements Grading	6/6/2022	6/14/2022	7
Source: FirstCarbon Solutions (FCS) and CalEEMod, based on project-specific information (Appendix B).			

Equipment Tiers and Emission Factors

Equipment tiers refer to a generation of emission standards established by the EPA and ARB that apply to diesel engines in off-road equipment. The “tier” of an engine depends on the model year and horsepower rating; generally, the newer a piece of equipment is, the greater the tier it is likely to have. Excluding engines greater than 750 horsepower, Tier 1 engines were manufactured generally between 1996 and 2003. Tier 2 engines were manufactured between 2001 and 2007. Tier 3 engines were manufactured between 2006 and 2011. Tier 4 engines are the newest and some incorporate hybrid electric technology; they were manufactured after 2007.

Construction emissions are generally calculated as the product of an activity factor and an emission factor. The activity factor for construction equipment is a measure of how active a piece of equipment is and can be represented as the amount of material processed, elapsed time that a piece of equipment is in operation, horsepower of a piece of equipment used, or the amount of fuel consumed in a given amount of time. The emission factor relates the process activity to the amount of pollutant emitted. Examples of emission factors include grams of emissions per miles traveled and grams of emissions per horsepower-hour. The operation of a piece of equipment is tempered by its load factor which is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operates at its maximum operating capacity. This analysis uses the CalEEMod default load factors for off-road equipment.

On-site Off-road Equipment

CalEEMod contains built-in inventories of construction equipment for a variety of land use construction projects that incorporate estimates of the number of equipment, their age, their horsepower, and emission control equipment tier mix from which rates of emissions are developed. These inventories were developed based on construction surveys for several land use projects. Table 3.2-8 presents the construction equipment used on the project as derived from CalEEMod. The CalEEMod default emission control equipment tier mix was used in this analysis for the estimation of unmitigated emissions from on-site diesel construction equipment. The construction equipment types and hours per day were adjusted to match expected construction equipment usage provided by the applicant.

Table 3.2-8: Project Construction Equipment Assumptions

Phase Name	Working Days per Phase	Equipment	Number of Pieces of Equipment	Hours per Phase per Piece of Equipment	Average Hours per Day per Piece of Equipment	Horsepower	Load Factor
Demolition	30	Concrete/Industrial Saws	1	57	1.90	81	0.73
		Excavators	1	57	1.90	158	0.38
		Tractors/Loaders/Backhoes	3	30	1.00	97	0.37
Site Preparation	20	Graders	1	80	4.00	187	0.41
		Tractors/Loaders/Backhoes	1	70	3.50	97	0.37
Grading	80	Excavators	1	480	6.00	158	0.38
		Off-Highway Trucks	1	240	3.00	402	0.38
		Tractors/Loaders/Backhoes	2	312	3.90	97	0.37
Building Construction	345	Cranes[1]	1	2,760	8.00	231	0.29
		Forklifts[2]	1	2,415	7.00	89	0.20
		Welders	1	449	1.30	46	0.45
Architectural Coating	80	Aerial Lifts	1	80	1.00	63	0.31
		Air Compressors	5	360	4.50	78	0.48

Table 3.2-8 (cont.): Project Construction Equipment Assumptions

Phase Name	Working Days per Phase	Equipment	Number of Pieces of Equipment	Hours per Phase per Piece of Equipment	Average Hours per Day per Piece of Equipment	Horsepower	Load Factor
Paving	20	Pavers	1	40	2.00	130	0.42
		Paving Equipment	1	40	2.00	132	0.36
		Rollers	1	16	0.80	80	0.38
		Tractors/Loaders/Backhoes	1	32	1.60	97	0.37
Off-site Roadway Improvements	7	Concrete/Industrial Saws	1	16	8	81	0.73
		Rubber Tired Dozers	1	2	1	247	0.40
		Tractors/Loaders/Backhoes	2	12	6	97	0.37
		Cement and Mortar Mixers	4	30	6	9	0.56
		Pavers	1	35	7	130	0.42
		Rollers	1	35	7	80	0.38
		Tractors/Loaders/Backhoes	1	35	7	97	0.37

Notes:
[1] Consistent with the applicant-provided construction equipment list, the crane was assumed to be electric.
[2] The forklift used during the building construction phase is anticipated to be powered by liquid propane or compressed natural gas rather than default assumption of diesel.
Source: Appendix B.

Demolition, Site Preparation, and Grading

The project site is currently occupied by two existing single-story residences and associated accessory structures. To clear the site to allow for the construction of the proposed apartment building, the project includes demolition of the existing residential buildings totaling approximately 3,350 square feet and the removal of hardscape totaling approximately 1,000 square feet. Trips associated with demolition were included in the estimation of emissions, as shown below in Table 3.2-9.

During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt into haul trucks. Each activity is calculated differently in CalEEMod, based on the number of acres traversed by the grading equipment.

Only some pieces of equipment are assumed to generate fugitive dust in CalEEMod. The CalEEMod model manual identifies various equipment and the acreage disturbed in an 8-hour day for each piece of equipment:

- **Crawler tractors, graders, and rubber tired dozers:** 0.5 acre per 8-hour day
- **Scrapers:** 1 acre per 8-hour day

Approximately 29,000 cubic yards of material would be exported during construction of the project. The haul trucks required to export this amount of soil were incorporated into the emission calculation, as shown below in Table 3.2-9.

Off-site On-road Vehicle Trips

The CalEEMod defaults were retained for the parameters related to construction off-site trips. Additional vendor trips were added to the grading and paving phases to account for additional off-site emissions from water trucks during the grading phase and cement trucks during the paving phase. CalEEMod default values include a worker trip length of 10.8 miles, a vendor trip length of 7.3 miles, and a hauling trip length of 20 miles. A summary of the construction-related trips is shown in Table 3.2-9.

Table 3.2-9: Construction Off-site Trips

Activity	Construction Trips per Day		Total Construction Trips
	Worker	Vendor	Haul
Demolition	13	0	4
Site Preparation	5	0	0
Grading	10	6	3,675
Building Construction	277	59	0
Architectural Coating	55	0	0
Paving	10	6	0
Off-site Roadway Improvements	28	0	0
Source: Appendix B.			

Off-Gassing Materials

Asphalt paving and architectural coating materials used during construction would generate off-gas emissions of ROGs. The data collection process determined the acres of asphalt paving required, which CalEEMod uses to determine associated ROG emissions. CalEEMod contains assumptions for application of architectural coatings that are based on the land use type and square footage of the buildings to be constructed and were used to quantify emissions.

Operation-related Criteria Pollutants

Operational emissions were analyzed assuming full-buildout of the project in 2022, which is the earliest year of project operations based on the conceptual construction schedule presented above in Table 3.2-7.

On-road Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the project site. The mobile source emissions from the project depend on a number of factors including the number of trips a project would generate each day among other

factors including trip distances and types of trips, and vehicle class (cars vs. trucks). Trip generation rates used in estimating mobile-source emissions were consistent with those presented in the Del Hombre Apartments Transportation Impact Assessment (TIA) prepared by Fehr & Peers. As detailed in the TIA, the project is expected to generate approximately 1,800 net daily vehicle trips. The vehicle trips estimated for the project includes a 20-percent reduction based on the project's proximity to existing transit and pedestrian pathways and five-percent increase to account for Transportation Company use. The CalEEMod trip purposes (e.g., primary, pass-by) and default round trip lengths for an urban setting for Contra Costa County were used in this analysis. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix for Contra Costa County was used for this analysis.

Architectural Coatings

Paints release VOC/ROG emissions during application and drying. The buildings in the project would be repainted on occasion. Based on CalEEMod defaults, it is assumed that the buildings would be recoated once every 10 years. The project is required to comply with the BAAQMD Regulation 8, Rule 3—Architectural Coatings. This rule governs the manufacture, distribution, and sale of architectural coatings and limits the ROG content in paints and paint solvents.

Consumer Products

Consumer products are various solvents used in non-industrial applications, which emit VOCs during their product use. "Consumer Product" means a chemically formulated product used by household and institutional consumers, including but not limited to: detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. It does not include other paint products, furniture coatings, or architectural coatings.[12] The default emission factor developed for CalEEMod was used.

Landscape Equipment

CalEEMod was used to estimate the landscaping equipment emissions using the default assumptions in the model.

Electricity

Electricity used by the project (for lighting, etc.) would result in emissions from the power plants that would generate electricity distributed on the electrical power grid. Off-site electricity emissions estimates are more pertinent to the analysis of GHG emissions.

Natural Gas

The project would generate emissions from the combustion of natural gas for water heaters, heat, etc. CalEEMod has two categories for natural gas consumption: Title 24 and non-Title 24. The Title 24 uses are defined as the major building envelope systems covered by California's Building Code

[12] California Air Resources Board (ARB). 2011. Regulation for Reducing Emissions from Consumer Products. Website: www.arb.ca.gov /consprod/regs/fro%20consumer%20products%20regulation.pdf. Accessed March 14, 2019.

Title 24 Part 6, such as space heating, space cooling, water heating, and ventilation. CalEEMod defaults were used.

Construction- and Operation-related Toxic Air Contaminants

TACs are air pollutants in miniscule amounts in the air that, if a person is exposed to them, could increase the chances of experiencing health problems. Exposures to TAC emissions can have both chronic long-term (over a year or longer) and acute short-term (over a period of hours) health impacts. Construction-period TAC emissions could contribute to increased health risks to nearby residents or sensitive receptors.

An assessment was made of the potential health impacts to surrounding sensitive receptors resulting from TAC emissions during project construction. The TACs of greatest concern are those that cause serious health problems or affect many people. Health problems can include cancer, respiratory irritation, nervous system problems, and birth defects. Some health problems occur soon after a person inhales TACs. These immediate effects may be minor, such as watery eyes; or they may be serious, such as life-threatening lung damage. Other health problems may not appear until many months or years after a person's first exposure to the TAC. Cancer is one example of a delayed health problem.

Fine particle pollution or $PM_{2.5}$ describes particulate matter that is 2.5 micrometers in diameter and smaller—one-thirtieth the diameter of a human hair. Fine particle pollution can be emitted directly or formed secondarily in the atmosphere. $PM_{2.5}$ health impacts are important because their size can be deposited deeply in the lungs causing respiratory effects.

For purposes of this analysis, exhaust emissions of DPM, are represented as exhaust emissions of $PM_{2.5}$. Studies indicate that DPM poses the greatest health risk among airborne TACs. A 10-year research program conducted by the ARB demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic long-term health risk. DPM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Odors

The impact analysis qualitatively evaluates the types of land uses proposed to evaluate whether major sources of anticipated odors would be present and, if so, whether those sources would likely generate objectionable odors. According to the BAAQMD's CEQA Air Quality Guidelines, a project that involves the siting of a new odor source would consider the screening level distances and the complaint history of the odor sources, described below. Projects that would site a new odor source farther than the screening-level distances provided in Table 3.2-10 would not likely result in a significant odor impact.

Table 3.2-10: BAAQMD Odor Screening-level Distances Thresholds

Land Use/Type of Operation	Project Screening Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Metal Smelting Plants	2 mile
Source: Bay Area Air Quality Management District (BAAQMD) 2017.	

Specific Thresholds of Significance

Consistency with Air Quality Plan

The applicable air quality plan is BAAQMD's 2017 Bay Area Clean Air Plan, which identifies measures to:

- Reduce emissions and reduce ambient concentrations of air pollutants;
- Safeguard public health by reducing exposure to the air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and
- Reduce GHG emissions to protect the climate.

A project would be determined to conflict with or obstruct implementation of an applicable air quality plan if it would result in substantial new regional emissions not foreseen in the air quality planning process.

Ambient Air Quality

Where available, the significance thresholds established by the applicable air quality management or air pollution control district may be relied upon to make the significance determinations. While the final determination of whether or not a project is significant is within the purview of the lead agency pursuant to CEQA Guidelines Section 15064(b), the BAAQMD recommends that its quantitative and qualitative air pollution thresholds be used to determine the significance of project-related emissions.

In June 2010, BAAQMD adopted thresholds of significance to assist lead agencies in the review of projects under CEQA. These thresholds (see Table 3.2-11) were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and included in the BAAQMD's current CEQA Guidelines (updated May 2017).[13]

Table 3.2-11: BAAQMD Thresholds of Significance

Pollutant	Construction Thresholds Average Daily Emissions	Operational Thresholds	
		Average Daily Emissions	Annual Average Emissions
Criteria Air Pollutants			
ROG	54 pounds/day	54 pounds/day	10 tons/year
NO_X	54 pounds/day	54 pounds/day	10 tons/year
PM_{10}	82 pounds/day	82 pounds/day	15 tons/year
$PM_{2.5}$	54 pounds/day	54 pounds/day	10 tons/year
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other BMPs	Not Applicable	
Health Risks and Hazards for New Sources			
Excess Cancer Risk	10 per one million	10 per one million	
Chronic or Acute Hazard Index	1.0	1.0	
Incremental annual average $PM_{2.5}$	0.3 $\mu g/m^3$	0.3 $\mu g/m^3$	
Health Risks and Hazards for Sensitive Receptors (Cumulative from All Sources within 1,000-Foot Zone of Influence) and Cumulative Thresholds for New Sources			
Excess Cancer Risk	100 per 1 million		
Chronic Hazard Index	10.0		
Annual Average $PM_{2.5}$	0.8 $\mu g/m^3$		

[13] Bay Area Air Quality Management District (BAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed March 14, 2017.

Table 3.2-11 (cont.): BAAQMD Thresholds of Significance

Pollutant	Construction Thresholds Average Daily Emissions	Operational Thresholds	
		Average Daily Emissions	Annual Average Emissions
Accidental Release of Acutely Hazardous Air Pollutants			
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or new receptors locating near stored or used acutely hazardous materials considered significant	

Notes:
ROG = reactive organic gases
NO_X = nitrogen oxides
PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less
$PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less
Source: Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may 2017-pdf.pdf?la=en. Accessed March 14, 2017.

Air Quality-related Health Risk

The air quality-related health risk significance thresholds utilized for this assessment were derived from the BAAQMD significance thresholds as project-specific thresholds. These thresholds are:

- Cancer Risk: 10 in one million
- Non-cancer Hazard Index: 1.0
- Annual $PM_{2.5}$: 0.3 $\mu g/m^3$

Odors

The significance thresholds for odor impacts are qualitative in nature. Specifically, an odor-generating source with five or more confirmed complaints in the new source area per year averaged over three years is considered to have a significant impact on receptors within the screening distances shown above under Approach to Analysis.

Impact Evaluation

Air Quality Management Plan Consistency

Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan.

Construction and Operation

The SFBAAB is designated as a nonattainment area for State standards for 1-hour and 8-hour ozone, 24-hour PM_{10}, annual PM_{10}, and annual $PM_{2.5}$ and nonattainment for the national ozone and $PM_{2.5}$ standards.[14] To address regional air quality standards, the BAAQMD has adopted several air quality

[14] Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. January. Website: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed March 5, 2019.

policies and plans, and in April 2017, the BAAQMD adopted their 2017 Clean Air Plan,[15] which serves as the regional Air Quality Plan for the Air Basin for attaining federal ambient air quality standards. A project would be determined to conflict with or obstruct implementation of a regional air quality plan if it would result in substantial new regional emissions not foreseen in the air quality planning process. Regional emissions forecasts in the air quality plan are based on population and employment forecasts included in City and County General Plans.

As discussed in Section 3.10, Land Use and Planning, the Contra Costa County General Plan designates the project site as Multiple-Family Residential-Very High Density (MV). Pursuant to the General Plan Land Use Element, the MV designation allows between 30.0 and 44.9 multiple-family units per acre. Proposed land uses consist of multiple-family residences including apartments and condominiums as well as accessory buildings and structures ancillary to the primary uses. The project is requesting an amendment to the Contra Costa County General Plan to re-designate the project site from MV to Multiple-Family Residential-Very Special High (MS) that would allow between 45.0 and 99.9 multiple-family units per acre. Although the project includes an amendment to the Contra Costa County General Plan, the project would be consistent with the suburban, transit-oriented residential character of the surrounding area and the residential density envisioned in the Contra Costa County General Plan.

As discussed in Section 3.12, Population and Housing, the project would not result in substantial population, housing, or employment growth in excess of that analyzed for the Contra Costa County planning area and anticipated under local and regional projections for Contra Costa County. As such, the project would not result in a substantial unplanned increase in population, employment, or associated regional growth in terms of vehicle miles traveled, so it would not conflict with or obstruct implementation of the Air Quality Plan. Therefore, the impact related to air quality management plan consistency would be less than significant.

Level of Significance

Less Than Significant

Cumulative Criteria Pollutant Emissions

Impact AIR-2:	**The project could result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment under an applicable federal or State ambient air quality standard.**

Impact Analysis

In developing thresholds of significance for criteria air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively significant. As such, if a project exceeds the identified thresholds of significance, its emissions would be significant in terms of both project- and cumulative-level impacts, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Thus, this impact analysis and discussion is related to the project- and cumulative-level effect of the project's regional criteria air pollutant emissions.

[15] Bay Area Air Quality Management District (BAAQMD). 2017. Final 2017 Clean Air Plan. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed March 14, 2017.

The region is non-attainment for the federal and State ozone standards, the State PM_{10} standards, and the federal and State $PM_{2.5}$ standards. Potential impacts would result in exceedances of State or federal standards for NO_X or particulate matter (PM_{10} and $PM_{2.5}$). NO_X emissions are of concern because of potential health impacts from exposure to NO_X emissions during both construction and operation and as a precursor in the formation of airborne ozone. PM_{10} and $PM_{2.5}$ are of concern during construction, because of the potential to emit exhaust emissions from the operation of off-road construction equipment and fugitive dust during earth-disturbing activities (construction fugitive dust).

ROG emissions are also important, because of their participation in the formation of airborne ozone. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children.

By its nature, air pollution is largely a cumulative impact resulting from emissions generated over a large geographic region. The nonattainment status of regional pollutants is a result of past and present development within the air basin, and this regional impact is a cumulative impact. In other words, new development projects (such as the project) within the air basin would contribute to this impact only on a cumulative basis. No single project would be sufficient in size, by itself, to result in nonattainment of regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively significant when taken in combination with past, present, and future development projects.

The cumulative analysis focuses on whether a specific project would result in cumulatively significant emissions. According to Section 15064(h)(4) of the CEQA Guidelines, the existence of significant cumulative impacts caused by other projects alone does not constitute substantial evidence that the project's incremental effects would be cumulatively significant. Rather, the determination of cumulative air quality impacts for construction and operational emissions is based on whether the project would result in regional emissions that exceed the BAAQMD regional thresholds of significance for construction and operations on a project level. The thresholds of significance represent the allowable amount of emissions each project can generate without generating a cumulatively significant contribution to regional air quality impacts. Therefore, a project that would not exceed the BAAQMD thresholds of significance on the project level also would not be considered to result in a cumulatively significant impact with regard to regional air quality and would not be considered to result in a significant impact related to cumulative regional air quality.

Construction

During construction, fugitive dust (PM_{10} and $PM_{2.5}$) would be generated from site grading and other earth-moving activities. The majority of this fugitive dust would remain localized and would be deposited near the project site. However, the potential for impacts from fugitive dust exists unless control measures are implemented to reduce the emissions from this source. Exhaust emissions would also be generated from the operation of the off-road construction equipment, as shown in Table 3.2-12 and Table 3.2-13.

Construction Fugitive Dust

Project construction would require general site clearing and grading/earthwork activities. Emissions from construction activities are generally short-term in duration, but may still cause adverse air quality impacts. The project would generate emissions from construction equipment exhaust, worker travel, and fugitive dust as PM_{10} and $PM_{2.5}$. PM is of concern during construction because of the potential to emit fugitive dust during earth-disturbing activities (construction fugitive dust). During construction, fugitive dust (PM) would be generated from site grading and other earth-moving activities. The majority of this fugitive dust would remain localized and would be deposited near the project site.

The BAAQMD does not have a quantitative significance threshold for fugitive dust. BAAQMD's Air Quality Guidelines recommend that projects determine the significance for fugitive dust through application of BMPs. The project does not currently include any dust control measures, resulting in the potential for a significant impact. As such, this represents a potentially significant cumulative construction impact related to criteria air pollutant emissions.

However, per Mitigation Measure (MM) AIR-2, the fugitive dust control measures identified in the BAAQMD's Air Quality Guidelines would be required to be implemented during construction in order to reduce localized dust impacts. Therefore, with implementation of MM AIR-2, cumulative construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation in terms of criteria air pollutant emissions specific to fugitive dust would be less than significant with mitigation.

Construction Emissions: ROG, NO_X, PM_{10}, $PM_{2.5}$

As described above under Approach to Analysis, CalEEMod was used to estimate the project's construction emissions. Estimated construction emissions are compared with the applicable thresholds of significance established by the BAAQMD to assess ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$ construction emissions to determine significance for this criterion.

As shown in Table 3.2-8, construction of the project was assumed to begin in July 2020 and conclude in July of 2022 based on the tentative construction schedule provided by the project applicant. Construction emissions would likely decrease because of improvements in technology and more stringent regulatory requirements if the construction schedule moves to later years. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required by CEQA Guidelines. The construction emissions modeling parameters and assumptions are summarized above under Approach to Analysis, as the complete modeling results are provided in Appendix B. Annual construction emissions are shown by source in Table 3.2-12, while average daily construction emissions are compared with the applicable significance thresholds in Table 3.2-13.

Table 3.2-12: Annual Construction Emissions (Unmitigated)

Construction Activity	Emissions (Tons/Year)			
	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
2020 Construction Emissions	0.05	0.82	0.02	0.02
2021 Construction Emissions	0.15	1.04	0.01	0.01
2022 Construction Emissions	3.12	0.59	0.02	0.02
Total Construction Emissions (2019–2020)	**3.32**	**2.45**	**0.04**	**0.04**

Notes:
ROG = reactive organic gases NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
All construction equipment other than cranes and forklifts were assumed to be diesel-powered. Consistent with applicant-provided information, it was assumed that cranes would be powered by electricity, and forklifts would be powered by liquid propane or compressed natural gas.
Unrounded numbers from the CalEEMod output were used for all calculations.
Source: CalEEMod Output (see Appendix B).

Table 3.2-13: Average Daily Construction Emissions (Unmitigated)

Parameter	Air Pollutants			
	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Total Emissions (tons/year)	3.32	2.45	0.04	0.04
Total Emissions (lbs/year)	6,630	4,895	81	78
Average Daily Emissions (lbs/day)[1]	12.87	9.50	0.16	0.15
Significance Threshold (lbs/day)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	No	No	No	No

Notes:
[1] Calculated by dividing the total lbs by the total 515 working days of construction for the duration of construction (2020–2022).
Calculations use unrounded totals.
lbs = pounds ROG = reactive organic gases NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
Source: CalEEMod Output (see Appendix B).

As shown in Table 3.2-13, combined construction emissions from all construction activities are below the recommended thresholds of significance in regards to ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$. Therefore, cumulative construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation in terms of criteria air pollutant emissions specific to ROG, NO_X, PM_{10}, and $PM_{2.5}$ would be less than significant.

Operational

Operational Emissions: ROG, NO_X, PM_{10}, $PM_{2.5}$

Operational pollutants of concern during operations include ROG, NO_X, PM_{10}, and $PM_{2.5}$. Operations were analyzed assuming full-buildout in 2022. Assumptions used to estimate operational emissions were consistent with those presented in the Del Hombre Apartments TIA prepared by Fehr & Peers. Consistent with the traffic study, the baseline vehicle trips and associated emissions were assumed to be zero. The CalEEMod default trip lengths for an urban setting in Contra Costa County were used in this analysis of vehicle emissions. The major sources for operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ are described above in Approach to Analysis. The project operational emissions for the respective pollutants were calculated using CalEEMod version 2016.3.2. The results for the annual emissions from project operations are presented in Table 3.2-14, while estimated maximum daily emissions are shown in Table 3.2-15.

Table 3.2-14: Annual Operational Emissions (Unmitigated)

Emissions Source	Tons per Year			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area	2.04	0.03	0.01	0.01
Energy	0.01	0.11	0.01	0.01
Mobile	0.44	2.03	1.55	0.43
Estimated Annual Emissions	2.50	2.18	1.57	0.45
Thresholds of Significance	**10**	**10**	**15**	**10**
Exceeds Significance Threshold?	No	No	No	No

Notes:
ROG = reactive organic gases NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns or less in diameter
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
Source: CalEEMod Output (see Appendix B).

Table 3.2-15: Maximum Daily Operational Emissions (Unmitigated)

Emissions Source	Pounds per Day			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area	11.65	1.10	0.20	0.20
Energy	0.07	0.63	0.05	0.05
Mobile	3.20	12.55	9.73	2.66
Estimated Maximum Daily Project Emissions	14.92	14.27	9.98	2.91
Thresholds of Significance	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	No	No	No	No

Table 3.2-15 (cont.): Maximum Daily Operational Emissions (Unmitigated)

Emissions Source	Pounds per Day			
	ROG	NO_X	PM_{10}	$PM_{2.5}$

Notes:
ROG = reactive organic gases NO_X = nitrous oxides
PM_{10} = particulate matter 10 microns or less in diameter
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
The highest daily project emissions occurred in the winter run for NO_X, PM_{10}, and $PM_{2.5}$. The highest ROG emissions occurred in the summer run.
Calculations use unrounded results.
Source: CalEEMod Output (see Appendix B).

As shown in Table 3.2-14 and Table 3.2-15, the project would not result in operational-related air pollutants or precursors that would exceed BAAQMD's thresholds of significance, indicating that on-going project operations would not be considered to have the potential to generate a significant quantity of air pollutants. Therefore, cumulative operational impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation in terms of criteria air pollutant emissions would be less than significant.

Level of Significance

Potentially Significant

Mitigation Measures

MM AIR-2 Implement BAAQMD Best Management Practices (BMP) During Construction

During construction, the following BMPs, as recommended by the BAAQMD, shall be implemented:

- Exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or more as needed.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads and surfaces shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks shall be paved as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact both at Contra Costa County and at the office of the General Contractor regarding dust complaints. This person shall respond and take corrective action within 2 business days of a complaint or issue notification. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Level of Significance After Mitigation

Less Than Significant with Mitigation

Sensitive Receptors Exposure to Toxic Air Contaminant Concentrations

Impact AIR-3:	**The project would expose sensitive receptors to substantial pollutant concentrations.**

This impact addresses whether the project would expose air pollution sensitive receptors to TACs such as construction-related asbestos during disturbance, construction-generated fugitive dust (PM_{10} and $PM_{2.5}$), construction-related TACs, construction-generated DPM, operational-related TACs, or operational CO hotspots. The modeling assumptions and methodology for the construction health risk assessment are provided in Appendix B.

As a residential project, the project itself would be considered a sensitive receptor once operational. The project site is surrounded by existing residences to the north, east, and south of the project site. The closest off-site air pollution sensitive receptors in the vicinity of the project site include multi-family apartments adjacent to and east of the project site.

Construction

Construction Asbestos Exposure

Asbestos from Demolition

Structures to be demolished sometimes contain asbestos-containing materials (ACM). The project site is currently occupied by two existing single-story residences (3018 Del Hombre Lane and 112 Roble Road) and associated accessory structures that would be demolished as part of the project. Demolition of existing buildings and structures would be subject to BAAQMD Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). BAAQMD Regulation 11, Rule 2 is intended to limit asbestos emissions from demolition or renovation of structure and the associated disturbance of ACM generated or handled during these activities. The rule addresses the national emissions standards for asbestos along with some additional requirements. The rule requires the Lead Agency and its contractors to notify BAAQMD of any regulated renovation or demolition activity. This notification includes a description of structures and methods utilized to determine whether ACMs are potentially present. All ACM found on-site must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, including specific requirements for surveying, notification, removal, and disposal of ACMs. Therefore, projects that comply with BAAQMD Regulation 11, Rule 2 would ensure that ACM would be removed and

disposed of appropriately and safely. By complying with BAAQMD Regulation 11, Rule 2, thereby minimizing the release of airborne asbestos emissions, demolition activity would not result in a significant impact to air quality.

Naturally Occurring Asbestos

The California Department of Conservation Division of Mine Reclamation (DMR) published a guide for generally identifying areas that are likely to contain naturally occurring asbestos. The associated California Geological Survey map indicates that there are several locations within Contra Costa County that are likely to contain naturally occurring asbestos; however, none of these sites are located within a 1-mile vicinity of the project site.[16] Therefore, it can be reasonably concluded that the project would not expose sensitive receptors to naturally occurring asbestos during project construction. Impacts would be less than significant.

Construction Fugitive Dust

Activities associated with earth-moving activities and construction would generate short-term emissions of fugitive dust resulting in increased dust fall and locally elevated levels of PM_{10} and $PM_{2.5}$ downwind of construction activity. Construction dust has the potential for creating a nuisance at nearby properties. As addressed under Impact AIR-2, MM AIR-2 is included to ensure that the BAAQMD BMPs would be implemented to reduce fugitive dust emissions from construction activities to less than significant. Implementation of AIR-2 would ensure impacts related to generation of localized fugitive dust during construction of the project would be less than significant with mitigation.

Project-specific Construction TACs

A Health Risk Assessment (HRA) is a guide that helps to determine whether current or future exposures to a chemical or substance in the environment could affect the health of a population. In general, risk depends on the following factors:

- Identify the TACs that may be present in the air;
- Estimate the amount of TACs released from all sources, or the source of particular concern, using air samples or emission models;
- Estimate concentrations of TACs in air in the geographic area of concern by using dispersion models with information about emissions, source locations, weather, and other factors; and
- Estimate the number of people exposed to different concentrations of the TAC at different geographic locations.

During construction, the project would result in the emissions of TACs that could potentially impact nearby sensitive receptors. TACs are the air pollutants of most concern as it relates to sensitive receptors, as they have the greatest potential to pose a carcinogenic and non-carcinogenic (such as asthma and bronchitis) hazard to human health. The BAAQMD has defined health risk significance thresholds as discussed under Specific Thresholds of Significance above. These thresholds are represented as a cancer risk to the public and a non-cancer hazard from exposures to TACs. Cancer

[16] California Department of Conservation, Division of Mine Reclamation. 2000. A General Location Guide for Ultramafic Rocks in California—Areas More likely to Contain Naturally Occurring Asbestos. August. Website: https://www.conservation.ca.gov/cgs/Pages/HazardousMinerals/asbestos2.aspx. Accessed February 27, 2019.

risk represents the probability (in terms of risk per million individuals) that an individual would contract cancer resulting from exposure to TACs continuously over a period of several years.

Construction DPM Emissions

The DPM construction emissions (as $PM_{2.5}$ exhaust emissions) were estimated using CalEEMod version 2016.3.2. The on-site DPM emissions were generated by off-road construction equipment. The off-site DPM emissions were generated by trips associated with the hauling of material, vendor trips, and worker vehicle traffic. Table 3.2-16 summarizes annual construction $PM_{2.5}$ emissions without and the application of mitigation.

Table 3.2-16: Project DPM (as $PM_{2.5}$ Exhaust) Construction Emissions

Scenarios	On-site DPM (grams/sec)	Road Segment 1 Off-site $PM_{2.5}$ DPM (grams/sec)	Road Segment 2 Off-site $PM_{2.5}$ DPM (grams/sec)	Road Segment 3 Off-site $PM_{2.5}$ DPM (grams/sec)	Road Segment 4 Off-site $PM_{2.5}$ DPM (grams/sec)
Annual Average Construction Emissions (Unmitigated)					
Unmitigated	1.996E-03	4.964E-06	4.525E-06	6.179E-06	5.428E-06
Annual Average Construction Emissions (Mitigated—Tier IV Interim Equipment)					
Mitigated	3.851E-04	4.964E-06	4.525E-06	6.179E-06	5.428E-06
Source: Appendix B.					

Air Dispersion Modeling Results

An air dispersion model is a mathematical formulation used to estimate the air quality impacts at specific locations (receptors) surrounding a source of emissions given the rate of emissions and prevailing meteorological conditions. The air dispersion model applied in this assessment was the EPA AERMOD (version 18081) air dispersion model that is approved by the BAAQMD for air dispersion assessments. Specifically, the AERMOD model was used to estimate levels of air emissions at sensitive receptor locations from the project's construction $PM_{2.5}$ exhaust and $PM_{2.5}$ total ($PM_{2.5}$ exhaust and $PM_{2.5}$ fugitive dust combined). The use of the AERMOD model provides a refined methodology for estimating construction impacts by utilizing long-term, measured representative meteorological data for the project site and a representative construction schedule.

The urban dispersion option was used to describe the air dispersion in the local vicinity of the project site. The air dispersion model assessment used meteorological data from the Metropolitan Oakland International Airport, which is approximately 17 miles southwest of the project site. The working schedule was assumed to be 8 hours per day and 5 days per week.

Receptor locations within the AERMOD model were placed at locations of existing residences surrounding the project site. To evaluate the project's localized construction impacts, sensitive receptor height should be taken into account at the point of maximum impact. The BAAQMD does not provide the recommended receptor height. However, the California Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Guidance Manual for Preparation

of Health Risk Assessments recommends selecting a receptor height from zero meters to 1.8 meters, which will result in the highest predicted downwind concentration. A receptor height of zero meters was used to evaluate the project's localized construction impacts. Consistent with information provided by the project applicant, it was assumed that the project would be fully constructed before project operations would commence; therefore, no receptors were placed at the project site to assess construction impacts.

The generation of on-site construction DPM emissions (as $PM_{2.5}$ exhaust) from the on-site construction equipment was represented in AERMOD as a construction area source. The emissions from the on-site construction exhaust source were assumed to be emitted at a height of five meters above ground to account for the top of the equipment exhaust stack where the emissions are released to the atmosphere and the increase in the height of the emissions due to its heated exhaust. The off-site construction vehicle emissions were also included in the assessment and were represented in the AERMOD model as a line volume source with a release height of 3.1 meters.

Estimation of Cancer Risks

The BAAQMD has developed a set of guidelines for estimating cancer risks that provide adjustment factors that emphasize the increased sensitivities and susceptibility of young children to exposures to TACs.[17] These adjustment factors include age-sensitivity weighting factors, age-specific daily breathing rates, and age-specific time-at-home factors. The recommend method for the estimation of cancer risk for off-site sensitive receptors is shown in the equations below with the cancer risk adjustment factors provided in Table 3.2-17 for various sensitive/residential receptors (infant, child, and adult) over the construction period. A lifetime exposure is assumed over the time from the 3rd trimester of pregnancy to the duration of the construction.

$$\text{Cancer Risk} = C_{DPM} \times \text{Inhalation Exposure Factor}$$

Where:

Cancer Risk = Total individual excess cancer risk defined as the cancer risk a hypothetical individual faces if exposed to carcinogenic emissions from a particular source for specified exposure durations; this risk is defined as an excess risk because it is above and beyond the background cancer risk to the population; cancer risk is expressed in terms of risk per million exposed individuals.

C_{DPM} = Period average DPM air concentration calculated from the air dispersion model in $\mu g/m^3$

Inhalation is the most important exposure pathway to impact human health from DPM and the inhalation exposure factor is defined as follows:

$$\text{Inhalation Exposure Factor} = CPF \times EF \times ED\ AAF/AT$$

[17] Bay Area Air Quality Management District (BAAQMD). 2016. Air Toxics New Source Review Program Health Risk Assessment (HRA) Guidelines. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en.

Where:

CPF = Inhalation cancer potency factor for the TAC: 1.1 $(mg/kg\text{-}day)^{-1}$ for DPM
EF = Exposure frequency (days/year)
ED = Exposure duration (years of construction)
AAF = set of age-specific adjustment factors that include age sensitivity factors (ASF), daily breathing rates (DBR), and time at home factors (TAH)—Table 3.2-17
AT = Averaging time period over which exposure is averaged (days)

The OEHHA-recommended values for the various cancer risk parameters shown in the equation above are provided in Table 3.2-17.

Table 3.2-17: BAAQMD Exposure Assumptions for Cancer Risk during Construction

Receptor Type	Exposure Frequency		Exposure Duration (years)	Age Sensitivity Factors	Time at Home Factor (%)	Daily Breathing Rate[(1)] (l/kg-day)
	Hours/day	Days/year				
Sensitive/Residential—Infant						
3rd Trimester	24	350	0.25	10	85	361
0–2 years	24	350	1.72	10	85	1,090
Sensitive Receptor—Child						
3–16 years	24	350	1.97	3	72	572
Sensitive Receptor—Adult						
> 16 to 30 years	24	350	1.97	1	73	261

Notes:
(1) The daily breathing rates recommended by the BAAQMD for sensitive/residential receptors assume the 95th percentile breathing rates for all individuals less than 2 years of age and 80th percentile breathing rates for all older individuals.
(l/kg-day) = liters per kilogram body weight per day
Source: BAAQMD 2016.

Estimation of Non-cancer Hazards

An evaluation of the potential non-cancer effects of chronic chemical exposures was also conducted. Adverse health effects are evaluated by comparing the annual receptor concentration of each chemical compound with the appropriate Reference Exposure Level (REL). Available RELs promulgated by the OEHHA were considered in the assessment.

Risk characterization for non-cancer health hazards from TACs is expressed as a hazard index (HI). The HI is a ratio of the predicted concentration of the project's emissions to a concentration considered acceptable to public health professionals, termed the REL.

To quantify non-carcinogenic impacts, the hazard index approach was used.

$$HI = C_{ann}/REL \qquad \text{(EQ-3)}$$

Where:

HI = chronic hazard index
C_{ann} = annual average concentration of TAC as derived from the air dispersion model (µg/m^3)
REL = reference exposure level above which a significant impact is assumed to occur (µg/m^3)

The hazard index assumes that chronic exposures to TACs adversely affect a specific organ or organ system (toxicological endpoint) of the body. For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity REL. For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds 1, a health hazard is presumed to exist. For purposes of this assessment, the TAC of concern is DPM, for which the OEHHA has defined a REL for DPM of 5 µg/m^3. The principal toxicological endpoint assumed in this assessment was through inhalation.

Estimation of $PM_{2.5}$ Hazards

The BAAQMD's guidance also includes a significance threshold for $PM_{2.5}$ based on studies that show health impacts from exposure to this pollutant. Construction emissions of $PM_{2.5}$ were represented in this assessment as total $PM_{2.5}$, which included DPM (as $PM_{2.5}$ exhaust) and fugitive dust $PM_{2.5}$ combined.

Estimates of Health Risks and Hazards from Project Construction

The estimated health and hazard impacts at the Maximum Impacted Sensitive Receptor (MIR) from the project's construction emissions are provided in Table 3.2-18. The MIR was determined to be located within the multi-family residences adjacent to the project site; specifically, the MIR is located east of the eastern border of the project site off Roble Road. The estimates shown in Table 3.2-18 include application of BMPs recommended by the BAAQMD, as required by MM AIR-2.

Table 3.2-18: Estimated Health Risks and Hazards during Construction (Unmitigated Equipment)

Source	Cancer Risk (risk per million)	Chronic Non-Cancer Hazard Index[2]	Annual $PM_{2.5}$ Concentration (µg/m^3)
Risks and Hazards at the MIR: Infant[1]	19.7	0.02	0.08
Risks and Hazards at the MIR: Child[1]	2.9	0.02	0.08
Risks and Hazards at the MIR: Adult[1]	0.4	0.02	0.08
BAAQMD Thresholds of Significance	**10**	**1**	**0.30**
Exceeds Individual Source Threshold?	**Yes**	**No**	**No**

Notes:
MIR = maximum impacted sensitive receptor
(1) The MIR is an existing dwelling unit within the multi-family residences, located adjacent to the project site to the east and off Roble Road.
(2) Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as $PM_{2.5}$ exhaust) by the REL of 5 µg/m^3.
Source: Appendix B.

As shown above in Table 3.2-18, the cancer risks for adults and children, the chronic non-cancer hazard index, and the annual $PM_{2.5}$ concentration at the MIR would not exceed the BAAQMD's recommended thresholds of significance; however, the cancer risk for infants at the MIR would exceed the applicable threshold of significance. Therefore, MM AIR-3 is required to reduce the potential cancer risk impact. MM AIR-3 requires that the applicant provide documentation to the Contra Costa County that all off-road diesel-powered construction equipment greater than 50 horsepower meets EPA or ARB Tier IV Interim off-road emissions standards. Tier IV standards require that NO_X and PM emission rates (grams per brake horsepower-hour), the prime targets of the federal "Tier" regulations, be reduced by approximately 90 percent compared to Tier III emission standards.[18]

Table 3.2-19 summarizes the project's estimated cancer risk, hazard index, and $PM_{2.5}$ concentration impacts at the MIR from the project's construction emissions after incorporation of MM AIR-2 and MM AIR-3.

Table 3.2-19: Estimated Health Risks and Hazards during Construction (Mitigated)

Source	Cancer Risk (risk per million)	Chronic Non-Cancer Hazard Index(2)	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Risks and Hazards at the MIR: Infant(1)	3.8	0.003	0.02
Risks and Hazards at the MIR: Child(1)	0.6	0.003	0.02
Risks and Hazards at the MIR: Adult(1)	0.1	0.003	0.02
BAAQMD Thresholds of Significance	**10**	**1**	**0.30**
Exceeds Individual Source Threshold?	**No**	**No**	**No**

Notes:
MIR = maximum impacted sensitive receptor
(1) The MIR is an existing dwelling unit within the multi-family residences located adjacent to the project site to the east and off Roble Road.
(2) Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as $PM_{2.5}$ exhaust) by the REL of 5 $\mu g/m^3$.
Source: Appendix B.

As shown in Table 3.2-19, the project's construction emissions would not exceed the any applicable BAAQMD significance thresholds at the MIR after the incorporation of MM AIR-2 and MM AIR-3. Therefore, project-related emissions would not result in significant health impacts to nearby sensitive receptors during construction.

Overall

Overall, the construction-related sensitive receptors exposure to TACs impact would be less than significant with mitigation.

[18] California Air Resources Board (ARB). 2018. Non-road Diesel Engine Certification Tier Chart. Website: https://ww2.arb.ca.gov/resources/documents/non-road-diesel-engine-certification-tier-chart-pdf.

Operation

Project-specific Operational TACs

The project is residential in nature, and there would be no on-site TAC sources during operation. In addition, the daily vehicle trips generated by the project would be primarily generated by passenger vehicles. Passenger vehicles typically use gasoline engines rather than the diesel engines that are found in heavy-duty trucks. Compared to the combustion of diesel, the combustion of gasoline had relatively low emissions of DPM. Therefore, emissions from vehicles traveling to and from the project site during project operations would not be a considerable source of TACs. Consistent with BAAQMD guidance, this assessment does not provide an operational health risk analysis, and the project would not result in significant health impacts during operation.

Operational CO Hotspots

Localized high levels of CO (CO hotspot) are associated with traffic congestion and idling or slow-moving vehicles. The BAAQMD recommends a screening analysis to determine if a project's operation has the potential to contribute to a CO hotspot. The screening criteria identify when site-specific CO dispersion modeling is not necessary. The project would result in a less than significant impact to air quality for local CO if any of the following screening criteria are met:

- **Screening Criterion 1**: The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; or
- **Screening Criterion 2:** The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; or
- **Screening Criterion 3:** The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Screening Criterion 1

Contra Costa Transportation Authority (CCTA) serves as the Congestion Management Agency (CMA) for Contra Costa County. As the CMA, CCTA must prepare, per State law, a Congestion Management Program (CMP) and update it every 2 years. The CMP is meant to outline CCTA's strategies for managing the performance of the regional transportation within the County. A CMP must contain several components: traffic level of service standards for State highways and principal arterials; multi-modal performance measures to evaluate current and future systems; a seven-year capital program of projects to maintain or improve the performance of the system or mitigate the regional impacts of land use projects; a program to analyze the impacts of land use decisions; and a travel demand element that promotes transportation alternatives to the single-occupant vehicle. The goal of Contra Costa County is to maintain Level of Service (LOS) D during the peak-hours, however signalized intersections located along the CMP network may operate at LOS F with a volume-to-capacity ratio standard of 1.5 or less. As shown in Section 3.15 Transportation, for Impact TRANS-1 under Opening Year with Project Conditions, the Coggins Drive at Las Juntas Way intersection (Intersection No. 3) is projected to degrade to LOS F in the morning peak-hour, and the addition of project traffic would worsen operations and result in a significant impact. In addition, as shown in

Section 3.15, Transportation, under "Cumulative Impacts," under the Cumulative Year Plus Project scenario, the Coggins Drive at Las Juntas Way intersection (Intersection No. 3) is projected to degrade to LOS F in the morning peak-hour. The addition of project traffic would worsen operations in the AM peak-hour and would also result in LOS E conditions in the PM peak-hour; these conditions represent a significant impact. However, although Intersection No. 3 would not meet the standards of screening Criteria 1, this intersection is consistent with screening Criteria 2 and 3, as discussed below.

Screening Criteria 2 and 3

The project-specific TIA (included as Appendix I) identified peak-hour traffic volumes for ten intersections affected by the project. As identified in the TIA, the maximum peak-hour intersection volume would occur at the Oak Road/Treat Boulevard intersection in the "Cumulative with Project" scenario during the AM peak-hour. The estimated cumulative traffic volume at the Oak Road/Treat Boulevard intersection is 6,374 AM peak-hour trips. This level of peak-hour trips is substantially less than BAAQMD's second and third screening criteria of 44,000 vehicles per hour and 24,000 vehicles per hour respectively. The project would not result in an increase of traffic volumes at affected intersections to more than 44,000 vehicles per hour and would not increase traffic volumes at affected intersections to more than 24,000 where vertical or horizontal mixing is substantially limited; accordingly, the project is consistent with screening Criteria 2 and 3. As noted above, although Intersection No. 3 would not meet the standards of Criteria 1, this intersection would be consistent with screening Criteria 2 and 3.

Therefore, since all intersections of the project would meet the screening Criteria 2 and 3, the project's impact related to air quality for local CO emissions would be less than significant.

Overall

Overall, the operational-related sensitive receptors exposure to TACs impact would be less than significant.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

Implement MM AIR-2 and the following:

MM AIR-3 Use Construction Equipment That Meets Tier IV Interim Off-road Emission Standards

During construction activities, all off-road equipment with diesel engines greater than 50 horsepower shall meet either United States Environmental Protection Agency or California Air Resources Board Tier IV Interim off-road emission standards. The construction contractor shall maintain records concerning its efforts to comply with this requirement, including equipment lists. Off-road equipment descriptions and information may include but are not limited to equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, and engine serial number.

If engines that comply with Tier IV Interim off-road emission standards are not commercially available, then the construction contractor shall use the next cleanest piece of off-road equipment (e.g., Tier III) available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier IV Interim engines taking into consideration factors such as (i) critical-path timing of construction; and (ii) geographic proximity to the project site of equipment. The contractor can maintain records for equipment that is not commercially available by obtaining letters from at least two rental companies for each piece of off-road equipment where the Tier IV Interim engine is not available.

Level of Significance After Mitigation

Less than Significant with Mitigation

Objectionable Odors Exposure

Impact AIR-4: The project would not result in other emissions (such as those leading to odors adversely affecting a substantial number of people).

Impact Analysis

Odors can cause a variety of responses. The impact of an odor often results from interacting factors such as frequency (how often), intensity (strength), duration (time), offensiveness (unpleasantness), location, and sensory perception. Two circumstances have the potential to cause odor impacts:

1) A source of odors is proposed to be located near existing or planned receptors; or
2) A receptor land use is proposed near an existing or planned source of odor.

To determine significance for this impact, the first circumstance was applied. BAAQMD's CEQA Air Quality Guidelines provides suggested screening distances for a variety of odor-generating land uses and operations, as shown in Table 3.2-10, which are based on distance between types of sources known to generate odor and the receptor. Projects that would site an odor source or a receptor farther than the applicable screening distance, shown in Table 3.2-10, would not result in a significant odor impact.

Construction

Diesel exhaust and VOCs would be emitted during construction of the project resulting from heavy-duty construction equipment and asphalt paving activities, both of which could be objectionable odors to some populations. However, emissions would disperse rapidly from the site and construction activities would be relatively low in intensity. As such, it is not anticipated that construction-related activities would create objectionable odors affecting a substantial number of people. Therefore, construction odor impacts at existing off-site odor sensitive receptors would be less than significant.

Operation

Operational Odors at Existing Off-site Odor Sensitive Receptors

Land uses considered associated with odors include typically include agricultural operations (dairies, feedlots, etc.), landfills, wastewater treatment plants, refineries, and other types of industrial land uses. The project does not propose any of these types of land uses or other land uses typically associated with emitting objectionable odors (see Table 3.2-10 for land uses typically associated with emitting objectionable odors). During operation of the project, potential sources of odor would primarily consist of vehicles traveling to and from the site. Exhaust from mobile sources are not typically associated with numerous odor complaints but are known to have temporary and less concentrated odors. As such, these occurrences would not produce significant amounts of odors. Therefore, construction odor impacts at existing off-site odor sensitive receptors would be less than significant.

Project Site as an Odor Sensitive Receptor

The project consists of a residential development and would have the potential to place sensitive receptors (residents) near existing or planned sources of odors. The project site is not located within the vicinity of agricultural operations (e.g., dairies, feedlots, etc.), landfills, asphalt batch plants, or chemical manufacturing; however, there are several land uses within the screening distances shown in Table 3.2-10. These land uses include Waste Management Service (located at 2658 North Main Street, Walnut Creek) and four auto-body repair shops that could perform on-site painting/coating operations. The closest of these land uses is Pleasant Hill Collision Repair Center, located approximately 0.50 mile northwest of the project site. Public records requests were filed with the BAAQMD to obtain the most recent odor compliant history for possible sources within the vicinity of the project site. Based on the responses from the BAAQMD Public Records Section, none of potential sources of odor had have received any confirmed complaints over the last ten-year period. Therefore, there are no land uses within the screening distances shown in Table 3.2-10 that have received five or more confirmed complaints per year for any recent 3-year period. The project would not place odor sensitive receptors near an existing or planned source of odor affecting a substantial number of people. Therefore, operational odor impacts in terms of the project site as an odor sensitive receptor would be less than significant.

Level of Significance

Less Than Significant

3.2.5 - Cumulative Impacts

Criteria Pollutants

The BAAQMD considers the emission levels for which a project's individual emissions would be cumulatively significant. As such, if a project exceeds the identified thresholds of significance, its emissions would be significant in terms of both project- and cumulative-level impacts, resulting in significant adverse air quality impacts to the region's existing air quality conditions. As stated in the BAAQMD 2017 CEQA Guidelines, additional analysis to assess cumulative impacts is unnecessary. Rather, the determination of cumulative air quality impacts for construction and operational emissions is based on whether the project would result in regional emissions that exceed BAAQMD regional thresholds of significance for construction and operations on a project level. Projects that

generate emissions below the BAAQMD significance thresholds would be considered consistent with regional air quality planning efforts would not generate cumulatively significant emissions. See Impacts AIR-1 and AIR-2 for analysis and discussion of the cumulative air quality management plan consistency and criteria air pollutant emissions impacts. Overall, Impacts AIR-1 and AIR-2 determined that the cumulative construction and operational criteria air pollutant emissions impacts would be less than significant with mitigation.

Toxic Air Contaminants

Construction Emissions at Existing Maximum-impacted Air Pollution Sensitive Receptor

The BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project site. As a result, a cumulative construction HRA was performed that examined the cumulative impacts of the project's construction emissions and sources of TAC emissions within 1,000 feet of the project site. Based on proximity to the project site, the MIR was determined to be a dwelling unit within the multi-family residences located adjacent to the project site to the east and off Roble Road. Therefore, the cumulative health impacts were estimated at this location.

For a cumulative-level TACs analysis, BAAQMD provides three tools for use in screening potential cumulative sources of TACs. These tools are:

- **Surface Street Screening Tables.** BAAQMD pre-calculated potential cancer risks and $PM_{2.5}$ concentration increases for each county within their jurisdiction for roadways that meet BAAQMD's "major roadway" criteria of 10,000 vehicles or 1,000 trucks per day. Risks are assessed by roadway volume, roadway direction, and distance to sensitive receptors. There is no roadway that generates more than 10,000 trips per day or more than 1,000 trucks per day located within 1,000 feet of project boundary. The segment of Treat Boulevard between Oak Road and Bancroft Road is estimated to accommodate approximately 55,600 average annual average daily trips and is located approximately 850 feet south of the project boundary and 1,000 feet south of the MIR.[19]
- **Freeway Screening Analysis Tool**. BAAQMD prepared a Google Earth file that contains pre-estimated cancer risk, hazard index, and $PM_{2.5}$ concentration increases for highways within the Bay Area. Risks are provided by roadway link and are estimated based on elevation and distance to the sensitive receptor. The Google Earth file does not identify any highways within 1,000 feet of the MIR.
- **Stationary Source Risk and Hazard Screening Tool**. BAAQMD prepared a Google Earth file that contains the locations of all stationary sources within the Bay Area that have BAAQMD permits. For each emissions source, BAAQMD provides conservative cancer risk and $PM_{2.5}$ concentration increase values. There are no stationary sources located within 1,000 feet of project boundary.

[19] City of Walnut Creek. 2010. Traffic Counts, 2010 Traffic Volume Map. Website: http://www.walnut-creek.org/departments/public-works/engineering-services/traffic-engineering/traffic-counts. Accessed February 27, 2019.

Table 3.2-20 summarizes the cumulative health impacts at the MIR during construction of the project. The $PM_{2.5}$ concentration estimate for project construction shown in Table 3.2-20 include application of BMPs recommended by the BAAQMD, as required by MM AIR-2.

Table 3.2-20: Cumulative Construction Air Quality Health Impacts at the MIR (Unmitigated)

Source	Source Type	Distance from MIR (feet) [1]	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Project					
Construction—Unmitigated	Construction Equipment and Construction Vehicle Trips	25	19.70	0.02	0.079
Local Roads (>10,000 Average Daily Trips)					
Treat Boulevard	Local Roadway	1,000	2.21	ND	0.057
Cumulative Health Risks from Project Construction and Existing TAC Sources					
Cumulative Total with Project Construction			21.9	0.02	0.1
BAAQMD Cumulative Thresholds of Significance			**100**	**10**	**0.8**
Threshold Exceedance?			**No**	**No**	**No**

Notes:
[1] The MIR is an existing dwelling unit within the multi-family residences, located adjacent to the project site to the east and off Roble Road.
MIR = maximum impacted sensitive receptor
ND = no data available
Source: Appendix B.

As noted in Table 3.2-20 above, the cumulative health impacts at the MIR from existing TAC emission sources located within 1,000 feet combined with the project's construction-related emissions would not exceed the BAAQMD's recommended cumulative significance thresholds for cancer risk, chronic non-cancer HI, or $PM_{2.5}$ concentration. Therefore, the cumulative construction TACs exposure impact would be less than significant with the incorporation of MM AIR-2.

The mitigation measures identified to reduce the project-level TACs impact cancer risk impacts would further reduce the cumulative-level TACs impact. Cumulative Impacts at the MIR with implementation of MM AIR-2 and MM AIR-3 are summarized in Table 3.2-21.

Table 3.2-21: Cumulative Construction Air Quality Health Impacts at the MIR (Mitigated)

Source	Source Type	Distance from MIR (feet) [1]	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Project					
Construction—Mitigated	Construction Equipment and Construction Vehicle Trips	25	3.81	0.003	0.017
Local Roads (>10,000 Average Daily Trips)					
Treat Boulevard	Local Roadway	1,000	2.21	ND	0.057
Cumulative Health Risks from Project Construction and Existing TAC Sources					
Cumulative Total with Project Construction			6.0	0.00	0.1
BAAQMD Cumulative Thresholds of Significance			**100**	**10**	**0.8**
Threshold Exceedance?			**No**	**No**	**No**

Notes:
[1] The MIR is an existing dwelling unit within the multi-family residences, located adjacent to the project site to the east and off Roble Road.
MIR = maximum impacted sensitive receptor
ND = no data available
Source: Appendix B.

Operational Emissions at Project Site as an Air Pollution Sensitive Receptor

When siting a new sensitive receptor (such as a residential land uses), BAAQMD recommends that the analysis include an evaluation of TACs that could adversely affect individuals within the planned project. Therefore, the BAAQMD screening analysis was applied at the project site for conditions at project build-out.

The three BAAQMD-provided tools for use in screening potential sources of TACs are assessed below:

- **Surface Street Screening Tables.** BAAQMD pre-calculated potential cancer risks and $PM_{2.5}$ concentration increases for each county within their jurisdiction for roadways that meet BAAQMD's "major roadway" criteria of 10,000 vehicles or 1,000 trucks per day. Risks are assessed by roadway volume, roadway direction, and distance to sensitive receptors. The segment of Treat Boulevard between Oak Road and Bancroft Road is estimated to accommodate approximately 55,600 average annual average daily trips and is located approximately 850 feet south of the project boundary.[20]

[20] City of Walnut Creek. 2010. Traffic Counts, 2010 Traffic Volume Map. Website: http://www.walnut-creek.org/departments/public-works/engineering-services/traffic-engineering/traffic-counts. Accessed February 27, 2019.

- **Freeway Screening Analysis Tool**. BAAQMD prepared a Google Earth file that contains pre-estimated cancer risk, hazard index, and $PM_{2.5}$ concentration increases for highways within the Bay Area. Risks are provided by roadway link and are estimated based on elevation and distance to the sensitive receptor. There are no freeways or major highways within 1,000 feet of the project boundary.
- **Stationary Source Risk and Hazard Screening Tool**. BAAQMD prepared a Google Earth file that contains the locations of all stationary sources within the Bay Area that have BAAQMD permits. For each emissions source, BAAQMD provides conservative cancer risk and $PM_{2.5}$ concentration increase values. There are no stationary sources located within 1,000 feet of project boundary.

Table 3.2-22 summarizes the cumulative health impacts at the project site at project buildout.

Table 3.2-22: Cumulative Operational Air Quality Health Impacts at the Project Site

Source	Source Type	Distance from Project Site (feet)	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Local Roads (>10,000 Average Daily Trips)					
Treat Boulevard	Local Roadway	850	2.54	ND	0.066
Project-level Health Risks					
Maximum Individual Source			**2.54**	**—**	**0.06**
BAAQMD Project-level Thresholds of Significance			**10**	**1**	**0.3**
Threshold Exceedance?			**No**	**No**	**No**
Cumulative Health Risks from Project Construction and Existing TAC Sources					
Cumulative Total			**2.54**	**—**	**0.06**
BAAQMD Cumulative Thresholds of Significance			**100**	**10**	**0.8**
Threshold Exceedance?			**No**	**No**	**No**

Notes:
ND = no data available
Source: Appendix B.

As shown in Table 3.2-22, the cumulative health impacts at the project site from existing TAC emission sources located within 1,000 feet of the project site would not exceed the BAAQMD's cumulative health significance thresholds nor would any one existing source exceed the BAAQMD's project-level health significance thresholds. Therefore, the cumulative operational TACs impacts would be less than significant.

Overall, the cumulative construction and operational TACs impacts would be less than significant with mitigation.

Level of Cumulative Significance Before Mitigation

Potentially Significant

Cumulative Mitigation Measures

Implement MM AIR-2 and MM AIR-3

Level of Cumulative Significance After Mitigation

Less Than Significant with Mitigation

3.3 - Biological Resources

3.3.1 - Introduction

This section describes the existing biological resources conditions in the project area, as well as the relevant regulatory framework. This section also evaluates the possible impacts related to biological resources that could result from implementation of the project. Information in this section is based on a project site biological reconnaissance survey performed on January 7, 2019, a subsequent project-specific Biological Resources Assessment (BRA), and a project-specific Tree Inventory Report included in Appendix C. No public comments were received during the Environmental Impact Report (EIR) scoping period related to biological resources.

3.3.2 - Environmental Setting

Records Searches and Pedestrian Survey to Identify Existing Biological Resources

A BRA prepared by FirstCarbon Solutions (FCS) on February 12, 2019, and revised August 5, 2019, included a thorough review of relevant literature followed by a reconnaissance-level field survey both included in Appendix C.

Literature Review

FCS Biologists examined existing environmental documentation for the project site and immediate vicinity. This documentation included the Tree Inventory Report noted above, relevant biological studies for the area, literature pertaining to habitat requirements of special-status species potentially occurring near the site, and federal and State register listings, protocols, and species data provided by the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW).

Elevation and Drainage

An FCS Biologist reviewed current United States Geological Survey (USGS) 7.5-minute topographic quadrangle map(s) and aerial photographs as a preliminary analysis of the existing conditions within the project site and immediate vicinity. Information obtained from the review of the topographic maps included elevation range, general watershed information, and potential drainage feature locations.[1] Aerial photographs provide a perspective of the most current site conditions relative to on-site and off-site land use, plant community locations, and potential locations of wildlife movement corridors.

Soil

FCS Biologists also reviewed United States Department of Agriculture (USDA) soil surveys to establish if soil conditions on the project site are suitable for any special-status plant species. These soil profiles include major soil series with similar thickness, arrangement, and other important characteristics. These series are further subdivided into soil mapping units that provide specific information regarding soil characteristics. Many special-status plant species have a limited distribution based exclusively on soil type. Therefore, pertinent USDA soil survey maps were

[1] United States Geological Survey 2019 USGS Maps. Website: https://www.usgs.gov/products/maps/map-topics/overview. Accessed February 12, 2019.

reviewed to determine existing soil mapping units within the project site and to establish if soil conditions on-site are suitable for any special-status plant species.[2]

Special-Status Wildlife and Plant Species

FCS Biologists compiled a list of threatened, endangered, and otherwise special-status species previously recorded within the general project vicinity. The list was based on a search of the CDFW California Natural Diversity Database (CNDDB),[3] a special-status species and plant community account database, and the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California database[4] for the Walnut Creek, California USGS 7.5-minute topographic quadrangle map. The database search results can be found in Appendix C. The CNDDB Biogeographic Information and Observation System database was used to determine the distance between known recorded occurrences of special-status species and the project site.

Trees

FCS Biologists reviewed applicable County ordinances pertaining to tree preservation and protective measures and their tree replacement conditions or permits required, such as Chapter 816-6 of the Contra Costa County Code. FirstCarbon Solutions (FCS) also performed a technical review of the previously completed Tree Inventory Report (Appendix C).[5] The report recorded 189 individual trees, representing 27 species present on site.

Jurisdictional Waters and Wetlands

FCS Biologists reviewed USGS topographic maps and aerial photography to identify potential natural drainage features and water bodies. In general, surface drainage features identified as blue-line streams on USGS maps and linear patches of vegetation are expected to exhibit evidence of flows and considered potentially subject to State and federal regulatory authority as "waters of the United States and/or State."

Field Survey

On January 7, 2019, an FCS Biologist conducted a reconnaissance-level field survey of the project site and surrounding area up to 100 feet where possible. The reconnaissance-level survey was conducted on foot during daylight hours. The purpose of the survey was not to extensively search for every species occurring within the project site, but to ascertain general site conditions and identify potentially suitable habitat areas for various special-status plant and wildlife species. Special-status or unusual biological resources identified during the literature review were ground-truthed during the reconnaissance-level survey for mapping accuracy. Special attention was paid to sensitive habitats and areas potentially supporting special-status floral and faunal species.

Common plant species observed during the reconnaissance-level survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Wildlife species

[2] United States Department of Agriculture (USDA) Web Soil Survey. 2019 Soil Survey. Website: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed February 12, 2019.
[3] California Department of Fish and Wildlife (CDFW). 2019 Rarefind. Website https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed February 12, 2019.
[4] California Native Plant Society (CNPS). 2019. Rare and Endangered Plant Inventory. Website: http://rareplants.cnps.org/. Accessed February 12, 2019.
[5] HortScience, Inc. 2019. Tree Inventory Report.

detected during the reconnaissance-level survey by sight, calls, tracks, scat, or other signs were recorded in a field notebook. Notations were made regarding suitable habitat for those special-status species determined to potentially occur within the project site.[6,7]

Physical Habitat/Vegetation

Habitat is an area consisting of a combination of resources (e.g., food, cover, water) and environmental conditions (e.g., temperature, precipitation, presence, or absence of predators and competitors) that promotes occupancy by individuals of a species and enables those individuals to survive and reproduce. Thus, habitat arises from interaction among soils, hydrology, climate, and vegetation. Soils, hydrology, and climate are addressed in other sections of this EIR; this habitat discussion includes information regarding vegetation.

Contra Costa County Area

Habitat communities in the Contra Costa area consist primarily of Mediterranean plant associations, but vary depending on microclimate. Due to the large size of Contra Costa County, there are a variety of microclimates found within County boundaries, including but not limited to riparian woodlands, estuaries, native grasslands, and coniferous forests.

Project Site

The project site is a heavily wooded area with two residential buildings located within the project boundaries. There are several areas of uneven terrain with slight incline and decline, but the vast majority of the project site is relatively flat. The project site is largely devoid of shrubs and low-growing vegetation and is primarily comprised of invasive grass species. There are several human-made barriers throughout the project site and along most of the project site boundaries. The project site consists of non-native grassland, mixed oak woodland, and urban/developed land (Exhibit 3.3-1).

Wildlife

Wildlife species observed in this community included California ground squirrel (*Otospermophilus beecheyi*), California towhee (*Melozone crissalis*), black-capped chickadee (*Poecile atricapillus*), black phoebe (*Sayornis nigricans*), and American crow (*Corvus brachyrhynchos*). Given the high level of disturbance surrounding the project site, there is only low-value habitat available for special-status plants within the project site boundaries; however, the valley oak woodland area may provide suitable nesting habitat for special-status and non-special-status raptor and bat species.

Vegetation Communities

Non-Native Grassland

Non-native annual grassland typically occurs in the open areas of valleys and foothills throughout California. Species observed during the field survey include non-native species such as Irish ivy (*Hedera hibernica*), lily of the Nile (*Agapanthus* spp.), oleander (*Nerium oleander*), and bristly oxtongue (*Helminthotheca echioides*). Additionally, there is a large ornamental blue aloe plant (*Aloe vera* spp.) on the project site.

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[6] Greenhouse, Jeffrey, et al. 2012 The Digital Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded.

[7] Alden, Peter, et al. 1998. National Audubon Society Field Guide to California.

Mixed Oak Woodland

The foliage present on the project site can be characterized as a mixed oak woodland, dominated by valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia*), in conjunction with a variety of other mature, adult tree species. This community has a relatively dense tree canopy, open sub-canopy, and grassy understory. The tree canopy consists primarily of valley oak, representing nearly 48 percent of all trees counted in field surveys. Other common species found on the project site include coast redwood (*Sequoia sempervirens*), blue gum (*Eucalyptus globulus*), and glossy privet (*Ligustrum lucidum*) in order of abundance.

The understory supports several non-native annual grass species. Large trees or snags (greater than 18 inches in diameter) within or adjacent to the project site may provide suitable nesting or roosting habitat for wildlife. The project site is largely devoid of shrubs and low-canopy growth with scattered shrubs occurring mainly along project boundaries and the manmade fences within the project boundaries. The relatively dense clusters of trees in conjunction with the limited amount of understory vegetation provide limited foraging habitat for wildlife.

Urban/Developed Land

Urban/Developed land is classified as areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported and retains no soil substrate. Developed land is characterized by permanent or semi-permanent structures, pavement, or hardscape, and landscaped areas that often require irrigation. Areas where no natural land is evident because a large amount of debris or other materials have been placed upon it may also be considered urban/developed (e.g., car recycling plant, quarry). Characteristic vegetation includes un-vegetated or landscaped with a variety of ornamental (usually non-native) plants. There are two residential structures present on the project site as well as a gravel road. The project site is bound by apartment complexes, a highly trafficked road, Iron Horse Regional Trail, and the Pleasant Hill Bay Area Rapid Transit (BART) station.

Sensitive Biological Communities

Biological communities are assemblages of organisms that live within or use a variety of habitats for their range-of-life functions. Of the habitat communities discussed above, some are further identified as sensitive biological communities. Sensitive biological communities include habitats that fulfill special functions or have special values (e.g., greater biological diversity), such as wetlands, streams, and riparian habitat. Because wildlife is a major aspect of a biological community, this discussion of sensitive biological communities describes wildlife present in such communities.

Contra Costa County Area

The sensitive biological communities present within Contra Costa County are mainly areas associated with tidal marshes and wetland habitat. Due to the large size of the county, there are a variety of areas that may be considered sensitive biological communities, depending on the aggregations of plant and wildlife species that occur in these areas. They include, but are not limited to, mixed oak woodland, riparian woodland, evergreen forests, chaparral forests, redwood forests, and native grasslands.

Source: ESRI Aerial Imagery.

FIRSTCARBON SOLUTIONS™

100 50 0 100 Feet

Exhibit 3.3-1
Existing Habitat

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Project Site

There are no sensitive biological communities present on the project site. The mixed oak woodland present within the project site boundaries offers habitat to a variety of nesting birds but are not in large enough abundance to be considered a sensitive biological community. Additionally, the project site and surrounding areas display high levels of disturbance, further precluding the presence of special-status species that may occur in mixed oak woodland habitat.

Wetlands and Waters of the United States and the State

Wetlands and waters of the United States and waters of the State are protected as hydrological resources, but also often provide habitat for common and special-status species. Types of water features include open water, developed open water, tidal marsh, seasonal wetland, wetlands swale, and waters.

Contra Costa County Area

Wetlands, waters of the United States, and waters of the State in the Contra Costa County area occur primarily near the coast in the San Pablo Bay, Suisun Bay, and their associated features. Additionally, there are several reservoirs, such as the San Pablo reservoir, Briones reservoir, and Los Vaqueros reservoir.

Project Site

The project site does not contain any wetlands or other areas designated as waters of the United States or State, and no further studies or regulatory permitting are required. There are several areas with concave topography, but due to the lack of hydrophilic soils, riparian and wetland vegetation, and elevation differentiation, these areas are not indicative of federal or State jurisdictional wetlands or waters.

Common Species

The vegetation community and land cover types discussed above provide habitat for a limited number of local wildlife species. The small number of wildlife species observed on or near the project site primarily consisted of avian species identified by song or sight. The numerous trees within the project boundaries offer suitable habitat for a variety of nesting birds. Common avian species observed in urban and developed areas include American crow, California scrub jay (*Aphelocoma californica*), spotted towhee (*Pipilo maculatus*), lesser goldfinch (*Spinus psaltria*), and yellow-rumped warbler (*Setophaga coronata*).

Special-Status Species

Habitat, whether aquatic or terrestrial, supports ecological functions and processes to preserve biological communities (i.e., wildlife) that live within it for all or a portion of their life cycle. Special-status species, whether plants, wildlife, or fish, are considered sufficiently rare that they require special consideration and/or protection and have been or should be listed as rare, threatened, or endangered by the federal and/or state governments. The following discussion focuses on the occurrence or potential for occurrence of special-status species at the project site.

Special-Status Plants on the Project Site

Special-status plant communities are considered sensitive biological resources when federal, state, or local laws regulate their development, limited distributions, and habitat requirements of special-status plant or wildlife species that occur within them. The Special-Status Plant Species Table (Appendix C) identifies 18 special-status plant species and CNPS sensitive species that have been recorded to occur within the Walnut Creek California topographic quadrangles,[8] as recorded by the CNDDB and California Native Plant Society Electronic Inventory.[9,10] The table also includes each species' status, required habitat, and potential to occur within the project site.

All special-status plant species have been determined unlikely to occur on-site based upon the results of the species review and the reconnaissance-level field assessment. The project site lacks suitable habitat conditions, most notably aquatic features or suitable soil conditions, to support any special-status plant species; further, no special-status plant species were found on the project site.

Special-Status Wildlife at the Project Site

The Special-Status Wildlife Species Table (Appendix C) identifies nine federal and State listed threatened and/or endangered wildlife species, and State Species of Special Concern that have been recorded in the CNDDB[11]as occurring within the Walnut Creek, California topographic quadrangle.[12] Of these, two special-status wildlife species have the potential to occur at the project site: the pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii)*. The table also includes each species' status, required habitat, and potential to occur within the project site. The remaining seven species have also been included in the table to justify their exclusion from further discussion. No special-status amphibian or reptile species have the potential to occur within the project site. The following special-status mammal and bird species have the potential to occur within the project site.

Mammals

Pallid bat

The pallid bat is a California Species of Special Concern. This species roosts in rock crevices, mature trees, and buildings and forages in habitats with open vegetation. The project site provides potential for this species to occur on-site, due to the presence of marginal roosting habitat in the form of trees and buildings. No focused surveys were conducted for this species, and it was not found during field surveys. No recorded occurrences of this species within 5 miles of the project site have been noted in the last year. Due to the high level of disturbance surrounding the project site, including auditory disturbances from the nearby construction and high level of activity at the Pleasant Hill BART station, there is a low potential for this species to occur on the project site.

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8 United States Geological Survey (USGS) 2019 Maps. Website: https://www.usgs.gov/products/maps/map-topics/overview. Accessed February 12, 2019.

9 California Department of Fish and Wildlife (CDFW). 2019 Rarefind. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed February 12, 2019.

10 California Native Plant Society (CNPS). 2019. Rare and Endangered Plant Inventory. Website: http://rareplants.cnps.org/. Accessed February 12, 2019.

11 California Department of Fish and Wildlife (CDFW). 2019 Rarefind. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed February 12, 2019.

12 United States Geological Survey (USGS) 2019 Maps. Website: https://www.usgs.gov/products/maps/map-topics/overview. Accessed February 12, 2019.

Townsend's big-eared bat

Townsend's big-eared bat is a California Species of Special Concern. This species roosts in a variety of habitats, including hanging from walls or ceilings in undisturbed or abandoned buildings. The buildings and trees on-site offer marginal roosting habitat for this species. No focused surveys were conducted for this species, and it was not found during field surveys. Due to the high level of disturbance surrounding the project site, there is low potential for this species to occur on the project site.

Birds

Migratory and Nesting Birds

The high number of trees within the project site provide suitable nesting habitat for various avian species, including those protected under the Migratory Bird Treaty Act (MBTA). Some species protected under the MBTA that could occur on the project site include acorn woodpecker (*Melanerpes formicivorus*), oak titmouse (*Baeolophus inornatus*), and American goldfinch (*Spinus tristis*). There is a variety of large, mature trees on site that are proposed for removal that provide potential nesting habitat for migratory species.

Wildlife Movement Corridors

Contra Costa County Area

Terrestrial habitat throughout Contra Costa County ranges from high to low quality and varies in accessibility and continuity for wildlife movement. Wetland and riparian habitats along coastal areas and inland reservoirs provides wildlife movement corridors for numerous fish and bird species. In addition, the Pacific Flyway (a major north-south flyway for migratory birds in America) encompasses the entire West Coast, and migrating bird species utilize the wetland and riparian habitats, especially the Suisun marshes and estuaries in San Pablo Bay, for foraging and resting.

Project Site

Due to the lack of aquatic features on or in the project vicinity, there are no corridors for fish or other aquatic species. Additionally, the high level of development surrounding the project site and the various barriers and fences present throughout the project site further impede the movement of terrestrial species through the area. Avian species are similarly impeded by the high level of development surrounding the site, though to a lesser extent. Due to the fragmented pockets of heavily wooded areas and lack of a connected habitat that occurs within the area, it is unlikely the area would serve as a corridor for avian species.

Regulated Trees

Project Site

Trees are protected under Chapter 816-6 of the Contra Costa County Code. Trees having a diameter of 6.5 inches or greater as measured 4.5 feet from ground level is considered a protected tree under the County's Code Section 816-6.6004. According to the Tree Inventory Report[13] completed for the project site May 9, 2019, all trees 6 inches or greater in diameter within and adjacent to the project site were surveyed (Appendix C). The Tree Inventory Report assessed 189 total trees across 27 species within the project site, including 18 off-site and 9 trees on the border of the project site. A

[13] HortScience, Inc. 2019. Tree Inventory Report.

total of approximately 161 trees would be removed within the boundaries of the project site. Of the total trees proposed for removal, approximately 145 trees are considered code-protected due to their size, while the remaining approximately 16 trees are not code-protected based on the Tree Protection and Preservation Ordinance (Exhibit 3.3-2).

3.3.3 - Regulatory Framework

Federal

Federal Endangered Species Act

The USFWS administers the Federal Endangered Species Act (FESA). The United States Congress passed FESA in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. FESA provides a process for listing species as either threatened or endangered, and methods of protecting listed species. FESA defines as "endangered" any plant or animal species that is in danger of extinction throughout all or a significant portion of its known geographic range. A "threatened" species is a species that is likely to become endangered. A "proposed" species is one that has been officially proposed by the USFWS for addition to the federal threatened and endangered species list.

According to FESA Section 9, "take" of threatened or endangered species is prohibited. FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA § 3(3)(19)). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] § 17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR § 17.3). Actions that result in take can result in civil or criminal penalties.

FESA and Clean Water Act (CWA) Section 404 Guidelines prohibit the issuance of wetland permits for projects that jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The United States Army Corps of Engineers (USACE) must consult with the USFWS and/or the National Marine Fisheries Service (NOAA) when threatened or endangered species under their jurisdiction may be affected by a project. In the context of the project, FESA would be implicated if development resulted in take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

Federal Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The federal MBTA prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior.

Source: BFK Engineers, Surveyors, Planners, July 2019.

FIRSTCARBON SOLUTIONS™

Exhibit 3.3-2
Tree Removal Plan

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Code of Federal Regulations (Wetlands and Waters Definition)

As defined in the Code of Federal Regulations (33 CFR 328.3(a) and 40 CFR 230.3(s)), the term "waters of the United States" includes the following:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide. All interstate waters including interstate wetlands. (Wetlands are defined by the federal government [33 CFR 328.3(b)] as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.)

(2) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters which are or could be used by interstate or foreign travelers for recreational or other purposes; or from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or which are used or could be used for industrial purposes by industries in interstate commerce.

(3) All impoundments of waters otherwise defined as waters of the United States under the definition.

(4) Tributaries of waters identified in paragraphs (1) through (4).

(5) Territorial seas.

(6) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6).

Wetlands are a subset of waters of the United States and receive protection under Section 404 of the CWA. The federal definition of wetlands is the following:

> Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The regulations and policies of various federal agencies—such as USACE, the United States Environmental Protection Agency (EPA), USFWS, and NOAA—mandate that filling wetlands be avoided unless it can be demonstrated that no practicable alternatives exist. The USACE has primary federal responsibility for administering regulations that concern waters and wetlands. In this respect, the USACE acts under two statutory authorities: Sections 9 and 10 of the Rivers and Harbors Act, and CWA Section 404.

Clean Water Act

The USACE regulates discharge of dredge or fill material into waters of the United States under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into waters of the United States, including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines (33 CFR § 328.2(f)). In addition, Section 401 of the CWA (33 United States Code [USC] 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Executive Order 11990: Protection of Wetlands

The federal government also supports a policy of minimizing the destruction, loss, or degradation of wetlands. Executive Order 11990 (May 24, 1977) requires that each federal agency take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. As primary screening, the United States Department of Housing and Urban Development (HUD) or grantees must verify whether the project is located within wetlands identified on the National Wetlands Inventory or else consult directly with USFWS staff. The USACE regulates the discharge of dredged or fill material, including but not limited to grading, placing of rip-rap for erosion control, pouring concrete, laying sod, and stockpiling excavated material. Activities that generally do not involve a regulated discharge, if performed specifically in a manner to avoid discharges, include driving pilings, drainage channel maintenance, temporary mining and farm/forest roads, and excavating without stockpiling.

State

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to FESA but pertains to State-listed endangered and threatened species. CESA requires State agencies to consult with the CDFW, formally California Department of Fish and Game, when preparing California Environmental Quality Act (CEQA) documents. The purpose is to ensure that the State lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code [FGC] § 2080). CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows the CDFW to authorize exceptions to the State's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (FGC § 2081).

Special-Status Natural Communities

Special-status natural communities, as identified by CDFW's Natural Heritage Division, are those that are naturally rare and those whose extent has been greatly diminished through land use changes.

The CNDDB tracks 135 such natural communities in the same way that it tracks occurrences of special-status species: by maintaining information about each site's location, extent, habitat quality, level of disturbance, and current protection measures. The CDFW is mandated to seek the long-term perpetuation of the areas in which these communities occur. Although no Statewide laws require protection of all special-status natural communities, CEQA requires consideration of the potential impacts of a project on biological resources of Statewide or regional significance.

California Department of Fish and Game Code

Fully protected fish species are protected under Section 5515; fully protected amphibian and reptile species are protected under Section 5050; fully protected bird species are protected under Section 3511; and fully protected mammal species are protected under Section 4700. The California Fish and Game Code defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited. Section 3503 of the California Fish and Game Code prohibits the killing of birds or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests. Sections 2062 and 2067 define endangered and threatened species.

California Department of Fish and Wildlife Species of Concern

In addition to formal listing under FESA and CESA, species receive additional consideration by CDFW and local lead agencies during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern," developed by the CDFW that tracks species in California whose numbers, reproductive success, or habitat may be threatened. In addition to Species of Special Concern, the CDFW identifies animals that are tracked by the CNDDB, but warrant no federal interest and no legal protection. These species are identified as California Special Animals.

California Code of Regulations (Wetlands and Waters Definition)

The California State Water Resources Control Board (State Water Board) indicates that no single accepted definition of wetlands exists at the State level, and that Regional Water Quality Control Boards (RWQCBs) may have different requirements and levels of analysis with regard to the issuance of water quality certifications. Generally, an area is a wetland if, under normal circumstances:

(1) The area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

(2) The duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

(3) The area's vegetation is dominated by hydrophytes or the area lacks vegetation.

Under California law, waters of the State means "any surface water or groundwater, including saline waters, within the boundaries of the state." As such, water quality laws apply to both surface water and groundwater. After the U.S. Supreme Court decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (53 USC 159), the Office of Chief Counsel of the State Water Board released a legal memorandum confirming the State's jurisdiction over isolated wetlands. The memorandum stated that under the California Porter-Cologne Water Quality Control Act (Porter-

Cologne), discharges to wetlands and other waters of the State are subject to State regulation, and this includes isolated wetlands. In general, the State Water Board regulates discharges to isolated waters in much the same way as it does for waters of the United States, using Porter-Cologne rather than CWA authority.

Porter-Cologne Water Quality Control Act

The CDFW is a trustee agency that has jurisdiction under Section 1600 *et seq*. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify the CDFW if a project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds . . . except when the department has been notified pursuant to Section 1601." Additionally, the CDFW may assert jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over 4 inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, the CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures.

Section 13260(a) of the Porter-Cologne Water Quality Control Act (contained in the California Water Code) requires any person discharging waste or proposing to discharge waste, other than to a community sewer system, within any region that could affect the quality of the waters of the State (all surface and subsurface waters) to file a report of waste discharge. The discharge of dredged or fill material may constitute a discharge of waste that could affect the quality of waters of the State. All of the wetlands and waterways in the project site are waters of the State, which are protected under this Act.

Historically, California relied on its authority under Section 401 of the CWA to regulate discharges of dredged or fill material to California waters. That section requires an applicant to obtain "water quality certification" from the State Water Board through its RWQCBs to ensure compliance with State water quality standards before certain federal licenses or permits may be issued. The permits subject to Section 401 include permits for the discharge of dredged or fill materials (CWA § 404 permits) issued by the USACE. Waste discharge requirements under the Porter-Cologne Water Quality Control Act were typically waived for projects that required certification. With the recent changes that limited the jurisdiction of wetlands under the CWA, the State Water Board has needed to rely on the report of waste discharge process.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the Native Plant Protection Act (NPPA), which directed CDFW to carry out the Legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The CESA expanded on the original NPPA and enhanced legal protection for plants. The CESA established categories for threatened and endangered species, and

grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, the State of California employs three listing categories for plants: rare, threatened, and endangered.

The CNPS maintains a rank of plant species native to California that has low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS ranked plants receive consideration under CEQA review. The following identifies the definitions of the CNPS ranks:

- **Rank 1A:** Plants presumed Extinct in California
- **Rank 1B:** Plants Rare, Threatened, or Endangered in California and elsewhere
- **Rank 2:** Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere
- **Rank 3:** Plants about which we need more information—A Review List
- **Rank 4:** Plants of limited distribution—A Watch List

All plants appearing on the CNPS List ranked 1 or 2 are considered to meet CEQA Guidelines Section 15380 criteria. While only some of the plants ranked 3 and 4 meet the definitions of threatened or endangered species, the CNPS recommends that all Rank 3 and Rank 4 plants be evaluated for consideration under CEQA.

Local

Contra Costa County General Plan

The purpose of the Contra Costa County General Plan is to express the broad goals and policies, and specific implementation measures, which will guide decisions on future growth, development, and the conservation of resources through the year 2020. The following are the applicable Contra Costa County General Plan goals and policies most pertinent to the project with regard to protection and preservation of the natural resources in the area.

- **Goal 8-A:** To preserve and protect the ecological resources of the County.
- **Goal 8-B:** To conserve the natural resources of the County through control of the direction, extent and timing of urban growth.
- **Goal 8-D:** To protect ecologically significant lands, wetlands, plant, and wildlife habitats.
- **Goal 8-E:** To protect rare, threatened and endangered species of fish, wildlife, and plants, significant plant communities, and other resources which stand out as unique because of their scarcity, scientific value, aesthetic quality or cultural significance. Attempt to achieve a significant net increase in wetland values and functions within the County over the life of the General Plan. The definition of rare, threatened, and endangered includes those definitions provided by the Federal Endangered Species Act, the California Endangered Species Act, the California Native Plant Protection Act, and the California Environmental Quality Act.
- **Policy 8-1:** Resource utilization and development shall be planned within a framework of maintaining a healthy and attractive environment.
- **Policy 8-3:** Watersheds, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations shall be preserved and enhanced.

- **Policy 8-6:** Significant trees, natural vegetation, and wildlife populations generally shall be preserved.
- **Policy 8-7:** Important wildlife habitats which would be disturbed by major development shall be preserved, and corridors for wildlife migration between undeveloped lands shall be retained.
- **Policy 8-9:** Areas determined to contain significant ecological resources, particularly those containing endangered species, shall be maintained in their natural state and carefully regulated to the maximum legal extent. Acquisition of the most ecologically sensitive properties within the County by appropriate public agencies shall be encouraged.
- **Policy 8-10:** Any development located or proposed within significant ecological resource areas shall ensure that the resource is protected.
- **Policy 8-12:** Natural woodlands shall be preserved to the maximum extent possible in the course of land development.
- **Policy 8-13:** The critical ecological and scenic characteristics of rangelands, woodlands, and wildlands shall be recognized and protected.
- **Policy 8-15:** Existing vegetation, both native and non-native, and wildlife habitat areas shall be retained in the major open space areas sufficient for the maintenance of a healthy balance of wildlife populations.
- **Policy 8-21:** The planting of native trees and shrubs shall be encouraged in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native wildlife, and ensure that a maximum number and variety of well-adapted plants are sustained in urban areas.
- **Policy 8-22:** Applications of toxic pesticides and herbicides shall be kept at a minimum and applied in accordance with the strictest standards designed to conserve all the living resources of the County. The use of biological and other non-toxic controls shall be encouraged.
- **Policy 8-28:** Efforts shall be made to identify and protect the County's mature native oak, bay, and buckeye trees.
- **Policy 9-A:** To preserve and protect the ecological, scenic, cultural/historic, and recreational resource lands of the county.
- **Policy 9-C:** To achieve a balance of open space and urban areas to meet the social, environmental, and economic needs of the county now and for the future.

Contra Costa County Ordinance Code

- **Chapter 82-1—65/35 Land Preservation Plan**
  - Chapter 82-1 covers the implementation of the general plan and the various regulations regarding development in urban and undeveloped areas.
- **Section 816-6.** Lists the protected trees, permit requirements, and the application process for tree removal.
- A protected tree is any one of the following:
  (1) On all properties within the unincorporated area of the county:
    (A) Where the tree to be cut down, destroyed or trimmed by topping is adjacent to or part of a riparian, foothill woodland or oak savanna area, or part of a stand of four or more trees, measures twenty inches or larger in circumference (approximately 6.5 inches in diameter) as measured four and one-half feet from ground level, and is included in the following list of indigenous trees: *Acer macrophyllum* (Bigleaf Maple), *Acer negundo* (Box Elder), *Aesculus califonica* (California Buckeye), *Alnus Rhombifolia* (White Alder),

Arbutus menziesii (Madrone), *Heteromeles arbutifolia* (Toyon), *Juglans Hindsii* (California Black Walnut), *Juniperus californica* (California Juniper), *Lithocarpus densiflora* (Tanoak or Tanbark Oak), *Pinus attenuata* (Knobcone Pine), *Pinus sabiniana* (Digger Pine), *Platanus Racemosa* (California Sycamore), *Populus fremontii* (Fremont Cottonwood), *Populus trichocarpa* (Black Cottonwood), *Quercus agrifolia* (California or Coast Live Oak), *Quercus chrysolepis* (Canyon Live Oak), *Quercus douglasii* (Blue Oak), *Quercus kelloggii* (California Black Oak), *Quercus lobata* (Valley Oak), *Quercus wislizenii* (Interior Live Oak), Salix lasiandra (Yellow Willow), *Salix laevigata* (Red Willow), *Salix lasiolepis* (Arroyo Willow), *Sambucus callicarpa* (Coast Red Elderberry), *Sequoia sempervirens* (Coast Redwood), *Umbellularia californica* (California Bay or Laurel);

(B) Any tree shown to be preserved on an approved tentative map, development or site plan or required to be retained as a condition of approval;

(C) Any tree required to be planted as a replacement for an unlawfully removed tree.

(2) On any of the properties specified in subsection (3) of this section:

(A) Any tree measuring twenty inches or larger in circumference (approximately six and one-half inches diameter), measured four and one-half feet from ground level including the oak trees listed above;

(B) Any multistemmed tree with the sum of the circumferences measuring forty inches or larger, measured four and one-half feet from ground level;

(C) And any significant grouping of trees, including groves of four or more trees.

(3) Specified properties referred to in subsection (2) of this section includes:

(A) Any developed property within any commercial, professional office or industrial district;

(B) Any undeveloped property within any district;

(C) Any area designated on the general plan for recreational purposes or open space;

(D) Any area designated in the county general plan open space element as visually significant riparian or ridge line vegetation and where the tree is adjacent to or part of a riparian, foothill woodland or oak savanna area

- Any person proposing to trench, grade or fill within the dripline of any protected tree or cut down, destroy, trim by topping or remove any protected tree shall apply to the department for a tree permit, not less than ten days prior to the proposed tree removal or tree alterations.
- "Tree removal" means the destruction of any protected tree by cutting, regrading, girdling, interfering with water supply, applying chemicals or by other means.
- A heritage tree is defined as a tree that is 72 inches or more in circumference measured four and one-half feet above the natural grade; or any tree or a group of trees particularly worthy of protection, and specifically designated as a heritage tree by the board of supervisors pursuant to the provisions of this chapter, because of:

  a) Having historical or ecological interest or significance, or

  b) Being dependent upon each other for health or survival, or

  c) Being considered an outstanding specimen of its species as to such factors as location, size, age, rarity, shape, or health.
- The Contra Costa County Heritage Tree Ordinance (Chapter 816-4, Ordinance 88-83, Contra Costa County Code) protects trees that have been designated as a heritage tree by the planning commission or board. A tree permit must be filed to remove a heritage tree, including application for a building, grading, or demolition permit.

3.3.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 CEQA Guidelines Appendix G, to determine whether impacts related to biological resources are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

c) Have a substantial adverse effect on State of federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of 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?

Approach to Analysis

Impacts on biological resources were evaluated based on the likelihood that special-status species, sensitive habitats, wildlife corridors, and protected trees are present on the project site, and the likely effects of project construction or operation on these resources. For the purposes of this EIR, the word “substantial” as used in the significance thresholds above is defined by the following three principal components:

- Magnitude and duration of the impact (e.g., substantial/not substantial),
- Uniqueness of the affected resource (rarity), and
- Susceptibility of the affected resource to disturbance.

In this Biological Resources Analysis, the project site is defined as all areas directly affected by project development.

Specific Thresholds of Significance

For purposes of this Analysis, the following thresholds are used to evaluate the significance of biological resources impacts resulting from implementation of the project.

- Result in direct take or habitat removal or alteration for candidate, sensitive, or special-status species
- Remove vegetation or damage water quality related to riparian habitat or other sensitive natural community
- Remove, fill, or damage a federally protected wetland
- Interrupt fish movement in an aquatic channel or impede terrestrial movement via a land corridor
- Remove, damage, or replace trees designated by the Contra Costa County Tree Ordinance
- Conflict with the provisions of an applicable habitat conservation plan

Impact Evaluation

Special-Status Species

Impact BIO-1:	**The project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.**

Construction

An impact to special-status plant and wildlife species would be considered significant if project operations resulted in a substantial, adverse change in any of the physical conditions (such as habitat) within the area affected by the project. Each potential special-status species that has the potential to be impacted is discussed in detail below.

Special-Status Plant Species

Special-status plant species or communities are unlikely to occur within the project site, based on multiple database searches, literature review, and on-site field survey observations. The Special-Status Species Table (Appendix C) provides both the habitat description and the rationale of the potential of special-status plant species to occur on the project site. Suitable habitats requirements for special-status plant species include vernal pools, chaparral, serpentine soils, and coastal scrub, and these features are absent from the project site. Therefore, no impacts to special-status plants or plant communities are expected to result from project construction.

Special-Status Wildlife Species

Two special-status wildlife species (pallid bat and Townsend's big-eared bat) as well as birds protected under the MBTA have potential to occur on the project site and, thus, have the potential to be impacted by project construction. The Special-Status Species Table (Appendix C) provides both the habitat description and the rationale of the potential of special-status wildlife species to occur on the

project site. Suitable habitat requirements for other special-status wildlife species include permanent or temporary aquatic features, dry open grassland, or sand and loamy soils with sparse vegetation, and these features are absent from the project site. Potential impacts to the aforementioned special-status wildlife species and migratory birds are discussed below.

Pallid bat

The pallid bat is a California Species of Special Concern. The two residential buildings and large amount of mature trees on the project site provide marginal roosting habitat for this species. The project involves the demolition of the residential buildings, removal of trees, and impacts to additional trees. However, there is a low potential for this special-status species to occur on-site and, thus, to be disturbed during project construction. This represents a potentially significant impact.

Townsend's big-eared bat

Townsend's big-eared bat is a California Species of Special Concern. It has no special federal status or listing. There is a low potential for this species to occur on the project site, as the immediate surrounding area is highly trafficked with vehicles and persons. However, the species is very sensitive to disturbances and, thus, potentially could be disturbed during project construction. This represents a potentially significant impact.

Implementation of Mitigation Measure (MM) BIO-1a would reduce potential impacts to the pallid or Townsend's big-eared bats by requiring surveys prior to removal of trees, commencement of demolition or construction activities and, if bats are present, requiring any necessary buffer zones to be established by a qualified Biologist. Moreover, the project would not contribute to the permanent loss of roosting habitat, habitat fragmentation, or a loss of suitable foraging habitat. Therefore, impacts to bats would be less than significant with mitigation.

Migratory and Nesting Birds

The variety of trees on and surrounding the project site have the potential to serve as suitable nesting habitat of various species of birds and raptors protected under the MBTA. The removal of trees by the project could result in a reduction of potential nesting habitat. This represents a potentially significant impact.

Implementation of MM BIO-1b would reduce potential impacts to migratory and nesting birds by requiring pre-construction surveys prior to removal of trees, demolitions or construction activities taking place during the nesting season, and if necessary, buffer zones established by a qualified Biologist. Moreover, the project would not contribute to the permanent loss of roosting habitat or a loss of suitable foraging habitat. Therefore, impacts to migratory birds would be less than significant with mitigation.

Operation

Impacts related to a project's potential effect on special-status species are limited to construction impacts. No respective operational impacts would occur.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM BIO-1a Conduct Pre-construction Special-status Bat Surveys

The following measures shall be implemented prior to demolition, construction activities, or tree removal:

- A qualified wildlife Biologist shall conduct surveys for special-status bats during the appropriate time of day to maximize detectability to determine if bat species are roosting near the work area no less than 7 days and no more than 14 days prior to tree removal, beginning ground disturbance and/or construction. Survey methodology may include visual surveys of bats (e.g., observation of bats during foraging period), inspection for suitable habitat, bat sign (e.g., guano), or use of ultrasonic detectors (Anabat, etc.). Visual surveys shall include trees within 0.25 mile of project construction activities. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study is required.
- If evidence of bat use is observed, the number and species of bats using the roost will be determined. Bat detectors may be used to supplement survey efforts.
- If roosts are determined to be present and must be removed, the bats shall be excluded from the roosting site before the facility is removed. A mitigation program addressing compensation, exclusion methods, and roost removal procedures shall be developed prior to implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but cannot reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young).
- If roosts cannot be avoided or it is determined that construction activities may cause roost abandonment, such activities shall not commence until permanent, elevated bat houses have been installed outside of, but near the construction area. Placement and height shall be determined by a qualified wildlife Biologist, but the height of the bat house will be at least 15 feet. Bat houses will be multi-chambered and will be purchased or constructed in accordance with CDFW standards. The number of bat houses required will be dependent upon the size and number of colonies found, but at least one bat house will be installed for each pair of bats (if occurring individually), or of sufficient number to accommodate each colony of bats to be relocated.

MM BIO-1b Avoid Active Migratory Bird Nests and Bat Roosts During Construction

The following measures shall be implemented for construction work during the nesting season (February 15 through August 31):

- If construction or tree removal is proposed during the breeding/nesting season for migratory birds (typically February 15 through August 31), a qualified Biologist shall conduct pre-construction surveys for northern harrier, pallid bat, Townsend's

big-ear bat, and other migratory birds within the construction area, including a survey buffer determined by a qualified Biologist based on professional experience, no more than 14 days prior to the start of ground disturbing activities in the construction area.

- If an active nest is located during pre-construction surveys, USFWS and/or CDFW (as appropriate) shall be notified regarding the status of the nest. Furthermore, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or a qualified Biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 300 feet around an active raptor nest and 50-foot radius around an active migratory bird nest) or alteration of the construction schedule.
- A qualified Biologist shall delineate the buffer using nest buffer signs, ESA fencing, pin flags, and or flagging tape. The buffer zone shall be maintained around the active nest site(s) until the young have fledged and are foraging independently.

Level of Significance After Mitigation

Less Than Significant with Mitigation

Sensitive Natural Communities

Impact BIO-2:	**The project would not have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.**

Construction

An impact to sensitive natural communities or riparian habitat would be considered significant if the project construction or operation resulted in a substantial, adverse change in any of the physical conditions (such as removal of vegetation) within the area affected by the project. Potential impacts to sensitive natural communities or riparian habitat that have the potential to be impacted are discussed in detail below.

There are no rivers, streams, or associated riparian vegetation on or adjacent to the project site. Walnut Creek, a concrete lined urbanized channel, is located approximately 0.5 mile away from the project site. Due to the lack of preserved and undisturbed natural habitat within or surrounding the project site, there is also no other sensitive natural community on the project site that could be impacted by project construction. There are several areas on the project site that contain multiple adult, mature oaks, but due to the small size of the project site and high level of disturbance and development that has occurred with the immediate vicinity, these areas are not considered a sensitive natural community under CEQA. Therefore, there would be no construction impact related to effects on riparian habitat or other sensitive natural communities.

Operation

Impacts related to a project's potential effect on sensitive natural communities are limited to construction impacts. No respective operational impacts would occur.

Level of Significance

No Impact

Wetlands

Impact BIO-3:	**The project would not have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

Construction

Impacts to State or federally protected wetlands would be considered significant if the project operations resulted in a substantial, adverse change in any of the physical conditions (i.e. fill) of wetlands.

There are no State or federally protected wetlands or other jurisdictional features on, or adjacent to, the project site. The project site is located in an urban area and surrounded by development. As a whole, the project site is devoid of aquatic features. As such, there are no wetlands that would require filling or removal or could experience degradation due to project construction. Therefore, no impact related to effect on State or federal wetlands would occur due to project construction.

Operation

Impacts related to a project's potential effect on wetlands are limited to construction impacts. No respective operational impacts would occur.

Level of Significance

No Impact

Fish and Wildlife Movement Corridors

Impact BIO-4:	**The project would not substantially interfere with the movement of 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.**

Construction

An impact to fish or wildlife movement would be considered significant if the project construction or operation resulted in a substantial, adverse change in any of the physical conditions (such as the interruption of a channel or terrestrial movement corridor) within the area affected by the project. Fish or wildlife movement that have the potential to be impacted are discussed in detail below.

The project site is surrounded by residential buildings, actively used roads and walking paths. There are barriers around the majority of the project site boundaries. Several fences partially surround the two residential buildings on-site, consisting, of both chicken wire and wooden fencing. These barriers, in conjunction with the urban context of the project site and lack of surface waters, further

impede wildlife and fish species movement through and within the project site. As such, there is little potential for a wildlife corridor to occur or be hindered due to the project construction and disturbance of the project site. Additionally, it is highly unlikely that any wildlife corridors present in the East Contra Costa County Habitat Conservation Plan area, which is roughly 5.5 miles away, would be affected by project construction. Therefore, impacts to wildlife movement and corridors would be less than significant.

Operation

Impacts related to a project's potential interference with a fish or wildlife movement corridor are limited to construction impacts. No respective operational impacts would occur.

Level of Significance

Less Than Significant

Local Biological Resources Policies/Ordinances Consistency

Impact BIO-5: The project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Construction

The Contra Costa County Code Chapter 816-6 lists the protected trees, permit requirements, and the applications process for tree removal. A significant impact would result if construction or operation of the project would conflict with these policies and provisions. Conflicts with this ordinance protecting biological resources are discussed below.

The Tree Inventory Report[14] conducted for the project site on May 9, 2019, provides an inventory and preliminary evaluation of all trees over 6 inches in diameter within the project site. Trees that were surveyed were numbered, tagged, identified, measured, and evaluated. A total of approximately 161 trees would be removed within the boundaries of the project site. Of the trees proposed for removal, approximately 145 trees are considered code-protected due to their size, while the remaining approximately 16 trees are not code-protected based on the Tree Protection and Preservation Ordinance. If not properly protected, the trees proposed for preservation within the site boundaries and directly adjacent to the project site could also be subject to injury or inadequate maintenance during construction, which represents a potentially significant impact.

The response of individual trees would depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods.

As the construction of the project requires the removal of trees subject to the Contra Costa County Tree Protection and Preservation Ordinance, the applicant would be required to prepare and implement a tree replacement plan (per MM BIO-5a). In addition, remaining trees that are proposed for preservation on the project site would be preserved through the implementation of the tree protection guidelines identified and outlined in the project-site-specific Tree Inventory Report (per MM BIO-5b).

[14] HortScience, Inc. 2019. Tree Inventory Report.

As a part of approval for on-site development, the applicant would be required to demonstrate and implement consistency with the County's tree ordinance, including tree removal permits and protection of preserved trees. Therefore, with implementation of MM BIO-5a and MM Bio-5b, impacts related to consistency with local policies or ordinances that protect biological resources would be less than significant.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM BIO-5a Prepare and Implement a Tree Replacement Plan

A Tree Replacement Plan shall be submitted to and approved by Contra Costa County Department of Conservation and Development prior to the removal of trees, and/or prior to issuance of a demolition or grading permit. The Tree Replacement Plan shall designate the approximate location, number, and sizes of trees to be planted. Trees shall be planted prior to requesting a final inspection of the building permit.

MM BIO-5b Implement Tree Protection Guidelines During Construction

Tree protection guidelines shall be implemented during construction through the clearing, grading, and construction phases as outlined in the arborist report prepared by HortScience dated May 9, 2019.

Level of Significance After Mitigation

Less Than Significant with Mitigation

Habitat/Natural Community Conservation Plan Consistency

Impact BIO-6: The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Construction

The project site does not fall within the coverage area of a habitat conservation plan or natural community conservation plan. The project site is roughly 5.5 miles west of the East Contra Costa County Habitat Conservation Plan (ECCCHCP) area, the nearest habitat conservation plan area. Therefore, there would be no construction impact related to consistency with a conservation plan.

Operation

Impacts related to a project's consistency with habitat or natural community conservation plans are limited to construction impacts. No respective operational impacts would occur.

Level of Significance

No Impact

3.3.5 - Cumulative Impacts

Special-status Species

The geographical scope of the cumulative Biological Resources Analysis is the boundaries of Contra Costa County, the City of Pleasant Hill, and the City of Walnut Creek with a focus on the areas of Contra Costa County near where the project site is located. Development listed in Table 3-1 (Refer to Chapter 3.0, Environmental Impact Analysis) consists predominantly of commercial development and some include residential components. The majority of this area is highly developed and contains a mix of residential, commercial, and industrial buildings. There are several jurisdictional waterways in the proximity of the project site, such as the Contra Costa Canal and Ygnacio Canal. Additionally, the Walnut Creek Waterway is to the east of the project site and provides habitat for a variety of wetland and riparian species of flora and fauna. The majority of projects are occurring in close vicinity of the project site and, subsequently, occurring in previously developed or highly disturbed areas. The developed urban characteristics of the previously mentioned areas will preclude the presence of many special-status species. However, the varying degree of trees present in and around the urban areas may provide suitable nesting habitat for birds protected by the MBTA. Standard pre-construction surveys and, if necessary, avoidance procedures would be required for cumulative projects with the potential to impact nesting birds and protected bat species. While there are a limited number of isolated pockets of natural habitat that can support special-status wildlife and plant species, the built-up nature of the previously listed areas precludes the possible cumulative impacts to biological resources related to special-status wildlife and plant species.

Sensitive Natural Communities or Riparian Habitat

Within Contra Costa County, the City of Pleasant Hill, and the City of Walnut Creek, there are several small waterbodies, the Walnut Creek waterway, and associated riparian habitats. These areas may be considered sensitive natural communities dependent on the habitat conditions and species present. The majority of current developments are designed to address future growth problems, prevent urban sprawl, and minimize developmental impacts to sensitive natural communities. This is accomplished by designing projects to occur in previously developed or highly disturbed areas that the characteristics of lack sensitive natural communities or riparian habitat. As such, the project, in conjunction with other cumulative projects, would result in a less than significant cumulative impact related to sensitive natural communities and associated riparian habitat.

Waters of the United States

The areas of Contra Costa County, the City of Pleasant Hill, and the City of Walnut Creek contain several areas that would be considered jurisdictional features. As such, current projects are occurring in a highly developed and disturbed area with low potential for jurisdictional features to be impacted by project development. If any issues were to arise due to current development, the applicant would be required to obtain appropriate permits from the USACE and CDFW, compensate for loss of waters of the United States through re-creation or payment of mitigation credits, and re-creation of lost riparian habitat. Due to the limited scope of current projects, which are occurring in highly developed and disturbed areas, it is expected there will be a less than significant cumulative impact related to waters of the United States.

Local Policies or Ordinances

The project would remove approximately 161 trees (approximately 145 code-protected trees and approximately 16 not code-protected trees). Other projects listed in Table 3-1 may require the removal or encroachment on certain protected trees as listed by the Contra Costa County Zoning Ordinance, the Walnut Creek Municipal Code, or the Pleasant Hill Municipal Code. As previously mentioned, many of the current development projects are occurring in previously developed or disturbed areas. As such, a limited number of trees within the geographical scope are likely to occur. Current project developments may require an Arborist report to determine the identity of trees planned for removal or encroachment. Therefore, the project, in conjunction with other future development projects, would be required to adhere to applicable tree ordinances and regulations set by the County of Contra Costa and the City of Walnut Creek and City of Pleasant Hill resulting in a less than significant cumulative impact to biological resources related to local policies and ordinances.

Fish and Wildlife Movement Corridors

The main wildlife corridor in the vicinity of the project site is the Walnut Creek Waterway, which is roughly contiguous with the Interstate 680 (I-680) corridor, stretching from northern San Ramon to Suisun Bay. There are several small water channels and tributaries that are located within the geographical scope of this project. The project site is located to the west of Walnut Creek and due to the small size, will not have to account for any potential impacts to wildlife corridors. Any current development that occurs within the geographic scope of Contra Costa County, the City of Walnut Creek and the City of Pleasant Hill will have to take into account the potential impact to these corridors. The areas surrounding the potential corridors within the previously mentioned geographical scope are highly developed, further impeding the movement of species out from these areas. As such, there will be a less then significant cumulative impact to biological resources related to movement corridors for fish and wildlife.

Habitat and Natural Community Conservation Plan Consistency

The project site is not located within the ECCCHCP. The ECCHCP provides for comprehensive species, wetlands, and ecosystem conservation, and contributes to the recovery of endangered species in Northern California. Any current project sites within the boundaries of the ECCCHCP will have to adhere by the additional regulations and guidelines set forth. This may include additional surveys for listed species, developments fees, and various other directions. As such, there will be a less then significant cumulative impact to biological resources relating to developments occurring in Habitat Community Conservation Plans.

Level of Cumulative Significance

Less Than Significant

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3.4 - Cultural Resources

3.4.1 - Introduction

This section describes existing cultural resources in the region and project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to cultural resources that could result from implementation of the project. Information included in this section is based on the project-specific Phase I Cultural Resource Assessment (Phase I CRA) included in Appendix D. No comments were received during the Environmental Impact Report (EIR) scoping period related to cultural resources.

3.4.2 - Environmental Setting

Cultural Resources Components

The term "cultural resources" encompasses historic, archaeological, and tribal cultural resources as well as burial sites. Below is a brief summary of each component:

- **Historic Resources:** Historic resources are associated with the recent past. In California, historic resources are typically associated with the Spanish, Mexican, and American periods in the State's history and are generally less than 200 years old.
- **Archaeological Resources:** Archaeology is the study of artifacts and material culture with the aim of understanding human activities and cultures in the past. Archaeological resources may be associated with prehistoric indigenous cultures as well as historic periods.
- **Burial Sites and Cemeteries:** Burial sites and cemeteries are formal or informal locations where human remains have been interred.

Overall Cultural Setting

Following is a brief overview of the prehistory, ethnography, and historic background, providing a context in which to understand the background and relevance of sites found in the general project area. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview. Further details can be found in ethnographic studies, mission records, and major published sources.[1,2,3,4,5,6]

Prehistoric and Ethnographic Background

In general, archaeological research in the greater San Francisco Bay Area has focused on coastal areas, where large shellmounds were relatively easily identified on the landscape. This research and its chronological framework, however, is relevant to and has a bearing on our understanding of prehistory in areas adjacent to the San Francisco Bay Area, including modern Contra Costa County.

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[1] Kroeber, A.L. 1925. Handbook of the Indians of California. Bulletin 78. Bureau of American Ethnology. Washington, D.C. Smithsonian Institution.
[2] Beardsley, R.K. 1948. "Cultural Sequences in Central California Archaeology." American Antiquity 14:1-28.
[3] Bennyhoff, J. 1950. Californian Fish Spears and Harpoons. Berkeley: University of California Anthropological Records 9(4):295-338.
[4] Chartkoff J.L. and K.K. Chartkoff. 1984. The Archaeology of California. Menlo Park: Stanford University Press.
[5] Moratto, M.J. 1984. California Archaeology. San Diego: Academic Press.
[6] Jones, T.L. and Kathryn A. Klar. 2007. California Prehistory. Lanham: AltaMira Press; Rowman & Littlefield Publishers, Inc.

The San Francisco Bay Area supported a dense population of hunter-gatherers over thousands of years, leaving a rich and varied archaeological record. The Bay Area was a place of incredible language diversity, with seven languages spoken at the time of Spanish settlement in 1776. The diverse ecosystem of the bay and surrounding lands supported an average of three to five persons per square mile, but reached 11 persons per square mile in the North Bay. At the time of Spanish contact, the people of the Bay Area were organized into local tribelets that defended fixed territories under independent leaders. Typically, individual Bay Area tribelets included 200 to 400 people distributed among three to five semi-permanent villages, within territories measuring approximately 10 to 12 miles in diameter.[7]

Native American occupation and use of the greater Bay Area, including the regions comprising modern Walnut Creek and Pleasant Hill, extends over 5,000 to 7,000 years and may be longer. Early archaeological investigations in Central California were conducted at sites located in the Sacramento-San Joaquin Delta region. The first published account documents investigations in the Lodi and Stockton area. The initial archaeological reports typically contained descriptive narratives with more systematic approaches sponsored by Sacramento Junior College in the 1930s. At the same time, University of California at Berkeley excavated several sites in the lower Sacramento Valley and Delta region, which resulted in recognizing archaeological site patterns based on a variation of intersite assemblages. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence. In 1939, researcher Jeremiah Lillard of Sacramento Junior College noted that each cultural period led directly to the next and that influences spread from the Delta region to their regions in Central California.[8] In the late 1940s and early 1950s, researcher Richard Beardsley of the University of California Berkeley documented similarities in artifacts among sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became known as the Central California Taxonomic System (CCTS). This system proposed a uniform, linear sequence of cultural succession.[9]

To address some of the flaws in the CCTS system, D.A. Fredrickson introduced a revision that incorporated a system of spatial and cultural integrative units. Fredrickson separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: Paleo-Indian (10000 to 6000 before Christ [BC]); Lower, Middle and Upper Archaic (6000 BC to *anno domini* [AD] 500), and Emergent (Upper and Lower, AD 500 to 1800). The suggested temporal ranges are similar to earlier horizons, which are broad cultural units that can be arranged in a temporal sequence.[10] In addition, Fredrickson defined several patterns—a general way of life shared within a specific geographical region. These patterns include:

- Windmiller Pattern or Early Horizon (3000 to 1000 before Common Era [BCE])
- Berkeley Pattern or Middle Horizon (1000 BCE to 500 Common Era [CE])
- Augustine Pattern or Late Horizon (500 CE to historic period)

[7] Milliken, Randall et.al. 2007. Punctuated Culture Change in the San Francisco Bay Area, In Prehistoric California: Colonization, Culture, and Complexity, edited by T.L. Jones and K.A. Klar, 99–124. AltaMira Press.
[8] Lillard, J.B. and W.K. Purves. 1936. The Archaeology of the Deer Creek-Cosumnes Area, Sacramento Co., California. Sacramento. Sacramento Junior College, Department of Anthropology Bulletin 1.
[9] Beardsley, R.K. 1948. Cultural Sequences in Central California Archaeology. American Antiquity 14:1–28.
[10] Fredrickson, D.A. 1973. Early Cultures of the North Coast of the North Coast Ranges, California. PhD dissertation.

Brief descriptions of these temporal ranges and their unique characteristics follow.

Windmiller Pattern or Early Horizon (3000 to 1000 BCE)

Characterized by the Windmiller Pattern, the Early Horizon was centered in the Cosumnes district of the Delta and emphasized hunting rather than gathering, as evidenced by the abundance of projectile points in relation to plant processing tools. Additionally, atlatl, dart, and spear technologies typically included stemmed projectile points of slate and chert but minimal obsidian. The large variety of projectile point types and faunal remains suggests exploitation of numerous types of terrestrial and aquatic species.[11] Burials occurred in cemeteries and intra-village graves. These burials typically were ventrally extended, although some dorsal extensions are known with a westerly orientation and a high number of grave goods. Trade networks focused on acquisition of ornamental and ceremonial objects in finished form rather than on raw material. The presence of artifacts made of exotic materials such as quartz, obsidian, and shell indicates an extensive trade network that may represent the arrival of Utian populations into central California. Also indicative of this period are rectangular Haliotis and Olivella shell beads, and charmstones that usually were perforated.[12]

Berkeley Pattern or Middle Horizon (1000 BCE to 500 CE)

The Middle Horizon is characterized by the Berkeley Pattern, which displays considerable changes from the Early Horizon. This period exhibited a strong milling technology represented by minimally shaped cobble mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Fredrickson suggests that the Berkeley Pattern marked the eastward expansion of Miwok groups from the San Francisco Bay Area. Compared with the Early Horizon, there is a higher proportion of grinding implements at this time, implying an emphasis on plant resources rather than on hunting. Typical burials occurred within the village with flexed positions, variable cardinal orientation, and some cremations. As noted by Lillard, Heizer, and Fenenga, the practice of spreading ground ochre over the burial was common at this time. Grave goods during this period are generally sparse and typically include only utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles occasionally were present, which suggest the religious or ceremonial significance of the individual.[13] During this period, larger populations are suggested by the number and depth of sites compared with the Windmiller Pattern. According to Fredrickson, the Berkeley Pattern reflects gradual expansion or assimilation of different populations rather than sudden population replacement and a gradual shift in economic emphasis.[14]

Augustine Pattern or Late Horizon (500 CE to Historic Period)

The Late Horizon is characterized by the Augustine Pattern, which represents a shift in the general subsistence pattern. Changes include the introduction of bow and arrow technology; and most importantly, acorns became the predominant food resource. Trade systems expanded to include raw

[11] Bennyhoff, J. 1950. Californian Fish Spears and Harpoons. University of California Anthropological Records 9(4):295–338.
[12] Ragir, S.R. 1972. The Early Horizon in Central California Prehistory. Contributions of the University of California Archaeological Research Facility 15. Berkeley, CA.
[13] Lillard, J.B., R.F. Heizer, and F. Fenenga. 1939. An Introduction to the Archaeology of Central California. Sacramento Junior College, Department of Anthropology, Bulletin 2.
[14] Fredrickson, D.A. 1973. Early Cultures of the North Coast of the North Coast Ranges, California. PhD dissertation.

resources as well as finished products. There are more baked clay artifacts and extensive use of Haliotis ornaments of many elaborate shapes and forms. According to Moratto, burial patterns retained the use of flexed burials with variable orientation, but there was a reduction in the use of ochre and widespread evidence of cremation.[15] Judging from the number and types of grave goods associated with the two types of burials, cremation seems to have been reserved for individuals of higher status, whereas other individuals were buried in flexed positions. Johnson suggests that the Augustine Pattern represents expansion of the Wintuan population from the north, which resulted in combining new traits with those established during the Berkeley Pattern.[16]

Central California research has expanded from an emphasis on defining chronological and cultural units to a more comprehensive look at settlement and subsistence systems. This shift is illustrated by the early use of burials to identify mortuary assemblages and more recent research using osteological data to determine the health of prehistoric populations. Although debate continues over a single model or sequence for California, the general framework consisting of three temporal/cultural units is generally accepted, although the identification of regional and local variation is a major goal of current archaeological research.

The Bay Miwok

The San Francisco Bay Area consisted of several independent tribal territories during the prehistoric and early historic periods. Native Peoples largely spoke dialects of five distinct languages: Costanoan (Ohlone), Bay Miwok, Plains Miwok, Patwin, and Wappo. The project site lies at intersection of several of these groups at different periods in time, however it was largely within the ethnographic and historic boundaries of Bay Miwok speakers, who occupied the eastern portions of Contra Costa County, from Walnut Creek east to the Sacramento-San Joaquin Delta, including the northern slopes of Mount Diablo. Several bands of Miwok are associated with the area, the closest being the Saclan, whose territory extended through the hills east of present-day Rossmoor, Lafayette, Moraga, and Walnut Creek.

The foremost political unit of the Miwok was the tribelet; an independent and sovereign nation with defined boundaries and control over the natural resources within those boundaries. As noted by Levy, villages are described as headquarters of a localized patrilineage, and this social organization was further prescribed by individual lineage memberships in a moiety. With the notable exceptions of tobacco and dogs, the Eastern Miwok largely lacked cultivated plants or domesticated animals.[17]

All plant foods were naturally occurring and gathered by hand, the most important of which were the seven varieties of acorn used by the Eastern Miwok people. Acorns were usually allowed to ripen and fall off the tree on their own where they would then be collected in large numbers in burden baskets. The acorns were then shelled, placed on an acorn anvil, and struck with a hammer stone to expose the meats within. These meats were ground into a fine meal using a bedrock mortar and cobblestone pestle. The meal was then sifted into a tightly coiled basket, and several applications of water were run through the basket to leach the bitter tannin from the meal. Once

[15] Moratto, M.J. 1984. California Archaeology. San Diego: Academic Press.
[16] Johnson, J.J. 1976. Archaeological Investigations at the Blodgett Site (CA-SAC-267), Sloughhouse Locality, California. Report to the U.S. National Parks Service, Western Regional Office, Tucson, Arizona.
[17] Levy, R. 1978. Costanoan. In California, edited by Robert F. Heizer, pp. 485-495. Handbook of North American Indians, Vol. 8. W.G. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

dry, the meal could be used in the preparation of acorn soup, mush, biscuits, and bread. For this reason, access to acorns; clean, moving water; and exposed bedrock was particularly important to the Eastern Miwok. These resources were available in the general project area.

The project site is located to the east of Grayson Creek, formerly known as Pacheco Creek Springs and to the west of Walnut Creek. Watercourses were often a focus of prehistoric occupation in central California with Native American groups exploiting a variety of ecological niches. While this area was within an environmentally advantageous area for Native Americans located between the resources of the San Francisco Bay margin and the foothills and nearby creeks, no known ethnographic settlements are known to have been located within or adjacent to the project site. Prehistoric site types recorded in the general Pleasant Hill area consist of lithic scatters, quarries, habitation sites (including burials), bedrock mortars or other milling feature sites, petroglyph sites, and isolated burial sites. However, none of these resources or the habitation mounds mapped by Whitney in 1873 or recorded by Nels C. Nelson in 1912 are located on or near the project site.

Regional Historic Background

Spanish Period

The Eastern Miwok were first contacted by the Spanish exploring expeditions of the Sacramento-San Joaquin Valley in the second part of the eighteenth century. The first Spanish expeditions through the study area were led by Captain Pedro Fages and Father Juan Crespi in 1772. Juan Bautista de Anza also led an expedition in 1776. Expedition campsites have been mapped in the vicinity of Interstate 680, State Route 242, and Willow Pass Road. According to Hart, Spanish colonial policy from 1769-1821 was directed at the founding of presidios, missions, and secular towns, with the land held by the Crown. The depletion of the coastal populations resulted in Spanish missionaries shifting to conversion of the interior peoples. The Bay Miwok were the first of the Eastern Miwok to be missionized, and were generally not willing converts. Mission baptismal records show that Native Americans went to Mission San Francisco de Assisi, founded in 1776, and Mission San Jose, founded in 1797. Their traditional lifeways apparently disappeared by 1810 due to disruption by Euro American diseases, a declining birth rate, and the impact of the mission system. For the most part, the former hunters-gatherers were transformed into agricultural laborers and worked with former neighboring groups such as the Esselen, Yokuts, and Miwok. After secularization of the missions between 1834 and 1836, some Native Americans returned to traditional religious and subsistence practices while others labored on Mexican ranchos. Thus, multi-ethnic Indian communities grew up in and around the area and provided informant testimony to ethnologists from 1878 to 1933.[18]

Mexican Period

The Mexican Period, 1821 to 1848, was marked by secularization and division of mission lands among the *Californios* as land grants, termed ranchos. During this period, Mariano G. Vallejo assumed authority of Sonoma Mission and established a rapport with the Native Americans who were living there. In particular, Vallejo worked closely with Chief Solano, a Patwin who served as Vallejo's spokesperson when problems with Native American tribes arose. The large rancho lands often were worked by Native Americans who were used as forced labor.

[18] Hart, J.D. 1987. A Companion to California (New edition, revised and expanded). University of California Press, Berkeley, California.

Shoup and Milliken state that mission secularization removed the social protection and support on which Native Americans had come to rely. It exposed them to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos.[19] Following mission secularization, the Mexican population grew as the Native American population continued to decline. Euro-American settlers began to arrive in California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to receive land grants. In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of California was 8,000 non-natives and 10,000 Native Americans. However, these estimates have been debated. Cook suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,385.[20]

Gold Rush and American Expansion Period

In 1848, James W. Marshall discovered gold at Coloma in modern-day El Dorado County, which started the gold rush into the region that forever altered the course of California's history. The arrival of thousands of gold seekers in the territory contributed to the exploration and settlement of the entire State. By late 1848, approximately four out of five men in California were gold miners. The gold rush originated along the reaches of the American River and other tributaries to the Sacramento River, and Hangtown, present-day Placerville, became the closest town offering mining supplies and other necessities for the miners in El Dorado County. Gold subsequently was found in the tributaries to the San Joaquin River, which flowed north to join the Sacramento River in the great delta east of San Francisco Bay.[21]

By 1864, California's gold rush had essentially ended. The rich surface and river placers were largely exhausted and the miners either returned to their homelands or stayed to start new lives in California. After the gold rush, people in towns such as Jackson, Placerville, and Sonora turned to other means of commerce, such as ranching, agriculture, and timber production. With the decline of gold mining, agriculture and ranching came to the forefront in the State's economy. California's natural resources and moderate climate proved well suited for cultivation of a variety of fruits, nuts, vegetables, and grains.[22]

History of Contra Costa County

The east side of San Francisco Bay, directly across from the City of San Francisco, became known as the "opposite coast" (or contra costa) by the Spanish. The county was formed in December of 1849 and is one of the original 27 California counties, with the county seat at Martinez.[23] Contra Costa County, like much of California, was seen as a land of economic opportunity, not just for its mining resources but also for its productive land where farmers could cultivate a variety of crops. Agriculture became important in the California economy in the late 1850s, and through to the 1860s, homesteading became a means by which people could own and operate a family farm. The decidedly agricultural focus also underpins the historical significance of the Spanish colonial and

[19] Shoup, L.H., and R.T. Milliken. 1999. Inigo of Rancho Posolmi: the Life and Times of a Mission Indian. Novato, CA. Ballena Press.
[20] Cook, S.F. 1976. The Population of the California Indians 1769–1970. University of California Press. Berkeley, California.
[21] Robinson, W.W. 1948. Land in California. Berkeley, CA: University of California Press. Cook, S.F. 1976. The Population of the California Indians 1769–1970. University of California Press. Berkeley, California.
[22] Beck, Warren A., and Y.D. Haase. 1974. Historical Atlas of California (Third Printing 1977). University of Oklahoma Press, Norman, Oklahoma.
[23] Hoover, Mildred B., et.al. Historic Spots in California. 5th ed., revised by Douglas E. Kyle. Stanford University Press, Stanford: 2002.

Mexican era of land grants. As early as 1882, special interests advertised the County's virtues as a place to cultivate. Early settlers began to speak of beneficial soils that support a range of crops—pears, prunes, peaches, almonds, walnuts and grapes flourished—with seasonal rainfall, and favorable climates. In addition, Contra Costa County is strategically located at crossing of trade routes with a waterfront location and relative closeness to the San Francisco metropolis. Large-scale commercial operations began to capitalize on mechanical innovations just as irrigation developed in the early 1880s. Consequently, competing economic interests caused land prices to increase and make family farming a less profitable enterprise.

Throughout the 1960s and 1970s, large companies followed their employees to suburban areas east of San Francisco. The establishment of large population centers fostered the development of equally large shopping centers. To meet demand on infrastructure, the State modernized highways and roadways, and with the establishment of the Bay Area Rapid Transit (BART) system (adjacent to the project site).

Records Searches and Pedestrian Survey to Identify Existing Cultural Resources

Northwest Information Center

On September 6, 2018, a records search for the project area and a 0.5-mile radius beyond the project boundaries was conducted at the Northwest Information Center (NWIC) located at Sonoma State University in Rohnert Park, California. To identify any historic properties or resources, the current inventories of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Historical Landmarks (CHL) list, the California Points of Historical Interest (CPHI) list, and the California State Historic Resources Inventory (HRI) for Sonoma County were reviewed to determine the existence of previously documented local historical resources.

The results of the records search indicated that three known cultural resources (see Table 3.4-1) have been recorded within the 0.50-mile search radius surrounding the project site. In addition, 35 area-specific survey reports (see Table 3.4-2) are on file with the NWIC for the project site and its 0.50-mile search radius. Of the 35 reports, only one (S-000623) assessed resources within the project site, indicating that the majority of the project site has not been surveyed for cultural resources. The records search did reveal one historic structure within a 0.5-mile radius of the project site for the Contra Costa County HRI, NRHP, CRHR, CHL, and/or CHPI inventories; however, a review of historic aerial photographs dating back to the 1940s revealed the presence of two unevaluated structures over 45 years in age that are, therefore, potentially eligible for the CRHR.

Table 3.4-1: Recorded Cultural Resources within 0.5-mile Radius of Project Site

Resource No.	Resource Name/Description	Date Recorded
P-07-000075	**CA-CCO-000133: Prehistoric Site** AP09 (Burials)	1946
P-07-002577	**2721 Cherry Lane, Historic Building Site** HP02 (Single family property)	2003
P-07-002695	**Contra Costa Canal, Historic Structure Site** HP20 (Canal/aqueduct)	1993–2016
Source: NWIC Records Search, September 5, 2018.		

Table 3.4-2: Previous Investigations within a 0.5-mile Radius of the Project Site

Report No.	Report Title/Project Focus	Author	Date
S-000623	Archaeological and Historic Architectural Survey of 04-CC-680 15.4/17.4, 0.2 mile north of North Main Street to 0.1 mile north of Oak Park Boulevard, BART Interface and I/C Revision, 04205-377111 (letter report)	Richard B. Hastings	1975
S-000727	An Archaeological Reconnaissance of Two New Proposed Waste Water Pipeline Routes, Livermore-Amador Valley Water Management Agency, Alameda County, California	Miley Holman and David Chavez	1977
S-001229	An Archaeological Reconnaissance of the Geary Road widening project area in Walnut Creek (letter report)	David Chavez	1978
S-001788	A Reconnaissance of the Bydewell Property in Contra Costa County	Lawrence E. Weigel	1979
S-002066	An archaeological reconnaissance of a proposed lot split addition for the Cork Harbor Company, near Walnut Creek (letter report)	Miley P. Holman	1979
S-0026987	An Archaeological Investigation of the Redwood Glen Townhouses Development, Mayhew Way, Contra Costa County, California	Nancy L. French and Peter M. Banks	1981
S-006663	Results of an Archaeological Investigation of the Contra Costa County Flood Control and Water Conservation District Drainage Area 44 B, Line A, Phase III	C. Kristina Roper	1984
S-007080	Archaeological Survey Report for Reconstruction of I-680/24 Interchange and Freeway Improvements, Contra Costa County, 04-CC-680 12.6/19.0; Additional Area Surveyed: 04-CC-680 19.0/23.0 and 04-CC-24 0.0/2.3 04224-400310	Pat Oman	1984
S-007377	Bancroft Road Street Widening, Walnut Creek, Contra Costa County, California (letter report)	Miley Paul Holman	1985
S-009231	Archaeological Reconnaissance of the Treat Commons Unit 2 (Subdivision #6955), Walnut Creek, California	Suzanne Baker	1987
S-009316	Historical Property Survey Report for the Bancroft Road Improvement Project, Walnut Creek, California	Larry Seeman Associates	1986
S-009859	Oak Road Widening Project, Walnut Creek, California (letter report)	Miley Paul Holman	1986
S-011234	Archaeological Survey Report for a Proposed Commuter Bike Path From Rudgear Road in Walnut Creek to Monument Boulevard, Contra Costa County, 4-CC-680 PM 12.6/17.7 04224-115350	Marcia K. Kelly	1989

Table 3.4-2 (cont.): Previous Investigations within a 0.5-mile Radius of the Project Site

Report No.	Report Title/Project Focus	Author	Date
S-011847	Archaeological Reconnaissance of 1523 Treat Boulevard, Walnut Creek, California	Suzanne Baker	1990
S-012020	Cultural Resources Assessment for Subdivision of 2 Acres, Belville Townhomes, Walnut Creek, California (letter report)	Angela M. Banet and Colin I. Busby	1990
S-015478	Preliminary Archaeological Survey of the CC-Line and A-Line Sewer Project, Contra Costa County, California	John F. Salter	1990
S-016396	Cultural Resources Field Inventory, Three Oaks Housing Limited Partnership, 3073 North Main Street, Assessor's Parcel Number (APN) No. 170-100-029 (letter report)	Colin I. Busby	1994
S-016946	A Cultural Resources Evaluation of the Seven Hills School, 975 North San Carlos Drive, Walnut Creek, Contra Costa County	Katherine Flynn	1995
S-017688	Cultural Resources Field Inventory, 1021 and 1011 Sheppard Road (APN No. 144-030-008, -009), City of Walnut Creek, APN No. 170-270-067 (letter report)	Colin I. Busby	1995
S-017689	Cultural Resources Field Inventory, Jillian Court at Sheppard Road (APN 144-030-022), Subdivision 7942 (Loving & Campos Architects, Inc.), City of Walnut Creek, Contra Costa County, California (letter report)	Colin I. Busby	1995
S-017900	Findings of a Systematic Program of Subsurface Archaeological Testing and Evaluation Conducted within the Confines of the Proposed Club Hyatt Project, a 6.2-Acre Parcel of Land Located in the Pleasant Hill Area of Contra Costa County, California	Allen G. Pastron	1996
S-017904	Club Hyatt Parcels, Lots 43, 44, 45, and 46—cultural resources study (letter report)	Roger H. Werner	1996
S-018440	Class II Archaeological Survey of the Contra Costa Canal, Contra Costa County, California	G. James West and Patrick Welch	1996
S-018544	Cultural Resources Field Inventory—Coggins Square Site, Las Juntas Way and Coggins Drive, City of Pleasant Hill, Contra Costa County (APN No. 148-192-004 to -006, -008 to -010; APN No. 148-191-008, -010 and -015) (letter report)	Colin I. Busby	1996
S-019531	Archaeological Field Inspection of the Essex Property Trust Parcel, Cherry and Las Juntas Way, Pleasant Hill, Contra Costa County, California (letter report)	Miley P. Holman	1997

Table 3.4-2 (cont.): Previous Investigations within a 0.5-mile Radius of the Project Site

Report No.	Report Title/Project Focus	Author	Date
S-019532	Archaeological Field Inspection of the Herrington Property, Pleasant Hill, Contra Costa County, California (letter report)	Miley P. Holman	1997
S-020217	Archaeological Survey of Denova Homes 'Briarwood' Parcel, Contra Costa County, California (letter report)	William Self	1998
S-022710	Archaeological Survey and Assessment of 181 Alderwood Lane, Walnut Creek, California (letter report)	William Self and Carrie D. Wills	2000
S-024994	Archaeological Resources Assessment 9, 23, 37, and 47 Parnell Court, City of Walnut Creek, Contra Costa County, APN No. 172-02-16, -17, -18 and -57 (letter report)	Colin Busby and Robert Harmon	2001
S-026685	Archaeological Survey and Assessment of Approximately 0.67-Acre Parcel Located at 2721 Cherry Lane (APN No. 172-061-021-9), Walnut Creek, Contra Costa County, California (letter report)	William Self	2003
S-030157	Pleasant Hill BART Transit Village, Walnut Creek, California: Pre-Construction Archaeological Testing Program	Allen G. Pastron	2005
S-030291	Historic Property Survey Report for the Iron Horse Trail Project, Walnut Creek, Contra Costa California	Jessica Ah Sam, Kari Jones, and John Holson	2005
S-033504	Historic Property Survey Report, Seismic Retrofit of BART Aerial Structures and Stations Along Concord, Richmond, Daly City and Fremont Lines, Alameda, Contra Costa, and San Mateo Counties, STPLZ-6000 (25)	Cameron Bauer and Heather Price	2007
S-039348	Executive Summary of Findings for the Archaeological Monitoring Program conducted for the Pleasant Hill BART Transit Village Project, Section E, City of Walnut Creek, Contra Costa County, California (letter report)	Allen G. Pastron	2007
S-047775	Historic Property Survey Report for the CCTA Interstate 680 Express Lanes Project, Contra Costa County, California; 04-CCO-680 PM R8.0-25.0, EA 04H610 (EFIS ID No. 0413000216)	Adrian Whitaker	2016
Source: NWIC Records Search, September 5, 2018			

Native American Heritage Commission Record Search

On September 10, 2018, FCS sent a letter to the Native American Heritage Commission (NAHC) in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the project area. A response was received on September 26, 2018, indicating that the Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC included a list of seven tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential tribal cultural resources that may be affected by the project are addressed, a letter containing project information and requesting any additional information was sent to each tribal representative on October 2, 2018. For additional information about tribal consultation, please refer to Section 3.16, Tribal Cultural Resources.

Cultural Resources Pedestrian Survey

FCS Senior Archaeologist Dana DePietro, PhD, surveyed the project site on January 21, 2019. The project site consists of five contiguous parcels of land that contain two residences. The project site is bordered by Roble Road and apartment complexes to the north, additional apartment complexes to the east, Del Hombre Road and the Pleasant Hill BART complex to the west, and Honey Trail and apartment complexes to the south. The project site was surveyed using standard 15-meter transects moving east-west across the site whenever possible. Particular attention was paid to the largely undisturbed areas between the two residences. Visible soils consisted of dark brown loam interspersed with medium water-worn stones (10 to 15 centimeters) composed of schist and basalt. Overall ground visibility was poor, ranging from 20 to 30 percent across the project site. Soils in sections of poor visibility were intermittently inspected using a hand trowel.

No prehistoric resources or materials used in the production of said resources (e.g., obsidian, Franciscan chert) were observed during the course of the pedestrian survey. These results are in keeping with the findings of a Caltrans survey of the subject property conducted in 1975 (Hastings 1975). The project area was found to contain several modern wooden fences that appear to delineate the lot lines. Of the two residences located within the project site, both were found to be more than 45 years old and, therefore, required an assessment of their historic significance and eligibility for listing on the CRHR (see historic significance and eligibility assessment immediately below).

Architectural and Historic Resources Assessment

Two residences currently located within the project site are more than 45 years old, and have not previously been evaluated for historic significance. Properties over 45 years in age are considered potential eligible for listing in the NRHP, CRHR, or local listing and consequently, could be considered historic resources under California Environmental Quality Act (CEQA) Guidelines. Both buildings were evaluated relative to the following CRHR eligibility criteria, which are based on NRHP Standards A–D.

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (Criterion 1: Event).
- It is associated with the lives of persons important to local, California, or national history (Criterion 2: Person).

- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values (Criterion 3: Architecture).
- It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation (Criterion 4: Information Potential).

CRHR and Local Listing Eligibility Evaluation: 3018 Del Hombre Lane

The residence at 3018 Del Hombre Lane is part of the overall development and transition of the area from agricultural land to a bedroom community immediately following WWII. This was due in part to satisfy the enormous postwar demand for new housing, and the eventual incorporation of the area into the town of Pleasant Hill in 1961. With the return of servicemen intent on settling down and starting families, the immediate postwar period drove the demand for new forms of affordable housing; mainly the postwar minimal and later, ranch style house. The subject property is therefore part of that process of postwar transition and growth in the area, but does not meet Criterion 1: Event, as it is one of many unremarkable examples of small-scale, residential buildings from the period.

The residence's chain of ownership was thoroughly researched at the Contra Costa County Recorder's Office, archives at the Contra Costa Historical Society, and a search of the California Digital Newspaper Collection. The relative absence of any of these individuals from published accounts of the History of Pleasant Hill indicates that they did not achieve a level of historic importance for the property to be considered eligible under Criterion 2: Person.

The residence, built by unknown architects, displays many features of the minimal traditional style: a medium to low-pitched roof, close cropped eaves, a large chimney, front-gabled roof, and few if any ornamental details (McAlester and McAlester 2004). The residence is a standard, undistinguished example of common construction design and techniques from the immediate postwar period, and appears to have been renovated in recent years with some modifications made to the original design. As such, the building does not appear to be eligible for listing on the CRHR under Criteria 3: Architecture.

Criterion 4: Information Potential, is most often used to evaluate archaeological sites or buildings that employ unusual building techniques. There is no evidence that the building in question exhibits any unusual construction features, or has the ability to contribute significant information to the overall history of Pleasant Hill.

Therefore, the residence at 3018 Del Hombre Lane does not appear to meet any of the criteria for historic and/or architectural significance required for listing on the CRHR. As such, it should not be considered a historical resource under CEQA. The building also does not appear to possess sufficient artistic merit or historical association to meet a local standard for historical importance. No analysis of integrity is required where the property fails to meet all four criteria. A California Department of Parks and Recreation (DPR) recordation form was prepared for this residence and is included with the Cultural Resources Assessment in Appendix D.

CRHR and Local Listing Eligibility Evaluation: 112 Roble Road

The residence at 112 Roble Road is part of the rapid growth and expansion of Pleasant Hill following its incorporation as a City in 1961. Following the postwar demand for new housing, new households formed as families had children, and the relatively small median family income drove the demand for new forms of affordable housing such as the ranch style house, which continued to be popular into the 1970s. The subject property is therefore part of a continuing process of urbanization in the Pleasant Hill area, contemporary with construction of modern theaters, City infrastructure and plans for a redesigned downtown. The residence itself does not meet Criterion 1: Event, however, as it is one of many unremarkable examples of small-scale, residential buildings from the period.

The residence's chain of ownership was thoroughly researched at the Contra Costa County Recorder's Office, archives at the Contra Costa Historical Society, and a search of the California Digital Newspaper Collection. The relative absence of any of these individuals from published accounts of the History of Pleasant Hill indicates that they did not achieve a level of historic importance for the property to be considered eligible under Criterion 2: Person.

The residence, built by unknown architects, displays many features of the traditional Ranch style: an asymmetrical, cross-gabled, low-pitched roof, midsize eaves with exposed rafters, brick and wooden cladding used in combination, and a partially enclosed back patio (McAlester and McAlester 2004). The residence is a standard, undistinguished example of common construction design and techniques from the early 1970s with only minor modifications made to the original design over the year. As such, the building does not appear to be eligible for listing on the CR under Criteria 3: Architecture.

Criterion 4: Information Potential, is most often used to evaluate archaeological sites or buildings that employ unusual building techniques. There is no evidence that the building in question exhibits any unusual construction features, or has the ability to contribute significant information to the overall history of Pleasant Hill.

Therefore, the residence at 112 Roble Road does not appear to meet any of the criteria for historic and/or architectural significance required for listing on the CRHR. As such, it should not be considered a historical resource under CEQA. The building also does not appear to possess sufficient artistic merit or historical association to meet a local standard for historical importance. No analysis of integrity is required where the property fails to meet all four criteria. A DPR recordation form was prepared for this residence and is included with the Cultural Resources Assessment in Appendix D.

Summary of Existing Cultural Resources at the Project Site

Historic Architectural Resources

Based on the architectural and historic resources assessment provided immediately above, no known historic architectural resources are located within the project site boundaries.

Archaeological Resources

No known archaeological sites or burial sites are located within the project site boundaries. However, as noted in Table 3.4-1, three known resources are located within 0.5 mile of the project

site. Archaeological resources are often obscured from view, and can be uncovered during construction activities.

3.4.3 - Regulatory Framework

Federal

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA), as amended, established the NRHP, which contains an inventory of the nation's significant prehistoric and historic properties. Under 36 Code of Federal Regulations 60, a property is recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history, or broad patterns of events.
- It is associated with significant people in the past.
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; or it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction.
- It has yielded, or may yield, information important in history or prehistory.

Certain types of properties are usually excluded from consideration for listing in the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (ARPA) amended the Antiquities Act of 1906 (16 United States Code [USC] 431–433) and set a broad policy that archaeological resources are important to the nation and should be protected, and required special permits before the excavation or removal of archaeological resources from public or Indian lands. The purpose of ARPA was to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites that are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October 31, 1979.

State

CEQA Guidelines Section 15064.5(a)—CEQA Definition of Historical Resources

CEQA Guidelines Section 15064.5(a), in Title 14 of the California Code of Regulations, defines a "historical resource" as:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.

(2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included on any local, State, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical resource for the purposes of CEQA if there is substantial evidence supporting such a determination. A lead agency must consider a resource to be historically significant if it finds that the resource meets the criteria for listing in the CRHR.

Archaeological and historical sites are protected pursuant to a wide variety of State policies and regulations, as enumerated in the Public Resources Code Section 5024.1. Cultural resources are recognized as nonrenewable resources and receive additional protection under the Public Resources Code and CEQA.

Public Resources Code 5024.1(c)—Definition of a Historic Resource

CEQA Guidelines Section 15064.5(a), in Title 14 of the California Code of Regulations, defines a "historical resource" as a resource that:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

CEQA Guidelines Section 15064.5(a)(3)—California Register of Historical Resources Criteria

As defined by CEQA Guidelines, Section 15064.5(a)(3)(A-D), a resource shall be considered historically significant if the resource meets the criteria for listing on the CRHR. The CRHR and many local preservation ordinances have employed the criteria for eligibility to the NRHP as a model (see criteria described above under the description of the NHPA), since the NHPA provides the highest standard for evaluating the significance of historic resources. A resource that meets NRHP criteria is clearly significant. In addition, a resource that does not meet NRHP standards may still be considered historically significant at a local or State level.

CEQA Guidelines—Effects on Archaeological Resources

CEQA Guidelines state that a resource need not be listed on any register to be found historically significant. CEQA Guidelines direct lead agencies to evaluate archaeological sites to determine if they meet the criteria for listing in the CRHR. If an archaeological site is a historical resource, in that it is listed or eligible for listing in the CRHR, potential adverse impacts to it must be considered. If an archaeological site is considered not to be an historical resource but meets the definition of a "unique archeological resource" as defined in Public Resources Code Section 21083.2, then it would be treated in accordance with the provisions of that section.

CEQA Guidelines Section 15064.5(d)—Effects on Human Remains

Human remains and associated burial items may be significant to descendant communities and/or may be scientifically important for their informational value. They may be significant to descendant communities for patrimonial, cultural, lineage, and religious reasons. Human remains may also be important to the scientific community, such as prehistorians, epidemiologists, and physical anthropologists. The specific stake of some descendant groups in ancestral burials is a matter of law for some groups, such as Native Americans (CEQA Guidelines § 15064.5(d); PRC § 5097.98). CEQA and other State regulations regarding Native American human remains provide the following procedural requirements to assist in avoiding potential adverse effects on human remains within the contexts of their value to both descendant communities and the scientific community:

- When an initial study identifies the existence or probable likelihood that a project would affect Native American human remains, the lead agency is to contact and work with the appropriate Native American representatives identified through the NAHC to develop an agreement for the treatment and disposal of the human remains and any associated burial items (CEQA Guidelines § 15064.5(d); PRC § 5097.98).
- If human remains are accidentally discovered, the county coroner must be contacted. If the county coroner determines that the human remains are Native American, the coroner must contact the NAHC within 24 hours. The NAHC must identify the most likely descendant (MLD) to provide for the opportunity to make recommendations for the treatment and disposal of the human remains and associated burial items.
- If the MLD fails to make recommendations within 24 hours of notification or the project applicant rejects the recommendations of the MLD, the Native American human remains and associated burial items must be reburied in a location not subject to future disturbance within the project site (PRC § 5097.98).

- If potentially affected human remains or a burial site may have scientific significance, whether or not it has significance to Native Americans or other descendent communities, then under CEQA, the appropriate mitigation of effect may require the recovery of the scientific information of the remains/burial through identification, evaluation, data recovery, analysis, and interpretation (CEQA Guidelines § 15064.5(c)(2)).

Health and Safety Code Section 7050.5 (Treatment of Human Remains)

Section 7050.5 of the Health and Safety code sets forth provisions related to the treatment of human remains. As the code states, "every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor"[24] except under circumstances as provided in Section 5097.99 of the Public Resource Code. The regulations also provides guidelines for the treatment of human remains found in locations other than a dedicated cemetery including responsibilities of the coroner.

Public Resources Code Section 5097.98 (Discovery of Human Remains)

Section 5097.98 provides protocol for the discovery of human remains. It states that "when the commission receives notification of a discovery of Native American human remains from a county coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify persons believed to be most likely descended from the deceased Native American."[25] It also sets forth provisions for descendants' preferences for treatment of the human remains and what should be done if the commission is unable to identify a descendant.

Local

Contra Costa County General Plan

Open Space Element

The Open Space chapter of the Contra Costa General Plan contains the following goals and policies related to the protection of cultural resources that are relevant to this analysis:

- **Goal 9-G:** Identify and preserve important archaeological and historic resources within the County.
- **Policy 9-28:** Areas which have identifiable and important archaeological or historic significance shall be preserved for such uses, preferably in public ownership.
- **Policy 9-29:** Buildings or structures that have visual merit and historic value shall be protected.

Contra Costa County Historic Resources Inventory

Contra Costa County maintains a Historic Resource Inventory. The most recent version was updated in December 2010 and contains a list of historic resources organized by area. None of the listed resources are located within the project site.

[24] California Legislative Information. 2019. Health and Safety Code—HSC. Website: http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC&sectionNum=7050.5. Accessed February 22, 2019.

[25] Find Law. 2019. California Code, Public Resources Code—PRC § 5097.98. Website: https://codes.findlaw.com/ca/public-resources-code/prc-sect-5097-98.html. Accessed February 22, 2019.

3.4.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 CEQA Guidelines Appendix G, to determine whether impacts related to cultural resources are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in 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?

Approach to Analysis

This evaluation focuses on whether the project would impact historic architectural or archaeological resources or human remains.

The project may have an impact on a historical resource if construction of the project would impair a resource's eligibility for inclusion in the CRHR. Analysis is based on information collected from record searches at the NWIC, additional archival research, pedestrian surveys, and information from historic architectural assessment of existing properties more than 45 years in age located within the project boundaries. If an identified impact would leave a resource no longer able to convey its significance, meaning that the resource would no longer be eligible for listing in the CRHR, then the project's impact would be considered a significant adverse change. According to Public Resources Code Section 15126.4(b)(1) (CEQA Guidelines), if a project adheres to the Sphere of Influence standards, the project's impact "shall generally be considered mitigated below a level of significance and thus is not significant."

The project may have an impact on an archaeological resource or human remains if construction of the project would physically damage or destroy archaeological data or human remains (including those interred outside of formal cemeteries. Analysis is based on information collected from record searches at the NWIC, the additional archival research, and pedestrian surveys.

Both direct and indirect effects of project implementation were considered for this analysis. Direct impacts are typically associated with construction and/or ground-disturbing activities, and have the potential to immediately alter, diminish, or destroy all or part of the character and quality of archaeological resources and/or historic architecture. Indirect impacts are typically associated with post-project implementation conditions that have the potential to alter or diminish the historical setting of a cultural resource (generally historic architecture) by introducing visual intrusions on existing historical structures that are considered undesirable.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of cultural resources materials impacts resulting from implementation of the project.

- Impair a historic resource's eligibility ability to convey its significance (i.e., affect a resources' inclusion in the NRHP or CRHR) or not adhere to the Secretary of Interior's Standards for Rehabilitation.
- Physically damage or destroy archaeological data or human remains.

Impacts Evaluation

Historic Resources

Impact CUL-1: The project could cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.

Construction

Two historic-era resources have been previously recorded within a 0.50-mile radius of the project site, neither of which is located within the boundaries of the project site. As detailed above, the two residences at 3018 Del Hombre Lane and 112 Roble Road are of historic age; however, an evaluation of the properties concluded that they do not qualify as historic resources under CEQA. No additional historic resources were encountered during the pedestrian field survey and evaluation.

While unlikely, subsurface construction activities always have the potential to damage or destroy previously undiscovered historic resources such as wood, stone, foundations, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramic, and other refuse, if encountered. This would represent e a potentially significant impact related to historic resources.

Implementation of Mitigation Measure (MM) CUL-1, which requires an inspection by a qualified archaeologist after clearing and grubbing are complete but before any trading or trenching have begun would reduce potential impacts to historic resources that may be discovered during project construction. If a potential resource is identified, construction would be required to stop until appropriate identification and treatment measures are implemented. Therefore, direct and indirect impacts related to historic resources would be less than significant with mitigation.

Operation

Impacts related to a project's potential to cause a substantial adverse change in the significance of a historical resource are limited to construction impacts. No respective direct or indirect operational impacts related to historical resources would occur.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM CUL-1 Stop Construction Upon Encountering Historical or Archeological Materials

An archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology should inspect the site once grubbing and clearing are complete, and prior to any grading or trenching into previously undisturbed soils. This may be followed by regular periodic or "spot-check" historic and archaeological monitoring during ground disturbance as needed, but full-time archaeological monitoring is not required at this time. In the event a potentially significant cultural resource is encountered during subsurface earthwork activities, all construction activities within a 100-foot radius of the find shall cease and workers should avoid altering the materials until an archaeologist has evaluated the situation. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Potentially significant cultural resources consist of but are not limited to stone, bone, glass, ceramics, fossils, wood, or shell artifacts, or features including hearths, structural remains, or historic dumpsites. The archaeologist shall make recommendations concerning appropriate measures that will be implemented to protect the resource, including but not limited to excavation and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines. Any previously undiscovered resources found during construction within the project site shall be recorded on appropriate California DPR 523 forms and shall be submitted to Contra Costa County Department of Conservation and Development, the Northwest Information Center, and the State Historic Preservation Office, as required.

Level of Significance After Mitigation

Less Than Significant with Mitigation

Archaeological Resources

Impact CUL-2: The project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

Construction

Records search results from the NWIC indicates that one prehistoric archaeological resource lies within 0.5 mile of the project site. The resource, CA-CCO-000133, consisted of a single partial prehistoric burial that was discovered during the excavation of a septic tank. While the burial is not located within or near the project site boundary, its presence in the vicinity indicates a higher potential for undiscovered buried archaeological deposits within the project area. Such resources could consist of but are not limited to stone, bone, wood, or shell artifacts or features, including hearths and structural elements. This represents a potentially significant impact related to archeological resources.

However, implementation of MM CUL-1 which requires an inspection by a qualified archaeologist after clearing and grubbing are compete but before any trading or trenching have begun would

reduce potential impacts to archaeological resources that may be discovered during project construction. If a potential resource is identified, construction would be required to stop until appropriate identification and treatment measures are implemented. Therefore, direct and indirect impacts related to archeological resources would be less than significant with mitigation.

Operation

Impacts related to a project's potential to cause a substantial adverse change in the significance of an archeological resource are limited to construction impacts. No respective direct or indirect operational impacts related to archeological resource would occur.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

Implement MM CUL-1

Level of Significance After Mitigation

Less Than Significant with Mitigation

Human Remains

Impact CUL-3:	**The project could disturb human remains, including those interred outside of formal cemeteries.**

Construction

With the exception of CA-CCO-000133, a partial prehistoric burial located outside the project site boundaries, no human remains or cemeteries are known to exist within or near the project site. However, there is always the possibility that subsurface construction activities associated with the project, such as trenching and grading, could potentially damage or destroy previously undiscovered human remains. This represents a potentially significant impact related to human remains.

However, in the unlikely event human remains are discovered, implementation of MM CUL-3 would require that work is halted and the County Coroner is called to make a determination as to the nature of the remains and to confirm next steps regarding contacting the NAHC and appropriate tribal representatives. In addition, in the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5(d)—Effects on Human Remains, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 must be followed. Requirements of these regulations are described above in Regulatory Setting. Therefore, with implementation of MM CUL-3 and compliance with aforementioned CEQA Guidelines, direct and indirect impacts related to disturbance of human remains would be less than significant with mitigation.

Operation

Impacts related to a project's potential to disturb human remains are limited to construction impacts. No respective direct or indirect operational impacts related to human remains would occur.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM CUL-3 Stop Construction Upon Encountering Human Remains

If during the course of construction activities there is accidental discovery or recognition of any human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.
2. Where the following conditions occur, the landowner or his or her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project site in a location not subject to further subsurface disturbance:
    - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission.
    - The descendant identified fails to make a recommendation.
    - The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:

- When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code Section 5097.98. The applicant may develop a plan for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American Burials with the appropriate Native Americans as identified by the Native American Heritage Commission.

Level of Significance After Mitigation

Less Than Significant with Mitigation

3.4.5 - Cumulative Impacts

The geographic scope of the cumulative cultural resources analysis is Contra Costa County, the City of Walnut Creek, and the City of Pleasant Hill. Cultural resources have been discovered in Contra Costa County, the City of Walnut Creek and the City of Pleasant Hill, and the potential exists that cultural resources could be encountered during project implementation. This would be a significant contributing factor to an overall cumulative impact to cultural resources within the City of Walnut Creek, the City of Pleasant Hill, and Contra Costa County. Implementation of MM CUL-1 requires an inspection by a qualified archaeologist after clearing and grubbing are complete but before any trading or trenching have begun. MM CUL-3 would require that work is halted and the County Coroner is called to make a determination as to the nature of any human remains that are discovered and to confirm next steps regarding contacting the NAHC and appropriate tribal representatives. These mitigation measures would lessen the potential loss of cultural resources to the community as a whole, and the cumulative impact to cultural resources would be less than significant with mitigation.

Construction activities associated with development projects within the geographic scope may have the potential to encounter undiscovered cultural resources. These projects would be required to mitigate for impacts through compliance with applicable federal and State laws governing cultural resources. Although there is the possibility that previously undiscovered resources could be encountered by subsurface earthwork activities associated with the cumulative projects, the implementation of standard construction mitigation measures would ensure that undiscovered cultural resources are not adversely affected by cumulative project-related construction activities, which would prevent the destruction or degradation of potentially significant cultural resources. Given the low potential for disruption, and the comprehensiveness of mitigation measures that would apply to the cumulative projects, the project, in conjunction with other planned and approved projects, would result in a less than significant with mitigation cumulative impact related to cultural resources.

Level of Cumulative Significance Before Mitigation

Potentially Significant

Cumulative Mitigation Measures

Implement MM CUL-1 and MM CUL-3

Level of Cumulative Significance After Mitigation

Less Than Significant with Mitigation

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3.5 - Energy

3.5.1 - Introduction

This section describes the existing energy setting in the project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to energy that could result from implementation of the project. Information in this section is based on project-specific energy calculation outputs included in Appendix B. No comments were received during the Environmental Impact Report (EIR) scoping period related to energy.

3.5.2 - Existing Setting

Energy Basics

Energy is generally transmitted either in the form of electricity, measured in kilowatts (kW)[1] or megawatts (MW),[2] or natural gas measured in British thermal units (BTU), or cubic feet.[3] Fuel, such as gasoline or diesel, is measured in gallons or liters.

Electricity

Electricity is used primarily for lighting, appliances, and other uses associated with the project.

Natural Gas

Natural gas is used primarily for heating, water heating, and cooking purpose and is typically associated with commercial and residential uses.

Fuel

Fuel is used primarily for powering off-road equipment, trucks, and passenger vehicles. The typical fuel types used are diesel and gasoline.

Electricity Generation, Distribution, and Use

State of California

The State of California generates approximately 206,336 gigawatt-hours (GWh) of electricity. Approximately 43.4 percent of the energy generation is sourced from natural gas, 29.7 percent from renewable sources (i.e., solar, wind, and geothermal), 17.9 percent from large hydroelectric sources, and the remaining 9 percent is sourced from coal, nuclear, oil, and other non-renewable sources.[4]

In 2016, California ranked third in the nation in conventional hydroelectric generation, second in net electricity generation from all other renewable energy resources combined, and first as a producer

[1] 1 kW = 1.000 watts; A watt is a derived unit of power that measure rate of energy conversion. 1 watt is equivalent to work being done at a rate of 1 joule of energy per second. In electrical terms, 1 watt is the power dissipated by a current of 1 ampere flowing across a resistance of 1 volt.

[2] 1 MW = 1 million watts

[3] A unit for quantity of heat that equals 100,000 British thermal units. A British thermal unit is the quantity of heat required to raise the temperature of 1 pound of liquid water 1 degree Fahrenheit at a constant pressure of 1 atmosphere.

[4] State of California. 2019. California Energy Commission (CEC). Website: https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html. Accessed March 1, 2019.

of electricity from solar, geothermal, and biomass resources. In 2017, California was the leader in total utility-scale electricity generation from renewable energy sources.[5]

Electricity and natural gas is distributed through the various electric load-serving entities (LSEs) in California. These entities include investor-owned utilities (IOUs), publically owned LSEs, rural electric cooperatives, community choice aggregators, and electric service providers.[6]

Contra Costa County

Pacific Gas & Electric (PG&E) provides electricity to many of the cities throughout Contra Costa County. In April 2018, Marin Clean Energy became the primary electricity provider for several of these cities and portions of unincorporated Contra Costa County.[7] Most of the County's energy is consumed by residential activities (41 percent), followed by major industrial activities (34 percent) and all other nonresidential activities (25 percent).[8]

Project Site

The project site contains two residential buildings that consume electricity. As noted Chapter 2, Project Description, electricity for the project site is provided by PG&E.

Natural Gas Generation, Distribution, and Use

State of California

Natural gas is used for everything from generating electricity to cooking and space heating to an alternative transportation fuel. In 2012, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 2,313 billion cubic feet per year (BCF/year), up from 2,196 BCF/year in 2010. Demand in all sectors except electric power generation remained relatively flat for the last decade due in large part to energy efficiency measures, but demand for power generation rose about 30 percent between 2011 and 2012.

Natural gas-fired generation has become the dominant source of electricity in California, as it fuels about 43 percent of electricity consumption followed by hydroelectric power. Because natural gas is a resource that provides load when the availability of hydroelectric power generation and/or other sources decrease, use varies greatly from year to year. The availability of hydroelectric resources, the emergence of renewable resources for electricity generation, and overall consumer demand are the variables that shape natural gas use in electric generation. Due to above average precipitation in 2011, natural gas used for electricity generation was 617 BCF, compared to lower precipitation years in 2010 and 2012 when gas use for electric generation was 736 BCF and 855 BCF, respectively.[9]

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[5] United States Energy Information Administration. 2018. California State Profile and Energy Estimates. Website: https://www.eia.gov/state/?sid=CA. Accessed March 1, 2019.

[6] California Energy Commission (CEC). 2019. Electric Load-Serving Entities (LSEs) in California Website: https://www.energy.ca.gov/almanac/electricity_data/utilities.html. Accessed March 1, 2019.

[7] Marin Clean Energy (MCE). 2019. MCE Contra Costa. Website: https://www.mcecleanenergy.org/mce-contra-costa/. Accessed March 1, 2019.

[8] Contra Costa County. 2015. Contra Costa County Climate Action Plan. Website: http://www.co.contra-costa.ca.us/4554/Climate-Action-Plan. Accessed February 26, 2019.

[9] California Energy Commission (CEC). 2019. Supply and Demand of Natural Gas in California. Website: https://www.energy.ca.gov/almanac/naturalgas_data/overview.html. Accessed March 1, 2019.

Contra Costa County

As noted in Chapter 2, Project Description, PG&E provides natural gas to the unincorporated portions of Contra Costa County.

Project Site

The project site contains two residential buildings that consume natural gas. Natural gas for the project site is provided by PG&E.[10]

Fuel Use

State of California

The main category of fuel use in California is transportation fuel, specifically gasoline and diesel. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline sold in California being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2015, 15.1 billion gallons of gasoline were sold, which represents the largest transportation fuel used in California.[11] Diesel is the second largest transportation fuel used in California. According to the State Board of Equalization, in 2015 4.2 billion gallons of diesel, including off-road diesel, was sold. Nearly all heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction and heavy duty military vehicles and equipment have diesel engines.[12]

Project Site

Fuel use associated with the two existing residential buildings on the project site is mainly attributed to the use of vehicle fuel use—gasoline and diesel.

3.5.3 - Regulatory Framework

Federal

Energy Independence and Security Act

The Energy Policy Act of 2005 created the Renewable Fuel Standard program. The Energy Independence and Security Act of 2007 expanded this program by:

- Expanding the Renewable Fuel Standard program to include diesel in addition to gasoline;
- Increasing the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022;
- Establishing new categories of renewable fuel, and setting separate volume requirements for each one; and
- Requiring the Environmental Protection Agency (EPA) to apply life-cycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

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[10] Pacific Gas & Electric (PG&E). 2014. Gas Service Area Maps. Website: https://www.pge.com/tariffs/tm2/pdf/GAS_MAPS_Service_Area_Map.pdf. Accessed May 22, 2019.

[11] California Energy Commission (CEC). 2019. California Gasoline, Data, Facts, and Statistics. Website: https://www.energy.ca.gov/almanac/transportation_data/gasoline/. Accessed March 1, 2019.

[12] California Energy Commission (CEC). 2019. Diesel Fuel Data, Facts, and Statistics. Website: https://www.energy.ca.gov/almanac/transportation_data/diesel.html. Accessed May 22, 2019.

This expanded Renewable Fuel Standard program lays the foundation for achieving substantial reductions of GHG emissions from the use of renewable fuels, reducing the use of imported petroleum, and encouraging the development and expansion of the nation's renewable-fuels sector.

Signed on December 19, 2007, the Energy Independence and Security Act (EISA) of 2007 aims to:

- Move the United States toward greater energy independence and security;
- increase the production of clean renewable fuels;
- protect consumers;
- increase the efficiency of products, buildings, and vehicles;
- promote research on and deploy GHG capture and storage options;
- improve the energy performance of the Federal Government; and
- increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy.

EISA reinforces the energy reduction goals for federal agencies put forth in Executive Order 13423, as well as introduces more aggressive requirements. The three key provisions enacted are the Corporate Average Fuel Economy Standards, the Renewable Fuel Standard, and the appliance/lighting efficiency standards.

EPA is committed to developing, implementing, and revising both regulations and voluntary programs under the following subtitles in EISA, among others:

- Increased Corporate Average Fuel Economy Standards
- Federal Vehicle Fleets
- Renewable Fuel Standard
- Biofuels Infrastructure
- Carbon Capture and Sequestration[13]

EPA and National Highway Traffic Safety Administration Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy Standards Final Rule

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, the President put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile,

[13] United States Environment Protection Agency (EPA). Summary of the Energy Independence and Security Act. Website: https://www.epa.gov/laws-regulations/summary-energy-independence-and-security-act

equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

The EPA and the NHTSA issued final rules on a second-phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012.[14] The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleet wide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The EPA and NHTSA issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20-percent reduction in CO_2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles, and a 15-percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10-percent reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

The State of California has received a waiver from the EPA to have separate, stricter corporate average fuel economy standards. Although global climate change did not become an international concern until the 1980s, efforts to reduce energy consumption began in California in response to the oil crisis in the 1970s, resulting in the incidental reduction of GHG emissions. In order to manage the State's energy needs and promote energy efficiency, Assembly Bill (AB) 1575 created the California Energy Commission (CEC) in 1975.

State

California AB 1493: Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required the California Air Resources Board (ARB) to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011.[15]

[14] United States Environmental Protection Agency (EPA). 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks. Website: http://www.epa.gov/otaq/climate/documents/420f12051.pdf. Accessed August 21, 2016.

[15] California Air Resources Board (ARB). 2013d. Clean Car Standards—Pavley, Assembly Bill 1493. Website: http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed February 14, 2017.

The standards are to be phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in an approximately 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction.

The second phase of the implementation for the Pavley Bill was incorporated into Amendments to the Low-Emission Vehicle (LEV) Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.[16]

California Code of Regulations Title 13: Motor Vehicles

California Code of Regulations, Title 13: Division 3, Chapter 10, Article 1, Section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.[17] This measure seeks to reduce public exposure to diesel particulate matter and other air contaminants by establishing idling restrictions, emission standards, and other requirements for heavy-duty diesel engines and alternative idle reduction technologies to limit the idling of diesel-fueled commercial motor vehicles. Any person that owns, operates, or causes to operate any diesel-fueled commercial motor vehicle must not allow a vehicle to idle for more than 5 consecutive minutes at any location, or operate a diesel-fueled auxiliary power system for greater than 5 minutes at any location when within 100 feet of a restricted area.

California Code of Regulations, Title 13: Division 3, Chapter 9, Article 4.8, Section 2449: General Requirements for In-Use Off-Road Diesel-Fueled Fleets. This measure regulates oxides of nitrogen (NO_X), diesel particulate matter (DPM), and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles. This measure also requires each fleet to meet fleet average requirements, or demonstrate that it has met “best available control technology” requirements. Additionally, this measure requires medium and large fleets to have a written idling policy that is made available to operators of the vehicles informing them that idling is limited to 5 consecutive minutes or less.

California Senate Bill 1078: Renewable Electricity Standards

On September 12, 2002, Governor Gray Davis signed Senate Bill (SB) 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that

[16] California Air Resources Board (ARB). 2011c. Status of Scoping Plan Recommended Measures. Website: www.arb.ca.gov/cc/scoping plan/sp_measures_implementation_timeline.pdf. Accessed February 14, 2017.

[17] Thomas Reuters Westlaw. 2019. California Code of Regulations, Title 13. Motor Vehicles. Website: https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I143B9530D46811DE8879F88E8B0DAAAE&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default). Accessed February 27, 2019.

all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23.

California SB 350: Clean Energy and Pollution Reduction Act

In 2015, the State legislature approved and the Governor signed SB 350 which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the Renewables Portfolio Standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill due to opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission, the CEC, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.[18]

California Code of Regulations Title 24

Part 6 (Energy Efficiency Standards for Residential and Nonresidential Buildings)

California Code of Regulations Title 24 Part 6 (California's Energy Efficiency Standards for Residential and Nonresidential Buildings), was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards went into effect on January 1, 2017.[19] The 2019 Building Energy Efficiency Standards are scheduled to go into effect on January 1, 2020.

Part 11 (California Green Building Standards Code)

California Code of Regulations Title 24, Part 11, is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect January 1, 2011. The Code is updated on a regular basis, with the most recent update consisting of the 2016 California Green

[18] California Legislative Information (California Leginfo). 2015. Senate Bill 350 Clean Energy and Pollution Reduction Act of 2015. Website: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350. Accessed September 28, 2017.

[19] California Energy Commission (CEC). 2016. 2016 Building Energy Efficiency Standards Frequently Asked Questions. Website: http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf. Accessed December 1, 2016.

Building Code Standards that became effective January 1, 2017.[20] Local jurisdictions are permitted to adopt more stringent requirements, as State law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The Code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State Building Code provides the minimum standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

California Public Utilities Code

The California Public Utilities Commission (CPUC) regulates privately owned telecommunication, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. It is the responsibility of the CPUC to (1) assure California utility customers safe, reliable utility service at reasonable rates; (2) protect utility customers from fraud; and (3) promote a healthy California economy. The Public Utilities Code, adopted by the legislature, defines the jurisdiction of the CPUC.

Local

Contra Costa County General Plan Conservation Element

Contra Costa County has renewable energy sources, in the form of wind energy and solar power that have yet to be fully utilized. Chapter 8, the Conservation Element of the Contra Costa County General Plan, contains the following goals and policies pertaining to the County's renewable energy resources.[21]

- **Goal 8-K:** To encourage the use of renewable resources where they are compatible with the maintenance of environmental quality.
- **Goal 8-L:** To reduce energy use in the County to avoid risks of air pollution and energy shortages which could prevent orderly development.

Contra Costa County Climate Action Plan

In 2005, the County established a Climate Change Working Group to coordinate County efforts to respond to climate change, and to guide practices that result in more sustainable actions.[22] On December 15, 2015, the Contra Costa County Climate Action Plan was approved by the Board of Supervisors.[23] Many County policies and initiatives support this effort, including:

- The Contra Costa County Municipal Climate Action Plan,[24] which includes a range of policies promoting energy efficiency and renewable energy;
- Bay Area Regional Energy Network,[25] a collaboration of the nine counties that make up the Bay Area that implements energy savings programs on a regional level;

[20] California Building Standards Commission (CBSC). 2016. Green Building Standards. Website: https://www.ladbs.org/docs/default-source/publications/code-amendments/2016-calgreen_complete.pdf?sfvrsn=6. Accessed June 27, 2017.
[21] Contra Costa County. 2005. Contra Costa County General Plan. January 18. Website: http://www.co.contra-costa.ca.us/4732/General-Plan. Accessed February 26, 2019.
[22] Contra Costa County. 2015. Contra Costa County Climate Action Plan. December 15. Website: http://www.co.contra-costa.ca.us/4554/Climate-Action-Plan. Accessed February 25, 2019.
[23] Contra Costa County. 2015. Contra Costa County Climate Action Plan. December 15. Website: http://www.co.contra-costa.ca.us/4554/Climate-Action-Plan. Accessed February 26, 2019.
[24] Contra Costa County. 2008. Contra Costa County Municipal Climate Action Plan. December. Website: www.co.contra-costa.ca.us/DocumentCenter/View/2905. Accessed February 27, 2019.

- Energy conservation policies and programs designed to reduce energy demand through home weatherization programs and green building guidelines; and,
- Alternative energy policies that will reduce GHG emissions through supporting appropriate renewable energy projects and encouraging energy recovery projects.

3.5.4 - Impacts and Mitigation Measures

According to 2019 CEQA Guidelines Appendix G, to determine whether impacts related to energy are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Approach to Analysis

For the purposes of this EIR, the approach to analysis for energy use is based on 2019 CEQA Guidelines Appendix F (Energy Conservation). CEQA Guidelines Appendix F is focused on the goal of conserving energy through the wise and efficient use of energy. Estimates of energy consumption associated with the project are based, in part, on information provided by the California Emissions Estimator Model (CalEEMod) output included in this Draft EIR as Appendix B. CalEEMod contains energy intensity rates for the various land uses selected; see Section 3.7, Greenhouse Gas Emissions—Approach to Analysis, for detailed information regarding how project-specific energy estimates are determined.

Renewable Energy/Energy Efficiency Plan Consistency Determination Methodology

The project is assessed for whether the project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency. To achieve this, the project is assessed for its consistency with State goals and plans related to energy efficiency and renewable energy.

Specific Thresholds of Significance

Contra Costa County does not have quantitative thresholds for evaluation of energy; however, the following qualitative thresholds are used to evaluate the significance of energy impacts resulting from implementation of the project.

- Result in a wasteful, inefficient, or unnecessary consumption of energy during construction and operational activities; or
- Construction and operation of buildings and appliances that would not adhere to the energy-use reduction measures included in the California Green Building Code and required by Contra Costa County.

[25] Association of Bay Area Governments (ABAG). 2019. BayRen [Bay Area Regional Energy Network]: Local Governments Empowering Our Communities. Website: https://www.bayren.org/. Accessed February 27, 2019.

Impact Evaluation

Energy Use

Impact ENER-1: The project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

A significant impact would occur if the project would result in the inefficient, wasteful, or unnecessary use of energy.

Construction

During construction, the project would result in energy consumption through the combustion of fossil fuels in construction vehicles, worker commute vehicles, and construction equipment, and the use of electricity for temporary buildings, lighting, and other sources. It is not anticipated that natural gas would be consumed as part of project construction. Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during site clearing, grading, paving, and building construction. The types of equipment could include gasoline- and diesel-powered construction and transportation equipment, including trucks, bulldozers, frontend loaders, forklifts, and cranes. Based on CalEEMod estimations within the modeling output files used to estimate GHG emissions associated with the project, construction-related vehicle trips would result in approximately 1.32 million vehicle miles traveled, and consume an estimated 62,074 gallons of gasoline and diesel combined during the construction phase (Appendix B). Additionally, on-site construction equipment would consume an estimated 18,353 gallons of diesel fuel (Appendix B).[26]

Limitations on idling of vehicles and equipment and requirements that equipment be properly maintained would result in fuel savings. California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, limit idling from both on-road and off-road diesel-powered equipment and are enforced by the ARB. Additionally, given the cost of fuel, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction.

Other equipment could include construction lighting, field services (office trailers), and electrically driven equipment such as pumps and other tools. Single-wide mobile office trailers, which are commonly used in construction staging areas, generally range in size from 160 square feet to 720 square feet. A typical 720-square-foot office trailer would consume approximately 17,725 kilowatt-hour (kWh) during the 24-month construction phase (Appendix B). Due to the temporary nature of construction and the financial incentives for developers and contractors to use energy-consuming resources in an efficient manner, the construction phase of the project would not result in wasteful, inefficient, and unnecessary consumption of energy. Therefore, the construction-related impacts related to electricity and fuel consumption would be less than significant.

[26] As noted in the construction equipment fuel calculation in Appendix B, cranes would be powered by electricity, and forklifts would be powered by liquid propane or compressed natural gas, rather than diesel. Thus, the energy consumption of cranes and forklifts was not included in the calculation of construction equipment diesel fuel usage.

Operation

Electricity and Natural Gas

The operational phase of the project would consume energy as part of building operations and transportation activities. Building operations for the project would involve energy consumption for multiple purposes including, but not limited to, building heating and cooling, refrigeration, lighting, and electronics. Based on CalEEMod energy use estimations, operations (for both the apartments and for the enclosed parking lot and elevator) would consume approximately 2.15 million kWh of electricity and an estimated 2.48 million kilo-British thermal unit (kBTU) (2.43 million cubic feet) of natural gas on an annual basis (Appendix B). The parameters used to arrive at the CalEEMod-provided energy estimates are described in more detail in Section 3.7, Greenhouse Gas Emissions—Approach to Analysis, while complete CalEEMod output files are contained in Appendix B.

The project would be designed and constructed in accordance with the County's latest adopted energy efficiency standards, which are based on the State's Title 24 energy efficiency standards. Title 24 standards include a broad set of energy conservation requirements that apply to the structural, mechanical, electrical, and plumbing systems in a building. For example, the Title 24 Lighting Power Density requirements define the maximum wattage of lighting that can be used in a building based on its square footage. Title 24 standards, widely regarded as the most advanced energy efficiency standards, would help reduce the amount of energy required for lighting, water heating, and heating and air conditioning in buildings and promote energy conservation. Furthermore, the Contra Costa County General Plan and Climate Action Plan include energy conservation initiatives designed to reduce energy demand through home weatherization programs, green building guidelines, and alternative energy policies that would reduce energy use through supporting appropriate renewable energy projects and encouraging energy recovery projects. Compliance with these policies would ensure that building energy consumption would not result in the use of energy in a wasteful, inefficient, or unnecessary manner. Therefore, the operational impact related to building electricity and natural gas consumption would be less than significant.

Fuel

Operational energy would also be consumed during vehicle trips associated with the project. Fuel consumption would be primarily related to vehicle use by residents, visitors, and employees associated with the project. Based on energy use estimations contained within the CalEEMod output files used to estimate the project's generation of GHG emissions, project-related vehicle trips would result in approximately 4.12 million vehicle miles traveled and consume an estimated 117,378 gallons of gasoline and diesel combined, annually (CalEEMod output files and energy-specific calculations are included in Appendix B).

The project site is located near the Interstate 680 (I-680) Treat Boulevard interchange. Specifically, the project site is approximately 0.36 mile east of I-680. As such, it would be in proximity to a regional route of travel. The project site is also located 0.12 mile from the Bay Area Rapid Transit (BART) Pleasant Hill BART Station, which is within what is typically considered walking distance. The existing transportation facilities in the area would provide future residents, visitors, and employees associated with the project with access to public transportation, thus further reducing fuel consumption demand. For these reasons, operational-related transportation fuel consumption

would not result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the operational impact related to vehicle fuel consumption would be less than significant.

Level of Significance

Less Than Significant

Energy Efficiency and Renewable Energy Standards Consistency

Impact ENER-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

A significant impact would occur if the project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The County has not developed a specific energy reduction or renewable energy plan at the time of this writing. Since the County has not adopted specific plans, the analysis is based on consistency with State goals and plans related to energy efficiency and renewable energy.

Construction

As discussed under Impact ENER-1, the project would result in energy consumption through the combustion of fossil fuels in construction vehicles, worker commute vehicles, and construction equipment, and the use of electricity for temporary buildings, lighting, and other sources. California Code of Regulations Title 13, Sections 2449(d)(3) and 2485, limit idling from both on-road and off-road diesel-powered equipment and are enforced by the ARB. The project would comply with these regulations. Thus, it is anticipated that construction of the proposed plan would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, construction-related energy efficiency and renewable energy standards consistency impacts would be less than significant.

Operation

The project would be served with electricity provided by PG&E.[27] About 80 percent of the electricity that PG&E delivered in 2017 was a combination of renewable and GHG-emissions-free resources.[28] The 2017 power mix included 27 percent non-emitting nuclear generation, 18 percent large hydroelectric facilities, 33 percent eligible renewable resources, such as wind, geothermal, biomass, solar, and small hydro, 20 percent natural gas/other, and 2 percent unspecified power. PG&E is ahead of schedule in meeting the California RPS of 33 percent by 2020 mandate with renewable energy making up 51 percent of its energy portfolio.

Part 11, Chapter 4, of the State's Title 24 energy efficiency standards establishes mandatory measures for residential buildings, including material conservation and resource efficiency. The project would also be required to comply with these mandatory measures. The project would also

[27] Pacific Gas & Electric (PG&E). 2019. Exploring Clean Energy Solutions. Website: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page. Accessed February 26, 2019.

[28] Renewable sources included solar, wind, geothermal, biomass, and small hydroelectric sources. GHG-emissions-free sources of energy included nuclear and large hydro. "GHG-emissions-free resources" refers to energy sources other than renewable energy resources that also do not result in GHG emissions, such as non-emitting nuclear and hydroelectric.

comply with the California Building Codes Standards requiring proposed apartment buildings to be solar ready. In addition, per California Building Codes Standards, the proposed building would be required to provide wiring that would allow installation of electric vehicle (EV) charging equipment in any private garages or carports.

Compliance with these aforementioned mandatory measures would ensure that the project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, operational energy efficiency and renewable energy standards consistency impacts would be less than significant.

Level of Significance

Less Than Significant

3.5.5 - Cumulative Impacts

The geographic scope of the cumulative energy analysis is the portion of PG&E's service area that covers incorporated and unincorporated Contra Costa County. Cumulative projects considered as part of this cumulative analysis include the project and other cumulative projects identified in Table 3-1.

Electricity and Natural Gas

Cumulative projects would be required to comply with Title 24 minimum energy efficiency standards. The cumulative buildings would be designed in accordance with Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings as applicable. These standards include minimum energy efficiency requirements related to building envelope, mechanical systems (e.g., heating, ventilation, and air conditioning [HVAC] and water heating systems), and indoor and outdoor lighting. The incorporation of the Title 24 standards into the design of the cumulative projects, including the project, would ensure that the cumulative projects would not result in the inefficient, unnecessary, or wasteful consumption of electricity or natural gas. Therefore, the project, in conjunction with other existing, planned, and foreseeable future projects listed in Table 3-1, would result in a less than significant cumulative impact related to energy consumption in the form of electricity and natural gas.

Fuel

Cumulative projects would be required to comply with California Code of Regulations Title 13, Sections 2449(d)(3) and 2485, that limit idling from both on-road and off-road diesel-powered equipment and are enforced by ARB. Compliance with these regulations by the cumulative projects, including the project, would ensure that the cumulative projects would not result in the inefficient, unnecessary, or wasteful consumption of fuel. Therefore, the project, in conjunction with other existing, planned, and foreseeable future projects listed in Table 3-1, would result in a less than significant cumulative impact related to energy consumption in the form of fuel.

Level of Cumulative Significance

Less Than Significant

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3.6 - Geology and Soils

3.6.1 - Introduction

This section describes existing conditions related to geology and soils in the region and project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to geology and soils that could result from implementation of the project. Information included in this section is based on the Preliminary Geotechnical Report and Paleontological Records Search, which are included in Appendix D as well as the Contra Costa County General Plan and the United States Geological Survey (USGS). During the Environmental Impact Report (EIR) scoping period no comments were received related to geology and soils.

3.6.2 - Environmental Setting

Geologic Setting

Contra Costa County Area

Contra Costa County is situated in the Coast Ranges geomorphic province of California. The Coast Ranges have experienced a complex geological history characterized by Late Tertiary folding and faulting that has resulted in a series of northwest-trending mountain ranges and intervening valleys. Bedrock in the Coast Ranges consists of igneous, metamorphic and sedimentary rocks that range in age from Jurassic to Pleistocene. The present physiography and geology of the Coast Ranges are the result of deformation and deposition along the tectonic boundary between the North American plate and the Pacific plate. Plate boundary fault movements are largely concentrated along the well-known fault zones, which in the area include the San Andreas Fault, Hayward Fault, and Calaveras Fault, as well as other lesser-order faults.

The geology of Contra Costa County is dominated by several northwest trending fault systems that divide the County into large blocks of rock. For example, the Briones Hills are bounded by the Hayward Fault on the west and elements of the Franklin-Calaveras fault system on the east. Within a particular block the rock sequence consists of: (1) a basement complex of broken and jumbled pre-Tertiary sedimentary, igneous and metamorphic rocks; (2) a section of younger Tertiary sedimentary rocks and some volcanic rocks (flows and tuffs) which locally intertongue with and overlie the sedimentary section; and, (3) surficial deposits including stream alluvium, colluvium (slopewash deposits at the foot of steeper slopes), slides, alluvial fans, and Bay Plain deposits.[1]

Project Site

The project site is located in Contra Costa County adjacent to the City of Walnut Creek. The project site is relatively flat with no major changes in elevation occurring on-site. According to the published geologic map covering the site by Nilsen (1975), the project site is underlain by Holocene alluvial deposits. Mapping by Dibblee (2005) indicates the site is underlain alluvium (Qa), specifically alluvial gravels. Helley and Graymer (1994) further classifies the Holocene alluvial deposits at the site as being

[1] Contra Costa County General Plan, page 10-4.

floodplain deposits (Qhfp), consisting of sandy to silty clay, with lenses of coarser material, and alluvial deposits (Qhaf), consisting of gravelly sand which grades to silty clay near the edges of the deposit.[2]

Existing Soils

Corrosive soils are a geologic hazard, because they react with concrete and ferrous metals, which can cause damage to foundations and buried pipelines. Expansive soils are a geologic hazard, because an increase in soil volume can exert forces on structures and, thus, damage building foundations, walls, and floors. In general, areas are susceptible to differential settlement if underlain by compressible sediments, such as poorly engineered artificial fill or loose unconsolidated alluvial sediments. When these soils dry out and shrink, structural damage can occur.

Contra Costa County Area

The United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) has characterized the majority of native, undisturbed soils in the Contra Costa County area according to three soil associations: (1) nearly level to strongly sloping, somewhat excessively drained to very poorly drained soils on Valley fill, basin, low terraces, flood plains, and alluvial fans; (2) nearly level, poorly drained and very poorly drained souls on the Delta, flood plains, and saltwater marshes and tidal flats; and (3) nearly level to very steep, moderately well drained to excessively drained soils on terraces and mountainous uplands.[3]

Project Site

A custom soil survey of the project site based on NRCS data indicates that the underlying soils are clear lake clay.[4] These soils are characterized as "poorly drained," which means that they do not allow water to percolate through them. Poorly drained soils can result in rainwater ponding on-site or flowing off-site as stormwater. Soils at the project site have the potential to undergo settlement under new building loads. Additionally, expansive soils are present on the project site. Expansive soils are susceptible to shrinking and swelling during rain events, which can cause building foundations to crack, potentially resulting in building structural failure. These types of clayey soils are not susceptible to liquefaction because they do not contain clean, loose, saturated, or fine sand below the groundwater table. Liquefaction occurs when loosely packed, water saturated soils at or near the ground surface loses their strength during seismic ground shaking and essentially function as a liquid. When soils experience liquefaction, buildings and structures can experience major damage and result in significant loss of life and property. Table 3.6-1 further summarizes the soils located on the project site as designated by NRCS.

[2] ENGEO. Preliminary Geotechnical Report, April 6, 2018.
[3] United States Department of Agriculture (USDA), Natural Resources Conservation Service. General Soil Map of Contra Costa County, California. Accessed February 14, 2019. Website: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA013/0/maps/gsm.pdf.
[4] United States Department of Agriculture (USDA), Natural Resources Conservation Service. Web Survey Soil Map. Accessed February 14, 2019. Website: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

Table 3.6-1: Project Site Soil Properties Summary

Soil	Parent Material	Drainage Class
Clear Lake Clay, 0 to 15 percent slopes	Clayey alluvium derived from metamorphic and sedimentary rock	Poorly Drained
Source: United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). 2014. Web Soil Survey: Soil Map-Contra Costa County, California. Website: http://websoilsurvey.nrcs.usda.gov/app/. Accessed November 15, 2018.		

Seismicity

The term seismicity describes the effects of seismic waves that are radiated from an earthquake fault in motion. While most of the energy released during an earthquake results in the permanent displacement of the ground, as much as 10 percent of the energy may dissipate immediately in the form of seismic waves. Seismicity can result in seismic-related hazards such as fault rupture, ground shaking, and liquefaction. Faults form in rocks when stresses overcome the internal strength of the rock, and fault rupture occurs when movement on a fault breaks through to the surface and can result in damage to infrastructure and persons. Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking. Strong ground shaking from an earthquake can result in damage, with buildings shifted off their foundations and underground pipes broken. Liquefaction occurs when an earthquake causes ground shaking that result in saturated soil to lose shear strength, deform, and act like a liquid. When liquefaction occurs, it can result in ground failure that can result in damage to roads, pipelines, and buildings.

Contra Costa County Area

Seismic risk is assumed by every occupant and developer in Contra Costa County, because the County is within an area of high seismicity; the San Francisco Bay Region has been impacted by more than 10 severe earthquakes during historic time.

The County has been subjected to numerous seismic events, originating both on faults within the County and in other parts of the region. Six major Bay Area earthquakes have occurred since 1800 that affected the County, and at least two of the faults that produced them run through or into the County. These earthquakes and the originating faults include the 1836 and 1868 earthquakes on the Hayward Fault, and the 1861 earthquake on the Calaveras Fault. Two earthquakes, in 1838 and 1906, originated on the San Andreas Fault, west of the County near San Francisco or to the south, while one earthquake (with two major shocks) that caused some damage in the County occurred in 1872 and was centered north of Contra Costa County in the Vacaville-Winters area of Solano County. These latter events likely occurred on a thrust fault and are not known to have been accompanied by surface fault rupture. A smaller earthquake, centered near Collinsville in Solano County on a fault of uncertain identity, occurred in 1889.

Using the available data and information, an earthquake probability estimate has been developed for Contra Costa County and is shown in Table 3.6-2 (Table 10-4 of the Contra Costa County General Plan 2025).

Table 3.6-2: Approximate Probability of Occurrence of Earthquake on Bay Area Faults

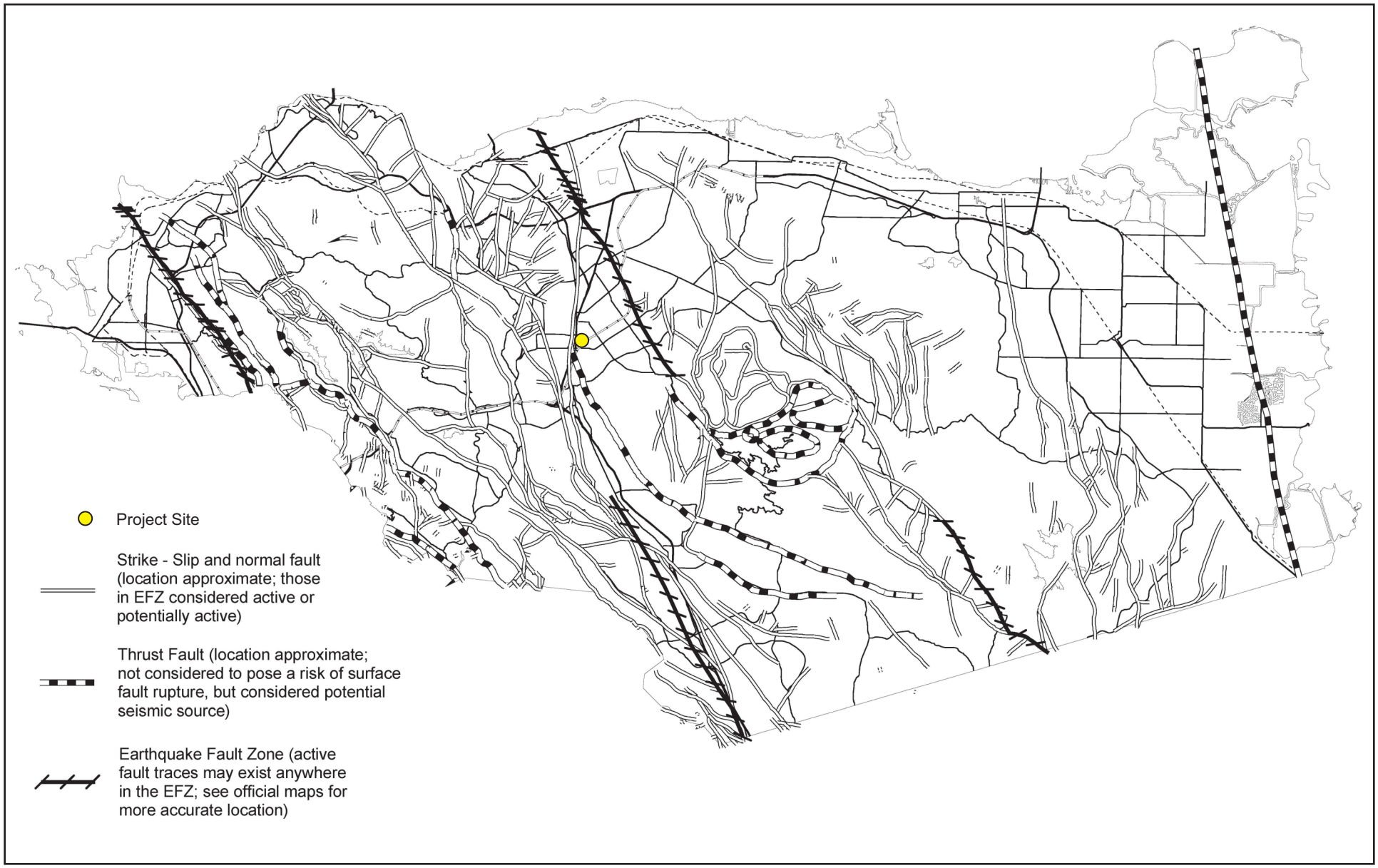
Causative Fault	Magnitude	Approximate Probability of Occurrence (over a 50-year period)
San Andreas	7.0–8.0	Likely[1]
	8.0–8.5	Intermediate[2]
Hayward	6.0–7.0	Likely
	7.0–7.5	Intermediate
Calaveras	6.0–7.0	Likely
	7.0–7.5	Intermediate-Low[3]
Concord	5.0–6.0	Likely
	6.0–7.0	Intermediate-Low
Antioch	5.0–6.0	Likely
	6.0–7.0	Intermediate-Low

Notes:
[1] Greater than 50 percent probability of occurrence
[2] A 15-50 percent probability of occurrence
[3] Less than 15 percent probability of occurrence
Source: Contra Costa County Conservation and Development Department estimates.

Project Site

The project site is not located within a State of California Earthquake Fault Hazard Zone for active faults, and no known faults cross the site.[5] An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years). The nearest known active fault surface trace is the Green Valley Connected Fault, which is mapped approximately 2.2 miles east of the project site.[6] In addition, other active faults near the project are: Mount Diablo Thrust Fault (3.7 miles to the south); Calaveras Fault (8.1 miles to the south); Hayward-Rogers Fault (11.2 miles to the east); Greenville Connected Fault (12.4 miles to the southeast); and West Napa Fault (19.2 miles to the northwest).[7] Exhibit 3.6-1 depicts the location of fault lines in Contra Costa County.

[5] ENGEO. Preliminary Geotechnical Report, page 6. April 6, 2018.
[6] ENGEO. Preliminary Geotechnical Report, April 6, 2018.
[7] *Ibid*.



Source: U.S. Geological Survey (Graymer, Jones and Brabb, 1994; and Earthquake Fault Zone Maps (California Geological Survey)

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Exhibit 3.6-1
Regional Fault Map

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Slope Disturbance

Slope disturbance from long-term geologic cycle of uplift, mass wasting, intense precipitation or wind, and gravity can result in slope failure in the form of mudslides and rock fall. The project area is seismically active with known faults; however, the project area does not contain active faults that would cause geologic uplifting. Mass wasting refers to a variety of erosional processes from gradual downhill soil creep to mudslides, debris flows, landslides, and rock fall—processes that are commonly triggered by intense precipitation or wind, which varies according to climactic shifts. Often, various forms of mass wasting are grouped together as landslides, which are generally used to describe the downhill movement of rock and soil. Soil creep is a long-term, gradual downhill migration of soil under the influence of gravity and is generally about a fraction of an inch per year. However, this movement accumulates over the years and can result in several inches of lateral and vertical movement over the life of improvement placed over creeping soils.

Contra Costa County Area

The major geologic hazards in Contra Costa County, aside from earthquake rupture and direct effects of ground shaking, are unstable hill slopes and reclaimed wetlands and marsh fill areas. Slopes may suffer landslides, slumping, soil slips, and rockslides. Reclaimed wetlands, whether filled or not, experience amplified lateral and vertical movements, which can be damaging to structures, utilities, and transportation routes and facilities.

The Contra Costa County General Plan recognizes that major slope areas in excess of 26 percent are "not readily developable" and "undevelopable," recognizing the cost and engineering difficulties of grading steep slopes as well as their inherent unsuitability.[8] Figure 10-6 of the Contra Costa County General Plan shows Landslide Hazards in Contra Costa County.

Project Site

The project site is relatively flat, with no slopes or varied topography that could be susceptible to slope failure, landslides, or soil creep. According to Figure 10-6 of the Contra Costa County General Plan, the project site is not located on a site susceptible to landslides or an area where landslides previously occurred. Figure 10-5 of the County General Plan indicates that the southwest half of the site is classified "Generally High" liquefaction potential and the remainder of the site is classified "Generally Moderate to Low" liquefaction potential. It is pertinent to note that the classification "Generally High" does not imply the presence of liquefiable sands on a parcel. According to the County Peer Review Geologist, the classification "Generally Moderate to Low" does not imply that liquefaction risks are less than significant.

Paleontological Resources

No known paleontological resources are located within the project site boundaries. The surface area of the project sites consists of Holocene alluvium deposits, which are too young to contain important fossil resources. Only Pleistocene alluvium has the potential to yield significant paleontological resources in the project vicinity, however, none is located within, or in close proximity to, the project site.[9]

[8] Contra Costa County General Plan, page 10-22.
[9] Dr. Kenneth Finger, PhD. Paleontological Records Search: Del Hombre Project. October 1, 2018.

3.6.3 - Regulatory Framework

Federal

National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) was established by the U.S. Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law 95–124. In establishing the NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic goals remain unchanged:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.

Several key federal agencies contribute to earthquake mitigation efforts. There are four primary NEHRP agencies:

- National Institute of Standards and Technology of the Department of Commerce
- National Science Foundation
- USGS of the Department of the Interior
- Federal Emergency Management Agency (FEMA) of the Department of Homeland Security

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program, authorized by Section 402(p) of the federal Clean Water Act, controls water pollution by regulating point sources, such as construction sites and industrial operations that discharge pollutants into waters of the United States. A Storm Water Pollution Prevention Plan (SWPPP) is required to control discharges from a project site, including soil erosion, to protect waterways. A SWPPP describes the measures or practices to control discharges during both the construction and operational phases of the project. A SWPPP identifies project design features and structural and nonstructural Best Management Practices (BMPs) that will be used to control, prevent, remove, or reduce stormwater pollution from the site, including sediment from erosion.

Society of Vertebrate Paleontology Guidelines

The Society of Vertebrate Paleontology (SVP 1995; 1996), a national scientific organization of professional vertebrate paleontologists, has established standard guidelines that outline acceptable

professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation. Most practicing professional paleontologists in the nation adhere to the Society of Vertebrate Paleontology's assessment, mitigation, and monitoring requirements, as specifically spelled out in its standard guidelines.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code [PRC] §§ 2621 to 2630) was passed in 1972 to provide a Statewide mechanism for reducing the hazard of surface fault rupture to structures used for human occupancy. The main purpose of the Act is to prevent the siting of buildings used for human occupancy across the traces of active faults. It should be noted that the Act addresses the potential hazard of surface fault rupture and is not directed toward other earthquake hazards, such as seismically induced ground shaking or landslides.

The law requires the State Geologist to identify regulatory zones (known as Earthquake Fault Zones or Alquist-Priolo Zones) around the surface traces of active faults, and to depict these zones on topographic base maps, at a scale of 1 inch to 2,000 feet. Earthquake Fault Zones vary in width, although they are typically one-quarter-mile wide, but wider when subparallel or branching traces are inferred to be present. Once published, the maps are distributed to the affected cities, counties, and State agencies for their use in planning and controlling new or renewed construction. With the exception of single-family wood-frame and steel-frame dwellings that are not part of a larger development (i.e. four units or more), local agencies are required to regulate development within the mapped zones. In general, construction within 50 feet of an active fault zone is prohibited.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (PRC §§ 2690 to 2699.6), which was passed in 1990, addresses earthquake hazards other than surface fault rupture. These hazards include strong ground shaking, earthquake-induced landslides, liquefaction, or other ground failures. Much like the Alquist-Priolo Earthquake Fault Zoning Act discussed above, these seismic hazard zones are mapped by the State Geologist to assist local government in the land use planning process. The Act states, "It is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety." The Act also states, "Cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard."

California Building Code

The State of California provides minimum standards for building design through the California Building Standards Code (CBC) (California Code of Regulations [CCR] Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the State and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-

district basis). The CBC has been modified for California conditions with more detailed and/or more stringent regulations.

The State earthquake protection law (California Health and Safety Code [HSC] § 19100 *et seq*.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The intent of the CBC is to enable structures to (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some non-structural damage, and (3) resist major earthquakes without collapse but with some structural as well as non-structural damage. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design.

The CBC contains specific requirements for seismic safety, excavation, foundations, retaining walls, and site demolition. It also regulates grading activities, including drainage and erosion control (Chapter 18, Appendix J). The 2016 CBC has been adopted by Contra Costa County according to Chapter 74-4 of Contra Costa Municipal Code.

Local

Contra Costa County General Plan

The Contra Costa County General Plan 2025 serves as the overall guiding policy document for Contra Costa County. The following is a list of applicable Contra Costa County General Plan policies most pertinent to the project with respect to geology and soils.

General Plan Safety Element

- **Goal 10-A:** To protect human life and reduce the potential for serious injuries from earthquakes; and to reduce the risks of property losses from seismic disturbances, which could have severe economic and social consequences for the County as a whole.
- **Goal 10-B:** To reduce to a practical minimum injuries and health risks resulting from the effects of earthquake ground shaking on structures, facilities and utilities.
- **Goal 10-D:** To reduce to a practical minimum the potential for life loss, injury and economic loss due to liquefaction-induced ground failure, levee failure, large lateral land movements toward bodies of water, and consequent flooding; and to mitigate the lesser consequences of liquefaction.
- **Policy 10-2:** Significant land use decisions (General Plan amendment, rezoning, etc.) shall be based on a thorough evaluation of geologic-seismic and soils conditions and risk.
- **Policy 10-3:** Because the region is seismically active, structures for human occupancy shall be designed to perform satisfactorily under earthquake conditions.
- **Policy 10-6:** Structures for human occupancy, and structures and facilities, whose loss would substantially affect the public safety or the provision of needed services, shall not be erected in areas where there is a high risk of severe damage in the event of an earthquake.
- **Policy 10-8:** Ground conditions shall be a primary consideration in the selection of land use and in the design of development projects.
- **Policy 10-13**: In areas where active or inactive earthquake faults have been identified, the location and/or design of any proposed buildings, facilities, or other development shall be modified to mitigate possible danger from fault rupture or creep.

- **Policy 10-14:** Preparation of a geologic report shall be required as a prerequisite before authorization of public capital expenditures or private development projects in areas of known or suspected faulting.
- **Policy 10-18:** This General Plan shall discourage urban or suburban development in areas susceptible to high liquefaction dangers and where appropriate subject to the policies in 10-20 below, unless satisfactory mitigation measures can be provided, while recognizing that there are low intensity uses such as water-related recreation and agricultural uses that are appropriate in such areas.
- **Policy 10-20:** Any structures permitted in areas of high liquefaction danger shall be sited, designed and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.
- **Policy 10-21:** Approvals to allow the construction of public and private development projects in areas of high liquefaction potential shall be contingent on geologic and engineering studies, which define and delineate potentially hazardous geologic and/or soils conditions, recommend means of mitigating these adverse conditions; and on proper implementation of the mitigation measures.

Contra Costa County Ordinance Code

Building and Construction

Contra Costa County Ordinance Code, Chapter 74-4.002, adopts the 2016 CBC, with amendments, as the County's Building Code. As such, all new construction within the County is required to adhere to its seismic safety standards. The County of Contra Costa Department of Conservation and Development is responsible for the administration and enforcement of the CBC.

Grading, Soils, and Erosion Control Ordinances

Ordinance Code Division 716 contains the County's grading ordinance, which sets forth regulations for control of excavation, grading, earthwork construction, including fills or embankments and related work. Division 716-4.202 requires that a grading permit be obtained for on property on which a subdivision or development requirement approval of a tentative map is proposed, such as the project, and that such a permit shall not be issued until reviewed by the Public Works Department for compliance with the requirements of Title 9, Subdivisions. As indicated in Title 9, Section 94-4.420, Soil Report, a preliminary soil investigation report is required and must be reviewed by a building inspector or designated representative. If the report is deemed complete in that the recommended action and procedures contained in the report are likely to prevent damage, the recommended actions and procedures contained in the report shall become a condition of approval and shall be incorporated in the development of the subdivision.

3.6.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 California Environmental Quality Act (CEQA) Guidelines, Appendix G Environmental Checklist, to determine whether impacts to geology and soils are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:
   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
   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 wastewater disposal systems where sewers are not available for the disposal of wastewater?

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Approach to Analysis

Impacts related to geology and soils were determined by reviewing information contained in the Preliminary Geotechnical Report and Paleontological Records Search prepared for the project site, which is provided in Appendix E.

ENGEO performed field explorations on March 14 and 15, 2018, as part of the Geotechnical Investigation. ENGEO did not collect samples in the field during the exploration. In addition, ENGEO retained a subcontractor with a Cone Penetration Testing (CPT) rig to advance five cone penetration tests to depth of up to 70 feet below ground surface. Pore pressure dissipation tests were performed in 1-CPT1, 1-CPT3, 1-CPT4, 1-CPT5 to measure the approximate subsurface phreatic surface. Published geologic and geotechnical information that summarized the site conditions were also reviewed.

Additional evaluations of potential geologic and soil impacts of the project were based on review of available documentation, including the Contra Costa County General Plan; USGS “Shake Map” webpage; the USDA NRCS Web Soil Survey; and Association of Bay Area Governments, California Geological Survey, and USGS data and publications.

Impacts to paleontological resources were determined by reviewing the Paleontological Records Search prepared for the project site by Consulting Paleontologist, Dr. Kenneth Finger. Dr. Finger performed a records search on the University of California Museum of Paleontology database for the project site.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of geology and soils impacts resulting from implementation of the project.

- Place structures on or within the State designated zone of a known earthquake fault.
- Place structures where seismic ground shaking of a Strong level or greater according to the Mercalli Scale could occur.
- Place structures on soils prone to any level of liquefaction.
- Place structures on slopes greater than 15 percent or soils susceptible to failure as defined by the USGS.
- Place structures in areas without impervious surfaces or vegetation, or on slopes greater than 15 percent.
- Place structures on a geologic unit or soil that is unstable or that could become unstable.
- Place structures on expansive soil that has an expansion index greater than 20 as defined in Table 18-1-B of the UBC (1994).
- Place septic tanks or alternative wastewater disposal systems on soils incapable of supporting the use.
- Physically damage or destroy paleontological deposits.

Earthquakes

Impact GEO-1: **The project could 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.

Construction

Impacts related to risks associated with seismic-related hazards are limited to operational impacts. No respective construction impacts would occur.

Operation

i) Based on the project-specific geotechnical report (Appendix E) prepared for the project site, the potential for ground rupture is low. There are no known active faults directly crossing the project site, and the project site is not located within a designated Alquist-Priolo Earthquake Fault Zone. In addition, the closest fault to the project site is the Green Valley

Connected Fault, which is mapped approximately 2.2 miles east of the project site.[10] As such, it is unlikely for ground rupture to occur at the site. Thus, the project would not expose people or structures to substantial adverse effects associated with fault rupture. Therefore, no impacts related to fault rupture would occur.

ii) The ENGEO Geotechnical Exploration identified the Green Valley Connected Fault as the closest fault to the project site, approximately 2.2 miles to the east. The project site and its residential occupants could experience strong to violent ground shaking due to an earthquake occurring along the Green Valley Connected Fault, Mount Diablo Thrust Fault, Calaveras Fault, or Hayward Fault. The intensity of ground shaking would vary with the distance and magnitude of the earthquake causing the ground shaking. According to the Modified Mercalli Intensity Shaking Severity Level, the project site would experience "Very Strong" shaking during an earthquake along these faults. This would represent a potentially significant impact related to strong seismic ground shaking.

Implementation of Mitigation Measure (MM) GEO-1 would ensure a design-level geotechnical investigation is performed. The project Geotechnical Engineer would review construction drawings to ensure all recommendations are implemented in project design. Design level geotechnical reports routinely include recommended geotechnical observation and testing services during construction. They allow the Geotechnical Engineer to (1) ensure geotechnical recommendations for the project are properly interpreted and implemented by contractors, (2) allow the Geotechnical Engineer to view exposed conditions during construction to ensure that field conditions match those that were the basis of the design recommendations in the approved report, and (3) provide the opportunity for field modifications of geotechnical recommendations based on exposed conditions.

This design-level geotechnical investigation would include subsurface exploration (borings), laboratory testing of selected samples, and engineering analysis of the data. In addition, the design-level recommendations shall address existing fill removal and fill compaction; consolidation settlement; foundation design; design of retaining walls required for construction of the building podium; shallow groundwater; temporary excavation; site drainage and landscaping irrigation; and pavement recommendations. Therefore, impacts related to strong seismic ground shaking would be less than significant with mitigation.

iii) The project-specific geotechnical report (Appendix E) concluded the risk of seismic-related ground failure in the form of liquefaction to be low, because the project site soils tested contained relatively dense clay and silty materials that were too cohesive to liquefy. Nevertheless, the report estimates that ground settlement would range from 0.2 to 0.5 inches. This assessment was based on limited data and needs to be re-evaluated by the design level report. The project geotechnical engineer, Engeo, Inc. indicates the report would include soil borings and laboratory testing of the project site's sand layers to more accurately estimate liquefaction related soil settlement. Implementation of MM GEO-1 would ensure all recommendations contained in the design-level geotechnical report are

[10] ENGEO. Preliminary Geotechnical Report, April 6, 2018.

included in project plans and designs. Therefore, impacts related to seismic-related ground failure, such as liquefaction, would be less than significant with mitigation incorporated.

iv) As discussed under Impact GEO-3 and in the project-specific geotechnical report (Appendix E), the project site is located on relatively flat relief and would not be susceptible to landslides. Therefore, impacts related to landslides would be less than significant.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM GEO-1 Submittal of a Design-Level Geotechnical Report

At least 60 days prior to issuance of construction permits or installation of utility improvements, the project applicant shall submit a design-level geotechnical report that provides geotechnical recommendations for the project based on adequate subsurface exploration, laboratory testing, and engineering analysis. The design-level geotechnical report shall address the following:

- Grading, including removal of existing undocumented fill
- Consolidation settlement
- Analysis of liquefaction potential, including estimating total settlement and differential settlement and surface manifestation of liquefaction
- Foundation design
- Measures to protect improvements from relatively shallow water table
- Further evaluation of expansive soils and corrosion potential of soils, including measures to protect improvements that are in contact with the ground from this hazard
- Exploration, testing, and engineering analysis to provide recommendations pertaining to foundation design, including retaining walls and pavement design
- Evaluation of the drainage design
- Address temporary shoring and support of excavations
- Provide updated California Building Code seismic parameters
- Outline recommended geotechnical monitoring

Prior to issuance of building permits, the project Geotechnical Engineer shall review construction drawings to ensure that the grading, drainage, and foundation plans are consistent with recommendations and specifications in the design level geotechnical report.

All grading, excavation and filling shall be conducted during the period of April 15 through October 15 only, and all areas of exposed soils shall be revegetated to minimize erosion and subsequent sedimentation. After October 15, only erosion control work shall be allowed by the grading permit. Any modification to the above schedule shall be subject to review by the Grading Inspection Section, and the

review and approval of the Department of Conservation and Development, Community Development Division.

A hold shall be placed on the "final" grading inspection, pending submittal of a report from the project Geotechnical Engineer that documents their observation and testing services during construction. Similarly, a hold shall be placed on the final building inspection until the Geotechnical Engineer submits a report documenting the monitoring services provided and implementation of all applicable recommendations. The final grading and construction plans for the project shall be reviewed by the project Geotechnical Engineer. Grading and construction activities shall meet the requirements of the recommendations included in the design-level geotechnical study.

Level of Significance After Mitigation

Less Than Significant with Mitigation

Soil Erosion or Topsoil Loss

Impact GEO-2: The project would not result in substantial soil erosion or the loss of topsoil.

Construction

The project site contains mostly pervious surfaces and is occupied by two residential structures. Since the project would disturb at least 1 acre of land during construction, it would be required to obtain a Construction General Permit from the California State Water Resources Control Board (State Water Board) consistent with the Contra Costa County's General Permit (No. CAS612008) and to comply with its conditions and requirements, which are designed to minimize potential erosion issues. Consistent with Section 1014-4.002 and .004, compliance with the County's NPDES permit would ensure that a stormwater control plan is prepared and BMPs are implemented that would prevent sediments and other pollutants from entering the stormwater system. Thus, with adherence to these existing requirements, impacts from project construction on the project site would not result in substantial soil erosion or loss of topsoil. Therefore, construction-related impacts related to soil erosion and loss of topsoil would be less than significant.

Operation

Impacts related to soil erosion or loss of topsoil are limited to construction impacts. No respective operational impacts would occur.

Level of Significance

Less Than Significant

Unstable Geologic Location

Impact GEO-3:	**The project could 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.**

Construction

Impacts related to risks associated with location on an unstable geologic unit or soil are limited to operational impacts. No respective construction impacts would occur.

Operation

As discussed under Impact GEO-1(iii), the full scope of the entire project site's susceptibility to liquefaction was based on limited data and needs to be re-evaluated by the design level geotechnical report, which is required by MM GEO-1. The site-specific geotechnical report determined that the risk from on- or off-site landslides or lateral spreading would be low due to the relatively flat topography of the project site. Therefore, impacts related to unstable soil or geologic unit risks would be less than significant with mitigation.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

Implement MM GEO-1

Level of Significance

Less Than Significant

Expansive Soil

Impact GEO-4:	**The project could 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.**

Construction

Impacts related to risks associated with location on expensive soil are limited to operational impacts. No respective construction impacts would occur.

Operation

The project-specific geotechnical report (Appendix E) identified expansive soils on the project site. These soils have the potential to shrink and swell as they gain moisture, which could cause building foundations to crack or heave resulting in substantial risks to life or property. As a result, project site soils could create a substantial risk to life or property. This would represent a potentially significant impact related to expansive soil risks.

However, implementation of MM GEO-1 would ensure recommendations contained in the design-specific geotechnical report are included in the project construction design. Therefore, impacts related to expansive soils would be less than significant with mitigation.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

Implement MM GEO-1

Level of Significance After Mitigation

Less Than Significant with Mitigation

Wastewater Disposal Systems

Impact GEO-5:	**The project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.**

Construction

Impacts related to the project's use of septic tanks or alternative wastewater disposal systems are limited to construction. No respective operational impacts would occur.

Operation

The project site is located in a developed area of Contra Costa County, which is well-served by the municipal sanitary sewer system. The project would construct a 33-foot-long sanitary sewer line that would connect with the existing 30-inch sanitary sewer line along the west side of the project site within Del Hombre Lane. Central Contra Costa Sanitary District (Central San) does not allow 8-inch tee or wye connection directly to a 30-inch sewer main, and all connections would be made at one of two manholes: (1) the manhole located towards the southwest corner of the project site in Del Hombre Lane, or (2) the manhole at the intersection of Del Hombre Lane and Roble Road at the northwest corner of the project site.[11] Thus, the project would not use septic tanks or any alternative wastewater disposal system. Therefore, there would be no operational impact related to soil capability of supporting the use of alternative wastewater disposal systems.

Level of Significance

No Impact

Destruction of Paleontological Resource or Unique Geologic Feature

Impact GEO-6:	**The project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.**

Construction

The project-specific paleontological report (Appendix E) concluded that the project site is located on Holocene alluvium, which is too young to be fossiliferous and has low potential to yield paleontological resources. There are also no unique geological features located on the project site. However, Miocene strata of the Monterey Group extend from the south and partially into the search area 0.5-mile radius of the project site. The Miocene strata have the potential to yield significant

[11] BKF. 2018. Del Hombre Utility Due Diligence. May.

paleontological resources and could be impacted by project-related excavations should they continue beneath the Holocene deposits. Pleistocene vertebrate localities are also particularly abundant in the area. The project area should therefore be considered moderately sensitive for undiscovered paleontological resources. As such, sub-surface construction activities in excess of 10 feet in depth such as grading and trenching could result in a significant impact to unknown paleontological resources, such as fossils from mammoths, saber-toothed cats, rodents, reptiles, and birds, if encountered. This would represent of potentially significant impact related to destruction of paleontological resources.

However, implementation of MM GEO-6 would ensure a qualified paleontological monitor, as defined by the Society of Vertebrate Paleontology, is present during any ground disturbance activities that would penetrate Pleistocene (or older) deposits. If fossils or fossil-bearing deposits of Pleistocene age are discovered during construction, all excavation activity would cease within a 100-foot radius until a qualified paleontologist has the opportunity to evaluate the significance of the find and provide any recommendations deemed necessary to the County. This would reduce potential impacts to paleontological resources that may be discovered during project construction. Therefore, impacts related to destruction of paleontological resources or unique geologic features would be less than significant with mitigation.

Operations

Impacts related to the project's potential to cause substantial adverse change in the significance of a unique paleontological resource or unique geologic feature are limited to construction. No respective operational impacts would occur.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM GEO-6 Stop Construction Upon Encountering Paleontological Materials

A qualified paleontological monitor (as defined by the Society of Vertebrate Paleontology) retained by the project proponent shall be present during all phases of ground disturbance in excess of 15 feet below the existing ground surface or to the depth of Pleistocene deposits, whichever is greater. The role of the paleontological monitor shall be limited to monitoring of known or inferred Pleistocene deposits. This may be followed by regular periodic or "spot-check" paleontological monitoring during ground disturbance as needed, but full-time monitoring is not required at this time. In the event that Pleistocene fossils or fossil-bearing deposits are discovered during construction activities, excavations within a 100-foot radius of the find shall be temporarily halted or diverted. The applicant's construction contractor shall notify a qualified paleontologist to examine the discovery, and shall notify the Department of Conservation and Development within 24 hours of the discovery. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this

requirement. The paleontologist shall document the discovery as needed in accordance with Society of Vertebrate Paleontology standards and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction activities are allowed to resume at the location of the find. If the applicant determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of construction activities on the discovery. The plan shall be submitted to the Department of Conservation and Development, Community Development Division for review and approval prior to implementation. The applicant shall adhere to the recommendations in the approved plan.

Level of Significance After Mitigation

Less Than Significant with Mitigation

3.6.5 - Cumulative Impacts

Seismic-related Hazards

The geographic scope of the cumulative geology and soils analysis is the project vicinity. Adverse effects associated with geology and soils tend to be localized; therefore, the area near the project site would be the area most affected by project activities (generally within a 0.25-mile radius). The only cumulative projects within 0.25 mile of the project site are the Avalon Walnut Creek Village Project (Bay Area Rapid Transit [BART] Pleasant Hill Specific Plan, Block C) located directly across Del Hombre Lane. Development in the vicinity of the project site has not included any uses or activities that would result in geology or soils impacts.

Cumulative projects, including the project site, have the potential to experience strong to violent ground shaking from earthquakes. The other projects listed in Table 3-1 would be exposed to the same ground shaking hazards and likewise would be subject to the same requirements. Cumulative projects would adhere to the provisions of the CBC, policies of the Contra Costa County General Plan and Contra Costa County Municipal Code reducing potential hazards associated with seismic ground shaking and ground failure. As such, the project, in conjunction with other projects, would not have a cumulatively significant impact associated with seismic-related hazards.

Soil-related Hazards

Soil conditions associated with the project site, such as expansive soils, are specific to the project site and generally do not contribute to a cumulative effect. Some or all other cumulative projects may have similar conditions but they also would not contribute to a general geologic or soil cumulative effect. The project would be subject to all Contra Costa County General Plan policies, County code policies, and the CBC reducing soil-related hazard impacts. Other current and future development/redevelopment projects in the region would similarly be required to adhere to standards and practices that include stringent geologic and soil-related hazard mitigations. As such, the project, in conjunction with other projects, would not have a cumulatively significant impact associated with soil-related hazards.

Paleontological Resources and Unique Geologic Feature

The geographic scope of the cumulative paleontological resources and unique geologic features analysis is Contra Costa County, the City of Walnut Creek, and the City of Pleasant Hill. Construction activities associated with development cumulative projects in Contra Costa County, the City of Walnut Creek, and the City of Pleasant Hill may have the potential to encounter undiscovered geologic resources and paleontological resources. These cumulative projects would be required to mitigate for impacts through compliance with applicable federal and State laws governing geologic resources and paleontological resources. The likelihood of presence of geologic resources and paleontological resources on the cumulative project sites is very low, given the developed nature of the areas surrounding the cumulative project sites.

However, paleontological resources have been discovered in Contra Costa County, the City of Walnut Creek and the City of Pleasant Hill, and the potential exists that intact paleontological resources could be encountered during project implementation. This would be a significant contributing factor to an overall cumulative impact to paleontological resources within Contra Costa County, the City of Walnut Creek, and the City of Pleasant Hill. Implementation of MM GEO-6 requires a qualified paleontological monitor, as defined by the Society of Vertebrate Paleontology, to be present during any ground disturbance activities that would penetrate Pleistocene (or older) deposits. This mitigation measure would lessen the potential loss of paleontological resources to the community as a whole, and the cumulative impact to paleontological resources would be less than significant with mitigation.

With respect to development of the cumulative projects, although there is the possibility that previously undiscovered resources could be encountered by subsurface earthwork activities, the implementation of standard construction mitigation measures would ensure that undiscovered geologic resources and paleontological resources are not adversely affected by cumulative project-related construction activities, which would prevent the destruction or degradation of potentially significant paleontological resources. Given the low potential for disruption and the comprehensiveness of mitigation measures that would apply to the cumulative projects, the project, in conjunction with other planned and approved projects, would result in a less than significant with mitigation cumulative impact related to paleontological and geologic resources.

Level of Cumulative Significance Before Mitigation

Potentially Significant

Cumulative Mitigation Measures

Implement MM GEO-6

Level of Cumulative Significance After Mitigation

Less Than Significant with Mitigation

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3.7 - Greenhouse Gas Emissions

3.7.1 - Introduction

This section describes the existing greenhouse gas (GHG) emissions setting as well as the relevant regulatory framework. This section also evaluates the possible impacts related to GHG emissions that could result from implementation of the project. Information in this section is based on project-specific GHG emissions modeling outputs included in Appendix B. No comments were received during the Environmental Impact Report (EIR) scoping period related to GHG emissions.

3.7.2 - Environmental Setting

Greenhouse Effect, Global Warming, and Climate Change

Most of the energy that affects the Earth's climate comes from the sun. Some solar radiation is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected by the atmosphere back toward space. As the Earth absorbs high-frequency solar radiation, its surface gains heat and then re-radiates lower frequency infrared radiation back into the atmosphere.[1]

Most solar radiation passes through gases in the atmosphere classified as GHGs; however, infrared radiation is selectively absorbed by GHGs. GHGs in the atmosphere play a critical role in maintaining the balance between the Earth's absorbed and radiated energy, the Earth's radiation budget,[2] by trapping some of the infrared radiation emitted from the Earth's surface that otherwise would have escaped to space (Figure 3.7-1). Radiative forcing is the difference between the incoming energy and outgoing energy.[3] Specifically, GHGs affect the radiative forcing of the atmosphere,[4] which in turn affects the Earth's average surface temperature. This phenomenon, the *greenhouse effect*, keeps the Earth's atmosphere near the surface warmer than it would be otherwise and allows successful habitation by humans and other forms of life.

Combustion of fossil fuels and deforestation release carbon into the atmosphere that historically has been stored underground in sediments or in surface vegetation, thus exchanging carbon from the geosphere and biosphere to the atmosphere in the carbon cycle. With the accelerated increase in fossil fuel combustion and deforestation since the Industrial Revolution of the 19th century, concentrations of GHGs in the atmosphere have increased exponentially. Such emissions of GHGs in excess of natural ambient concentrations contribute to the enhancement of the natural greenhouse effect. This enhanced greenhouse effect has contributed to *global warming*, an increased rate of warming of the Earth's average surface temperature.[5] Specifically, increases in GHGs lead to increased absorption of infrared radiation by the Earth's atmosphere and warm the lower atmosphere further, thereby increasing temperatures and evaporation rates near the surface.

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[1] Frequencies at which bodies emit radiation are proportional to temperature. The Earth has a much lower temperature than the sun and emits radiation at a lower frequency (longer wavelength) than the high frequency (short-wavelength) solar radiation emitted by the sun.

[2] This includes all gains of incoming energy and all losses of outgoing energy; the planet is always striving to be in equilibrium.

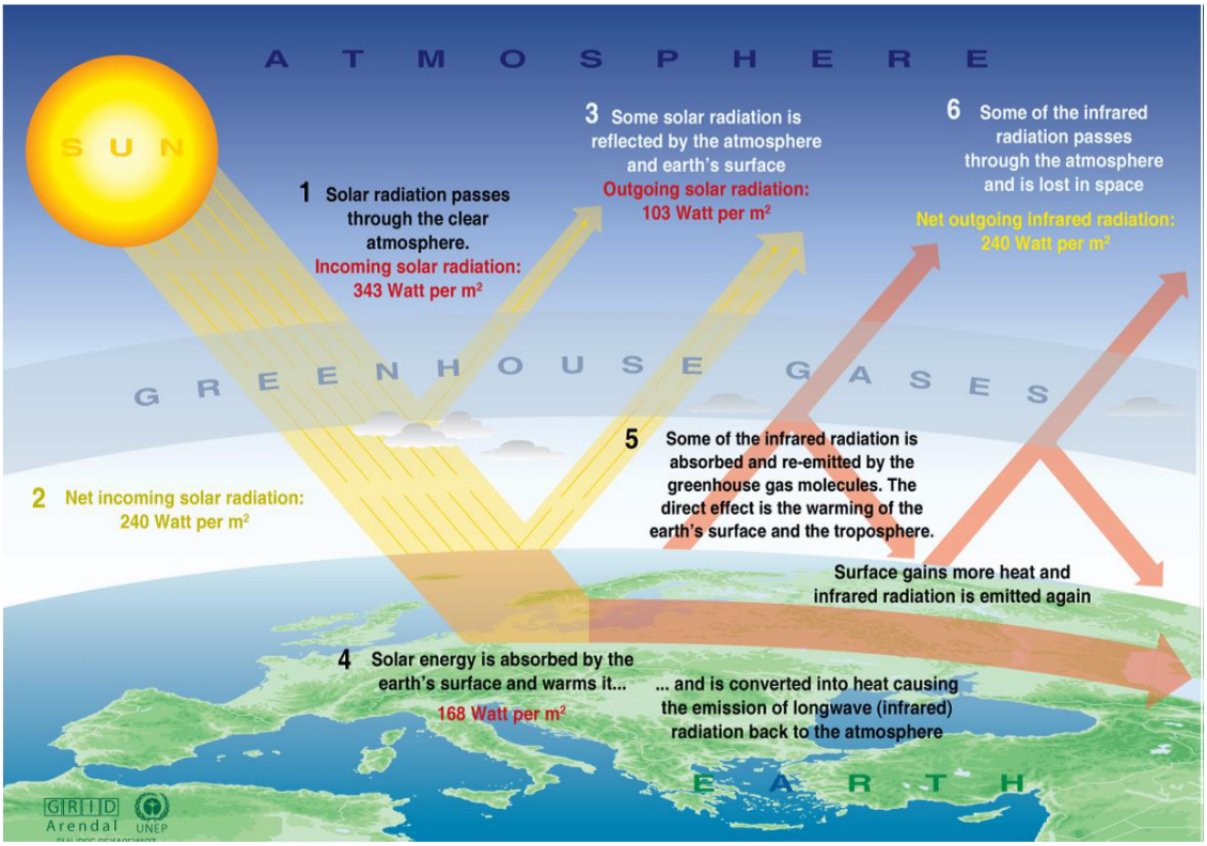
[3] Positive forcing tends to warm the surface while negative forcing tends to cool it.

[4] This is the change in net irradiance at the tropopause after allowing stratospheric temperatures to readjust to radiative equilibrium, but with surface and tropospheric temperatures and state held fixed at the unperturbed values.

[5] This condition results when the Earth has to work harder to maintain its radiation budget, because when more GHGs are present in the atmosphere, the Earth must force emissions of additional infrared radiation out into the atmosphere.

Variations in natural phenomena, such as volcanoes and solar activity, produced most of the global temperature increase that occurred during preindustrial times; more recently, however, increasing atmospheric GHG concentrations resulting from human activity have been responsible for most of the observed global temperature increase.[6]

Figure 3.7-1: The Greenhouse Effect



Source: United Nations Environmental Program (UNEP)/GRID-Arendal, 2005[7]

Global warming affects global atmospheric circulation and temperatures; oceanic circulation and temperatures; wind and weather patterns; average sea level; ocean acidification; chemical reaction rates; precipitation rates, timing, and form; snowmelt timing and runoff flow; water supply; wildfire risks; and other phenomena, in a manner commonly referred to as *climate change*. Climate change is a change in the average weather of the Earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

[6] These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

[7] United Nations Environmental Program (UNEP)/GRID-Arendal (UNEP/GRID-Arendal). 2005. GRID-Arendal Annual Report. Website: https://cld.bz/bookdata/tRoONat/basic-html/page-1.html. Accessed June 2, 2018.

Temperature Predictions by the Intergovernmental Panel on Climate Change

The United Nations Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios.[8] The report also concluded that "[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations." Warming of the climate system is now considered to be unequivocal (IPCC 2007),[9] with the global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. The IPCC predicts increases in global average temperature of between 2°F and 11°F over the next 100 years, depending on the scenario.[10]

GHGs and Global Emission Sources

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat. Prominent GHGs that naturally occur in the Earth's atmosphere are water vapor, carbon dioxide (CO_2), methane (CH_4), oxides of nitrogen (NO_X), and ozone. Anthropogenic (human-caused) GHG emissions include releases of these GHGs plus release of human-made gases with high global warming potential (GWP) (ozone-depleting substances such as chlorofluorocarbons [CFCs][11] and aerosols, hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride (SF_6). The GHGs listed by the IPCC (CO_2, methane, nitrous oxide, HFCs, PFCs, and SF_6) are discussed below, in order of abundance in the atmosphere. Water vapor, despite being the most abundant GHG, is not discussed below because natural concentrations and fluctuations far outweigh anthropogenic influences, making it impossible to predict. Ozone is not included because it does not directly affect radiative forcing. Ozone-depleting substances, which include chlorofluorocarbons, halons, carbon tetrachloride, methyl chloroform, and hydrochlorofluorocarbons, are not included because they have been primarily replaced by HFCs and PFCs.

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8 Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller [eds.]). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Website: www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Accessed June 15, 2017.

9 Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller [eds.]). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Website: www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Accessed June 15, 2017.

10 Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller [eds.]). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Website: www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Accessed June 15, 2017.

11 CFCs destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited CFCs production in 1987.

The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, CO_2.

Individual GHG compounds have varying potential for contributing to global warming. For example, methane is 25 times as potent as CO_2, while SF_6 is 22,200 times more potent than CO_2 on a molecule-per-molecule basis. To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas. The most commonly accepted method for comparing GHG emissions is the GWP methodology defined in the IPCC reference documents.[12] The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (CO_2e), which compares the gas in question to that of the same mass of CO_2 (by definition, CO_2 has a GWP of 1). The global warming potential of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming. Thus, to describe how much global warming a given type and amount of GHG may cause, the CO_2e is used. A CO_2e is the mass emissions of an individual GHG multiplied by its global warming potential. As such, a high GWP represents high absorption of infrared radiation and a long atmospheric lifetime compared to CO_2. One must also select a time horizon to convert GHG emissions to equivalent CO_2 emissions to account for chemical reactivity and lifetime differences among various GHG species. The standard time horizon for climate change analysis is 100 years. Generally, GHG emissions are quantified in terms of metric tons (MT) of CO_2e (MT CO_2e) emitted per year.

The atmospheric residence time of a gas is equal to the total atmospheric abundance of the gas divided by its rate of removal.[13] The atmospheric residence time of a gas is, in effect, a half-life measurement of the length of time a gas is expected to persist in the atmosphere when accounting for removal mechanisms such as chemical transformation and deposition.

Table 3.7-1 lists the GWP of each GHG and its lifetime. Units commonly used to describe the concentration of GHGs in the atmosphere are parts per million (ppm), parts per billion (ppb), and parts per trillion (ppt), referring to the number of molecules of the GHG in a sampling of 1 million, 1 billion, or 1 trillion molecules of air. Collectively, HFCs, PFCs, and SF_6 are referred to as high-GWP gases. CO_2 is by far the largest component of worldwide CO_2e emissions, followed by methane, nitrous oxide, and high-GWP gases, in order of decreasing contribution to CO_2e.

The primary human processes that release GHGs include the burning of fossil fuels for transportation, heating, and electricity generation; agricultural practices that release methane, such as livestock grazing and crop residue decomposition; and industrial processes that release smaller amounts of high-GWP gases. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing the Earth's capacity to remove CO_2 from the air and altering the Earth's albedo or surface reflectance, thus allowing more solar radiation to be absorbed. Specifically, CO_2 emissions associated with fossil fuel combustion are the primary contributors to

[12] Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller [eds.]). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Website: www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Accessed June 15, 2017.

[13] Seinfeld, J.H. and Pandis, S.N. 2006. Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, 2nd Edition. New York. John Wiley & Sons.

human-induced climate change. CO_2, methane, and nitrous oxide emissions associated with human activities are the next largest contributors to climate change.

GHGs of California concern are defined by California Assembly Bill (AB) 32 (see the Regulatory Environment subsection below for a description) and include CO_2, CH_4, NO_X, HFCs, PFCs, and SF_6. A seventh GHG, nitrogen trifluoride (NF_3), was also added under the California Health and Safety Code section 38505(g)(7) as a GHG of concern. These GHGs are described in terms of their physical description and properties, global warming potential, atmospheric residence lifetime, sources, and atmospheric concentration in 2005 in Table 3.7-1.

Table 3.7-1: Description of GHGs of California Concern

GHG	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
Carbon dioxide (CO_2)	Odorless, colorless, natural gas.	1	50–200	burning coal, oil, natural gas, and wood; decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; oceanic evaporation; volcanic outgassing; cement production; land use changes
Methane (CH_4)	Flammable gas and is the main component of natural gas.	25	12	geological deposits (natural gas fields) extraction; landfills; fermentation of manure; and decay of organic matter
Nitrous oxide (N_2O)	Nitrous oxide (laughing gas) is a colorless GHG.	298	114	microbial processes in soil and water; fuel combustion; industrial processes
Chloro-fluoro-carbons (CFCs)	Nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (level of air at the Earth's surface); formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms.	3,800-8,100	45–640	refrigerants aerosol propellants; cleaning solvents.
Hydro-fluoro-carbons (HFCs)	Synthetic human-made chemicals used as a substitute for CFCs and contain carbon, chlorine, and at least one hydrogen atom.	140 to 11,700	1–50,000	automobile air conditioners; refrigerants

Table 3.7-1 (cont.): Description of GHGs of California Concern

GHG	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
Per-fluoro-carbons (PFCs)	Stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface.	6,500 to 9,200	10,000–50,000	primary aluminum production; semiconductor manufacturing
Sulfur hexafluoride (SF_6)	Human-made, inorganic, odorless, colorless, and nontoxic, nonflammable gas.	22,800	3,200	electrical power transmission equipment insulation; magnesium industry, semiconductor manufacturing; a tracer gas
Nitrogen trifluoride (NF_3)	Inorganic, is used as a replacement for PFCs, and is a powerful oxidizing agent.	17,200	740	electronics manufacture for semiconductors and liquid crystal displays.

Sources:
Intergovernmental Panel on Climate Change (IPCC). 2007a. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller [eds.]). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, Website: www.ipcc.ch /publications_and_data/ar4/wg1/en/contents.html. Accessed June 5, 2018.

Intergovernmental Panel on Climate Change (IPCC). 2007b. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Core Writing Team, Pachauri, R.K. and Reisinger, A. [eds.]). IPCC, Geneva, Switzerland. Website: www.ipcc.ch /publications_and_data/ar4/syr/en/contents.html. Accessed June 5, 2018.

The State has begun the process of addressing pollutants referred to as short-lived climate pollutants. Senate Bill (SB) 605, approved by the Governor on September 14, 2014 required the California Air Resources Board (ARB) to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016. The ARB released the Proposed Short-Lived Climate Pollutant Reduction Strategy in April 2016. The ARB has completed an emission inventory of these pollutants, identified research needs, identified existing and potential new control measures that offer co-benefits, and coordinated with other state agencies and districts to develop measures.

The short-lived climate pollutants include three main components: black carbon, fluorinated gases, and methane. Fluorinated gases and methane are described in Table 3.7-1 and are already included in the California GHG inventory. Black carbon has not been included in past GHG inventories; however, the ARB will include it in its comprehensive strategy.[14]

[14] California Air Resources Board (ARB). 2015c. Short-Lived Climate Pollutant Reduction Strategy, Concept Paper. May. Website: http://www.arb.ca.gov/cc/shortlived/concept_paper.pdf. Accessed June 3, 2017.

Black carbon is a component of fine particulate matter. Black carbon is formed by incomplete combustion of fossil fuels, biofuels, and biomass. Sources of black carbon within a jurisdiction may include exhaust from diesel trucks, vehicles, and equipment, as well as smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels used for transportation, the burning of biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Black carbon is not a gas but an aerosol—particles or liquid droplets suspended in air. Black carbon only remains in the atmosphere for days to weeks, whereas other GHGs can remain in the atmosphere for years. Black carbon can be deposited on snow, where it absorbs sunlight, reduces sunlight reflectivity, and hastens snowmelt. Direct effects include absorbing incoming and outgoing radiation; indirectly, black carbon can also affect cloud reflectivity, precipitation, and surface dimming (cooling).

Global warming potentials for black carbon were not defined by the IPCC in its Fourth Assessment Report. The ARB has identified a global warming potential of 3,200 using a 20-year time horizon and 900 using a 100-year time horizon from the IPCC Fifth Assessment. Sources of black carbon are already regulated by the ARB, and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion sources.[15] Additional controls on the sources of black carbon specifically for their GHG impacts beyond those required for toxic and fine particulates are not likely to be needed.

Ozone is another short-lived climate pollutant that will be part of the strategy. Ozone affects evaporation rates, cloud formation, and precipitation levels. Ozone is not directly emitted, so its precursor emissions, volatile organic compounds (VOC) and NO_X on a regional scale and CH_4 on a hemispheric scale will be subject of the strategy.[16]

Water vapor is also considered a GHG. Water vapor is an important component of our climate system and is not regulated. Increasing water vapor leads to warmer temperatures, which causes more water vapor to be absorbed into the air. Warming and water absorption increase in a spiraling cycle. Water vapor feedback can also amplify the warming effect of other GHGs, such that the warming brought about by increased carbon dioxide allows more water vapor to enter the atmosphere.[17]

Introduction to Global Climate Change

Global climate change is defined as the change in average meteorological conditions on Earth with respect to temperature, precipitation, and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2, N_2O, CH_4, hydrofluorocarbons, perfluorocarbons and SF_6. These particular gases are important because of their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the Earth's atmosphere, but prevent radioactive heat from escaping, thus warming the Earth's atmosphere. Global climate change can occur naturally, as it has in the past with the previous ice ages.

[15] California Air Resources Board (ARB). 2015c. Short-Lived Climate Pollutant Reduction Strategy, Concept Paper. May. Website: http://www.arb.ca.gov/cc/shortlived/concept_paper.pdf. Accessed June 3, 2017.

[16] California Air Resources Board (ARB). 2015c. Short-Lived Climate Pollutant Reduction Strategy, Concept Paper. May. Website: http://www.arb.ca.gov/cc/shortlived/concept_paper.pdf. Accessed June 3, 2017.

[17] National Aeronautics and Space Administration (NASA). 2015. NASA—Global Climate Change, Vital Signs of a Planet. Website: http://climate.nasa.gov/causes/. Accessed August 21, 2016.

According to the ARB, the climate change since the industrial revolution differs from previous climate changes in both rate and magnitude.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse effect, the Earth's average temperature would be approximately 61°F cooler than it is currently. The cumulative accumulation of these gases in the Earth's atmosphere is considered the cause for the observed increase in the Earth's temperature.

Although California's rate of growth of GHG emissions is slowing, the State is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to have produced 492 million metric tons (MMT) of carbon dioxide equivalents (MMT CO_2e) GHG emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of GHG emissions because of the implementation of energy efficiency programs as well as adoption of strict emission controls.

Global Climate Change Issue

Climate change is a global problem because GHGs are global pollutants, unlike criteria air pollutants and hazardous air pollutants (also called toxic air contaminants), which are pollutants of regional and local concern. Pollutants with localized air quality effects have relatively short atmospheric lifetimes, approximately 1 day; by contrast, GHGs have long atmospheric lifetimes, several years to several thousand years. GHGs persist in the atmosphere for a long enough time to be dispersed around the globe.

Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, more CO_2 is currently emitted into the atmosphere than is sequestered. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through photosynthesis and dissolution, respectively. These are two of the most common processes of CO_2 sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, Northern Hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions is stored in the atmosphere.[18]

Similarly, effects of GHGs are borne globally, as opposed to the localized air quality effects of criteria air pollutants and hazardous air pollutants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known and cannot be quantified, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global or local climates or microclimate.

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. A cumulative discussion and analysis of project impacts on global climate change is presented in this EIR because, although it is unlikely that

[18] Seinfeld, J. H. and Pandis, S. N. 1998. Atmospheric Chemistry and Physics from Air Pollution to Climate Change. New York. John Wiley & Sons.

a single project will contribute significantly to climate change, cumulative emissions from many projects affect global GHG concentrations and the climate system.

Global climate change has the potential to result in sea level rise (resulting in flooding of low-lying areas), to affect rainfall and snowfall (leading to changes in water supply), to affect temperatures and habitats (affecting biological resources and public health), and to result in many other adverse environmental consequences.

Although the international, national, State, and regional communities are beginning to address GHGs and the potential effects of climate change, worldwide GHG emissions will likely continue to rise over the next decades.

Climate and Topography

Climate is the accumulation of daily and seasonal weather events over a long interval, whereas weather is defined as the condition of the atmosphere at any particular time and place. For a detailed discussion of existing regional and project site climate and topography, see Section 3.2, Air Quality.

Existing GHG Emissions

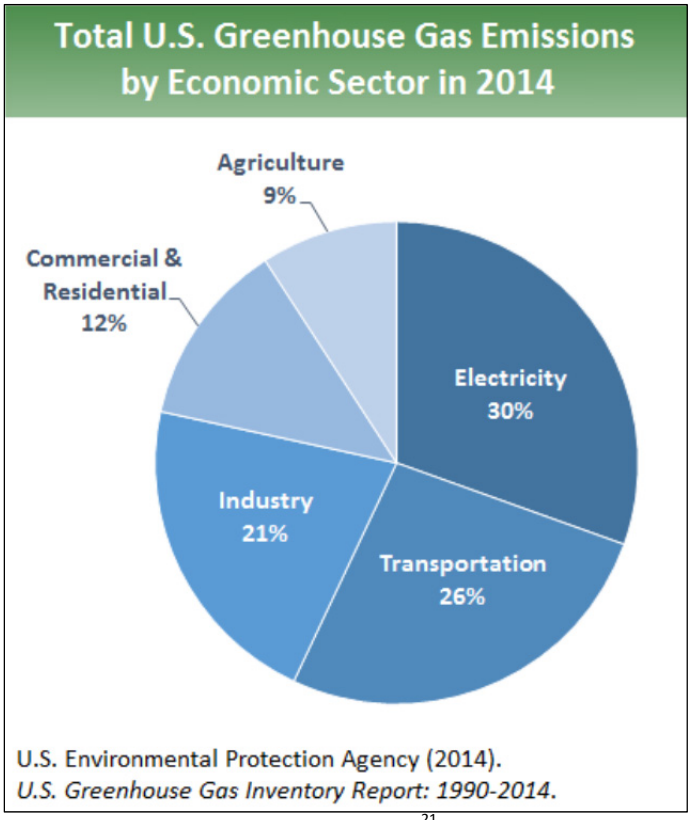
U.S. GHG Inventory

Total U.S. GHG emissions were approximately 1 percent higher in 2014 than in 2013.[19] Figure 3.7-2 presents 2014 U.S. GHG emissions by economic sector. Total U.S. GHG emissions increased by 7.4 percent from 1990 to 2014 (from 6,233.2 MMT CO_2e in 1990 to 6,870.5 MMT CO_2e in 2014). Since 1990, U.S. emissions have increased at an average annual rate of 0.3 percent. In 2014, cool winter conditions led to an increase in CO_2e emissions associated with fuels used for heating in the residential and commercial sectors. Transportation emissions also increased because of a small increase in vehicle miles traveled. There was also an increase in industrial production across multiple sectors, resulting in slight increases in industrial-sector emissions.[20]

[19] United States Environmental Protection Agency (EPA). 2016. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014. EPA 430-R-16-002. Website: https://www.epa.gov/sites/production/files/2017-04/documents/us-ghg-inventory-2016-main-text.pdf. Accessed June 2, 2018.

[20] *Ibid*.

Figure 3.7-2: 2014 U.S. GHG Emissions by Sector



Source: EPA 2016[21]
Note: Emissions shown do not include carbon sinks such as change in land uses and forestry.

California GHG Inventory

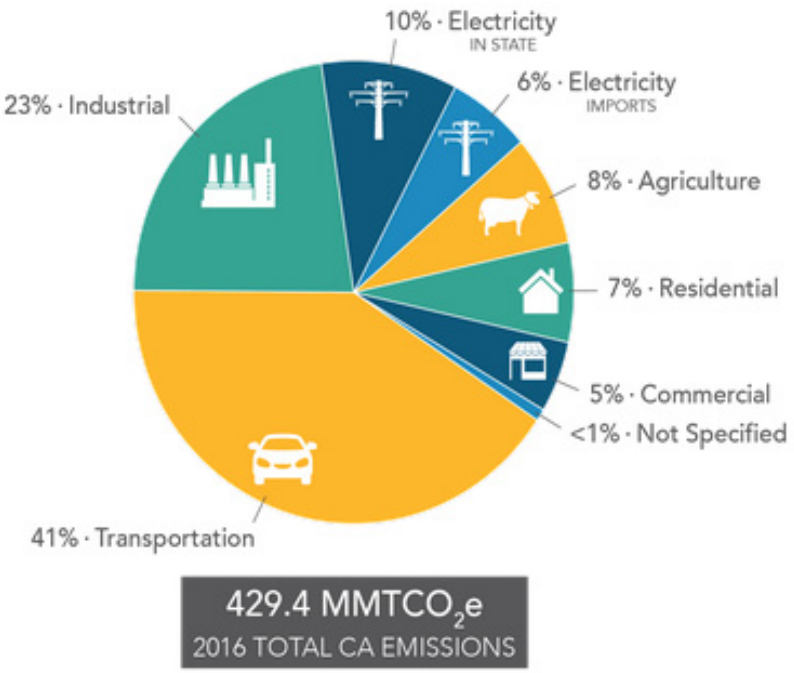
As the second largest emitter of GHGs in the U.S. and the 12th to 16th largest GHG emissions emitter in the world, California contributes a large quantity (429.24 MMT CO_2e in 2016) of GHG emissions to the atmosphere.[22] Emissions of CO_2 are byproducts of fossil-fuel combustion and are attributable in large part to human activities associated with transportation, industry/manufacturing, electricity and natural gas consumption, and agriculture. In California, the transportation sector is the largest emitter at 41 percent of GHG emissions, followed by industry/manufacturing at 23 percent of GHG emissions (Figure 3.7-3).[23]

[21] United States Environmental Protection Agency (EPA). 2016. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014. EPA 430-R-16-002. Website: https://www.epa.gov/sites/production/files/2017-04/documents/us-ghg-inventory-2016-main-text.pdf. Accessed June 2, 2018.

[22] California Climate Change Center. (CCCC). 2006. Our Changing Climate, Assessing the Risks to California: A Summary Report from the California Climate Change Center. July 2006. CEC-500-2006-077. Website: www.scc.ca.gov/webmaster/ftp/pdf/climate_change/assessing_risks.pdf. Accessed June 2, 2018.

[23] California Air Resources Board (ARB). 2017. California Greenhouse Inventory-Graphs. Website: https://www.arb.ca.gov/cc/inventory/data/graph/graph.htm. Accessed June 5, 2018.

Figure 3.7-3: 2016 California GHG Emissions by Sector



Sources: ARB 2018[24]

Bay Area Air Quality Management District GHG Inventory

The Bay Area Air Quality Management District (BAAQMD) published a GHG inventory for the San Francisco Bay Area (Bay Area), which provides an estimate of GHG emissions in the base year 2011 for all counties located in the jurisdiction of BAAQMD: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Napa, and the southern portions of Solano and Sonoma counties.[25] This GHG inventory is based on the standards for criteria pollutant inventories and is intended to support BAAQMD's climate protection activities.

Table 3.7-2 shows the 2011 breakdown of emissions by end-use sector for each county within BAAQMD's jurisdiction. The estimated GHG emissions are presented in CO_2e, which weights each GHG by its GWP. The GWPs used in the BAAQMD inventory are from the Second Assessment Report of the IPCC.

In 2011, GHG emissions from the Contra Costa County accounted for approximately 31 percent of the Bay Area's total GHG emissions with 17.8 percent of the Bay Area's total GHG emissions coming from the industrial/commercial land uses in Contra Costa County.[26] Transportation is the largest

[24] California Air Resources Board (ARB). 2018. California Greenhouse Inventory-Graphs. Website: https://www.arb.ca.gov/cc/inventory/data/graph/graph.htm. Accessed March 19, 2019.

[25] Bay Area Air Quality Management District (BAAQMD). 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011. January. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf. Accessed June 5, 2018.

[26] Bay Area Air Quality Management District (BAAQMD). 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011. January. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory /by2011_ghgsummary.pdf. Accessed June 5, 2018.

GHG emissions sector in the Bay Area, followed by industrial/commercial, electricity generation and cogeneration, and residential fuel usage. In Contra Costa County, the largest amount of GHG emissions are generated by the industrial/commercial sector, followed by the electricity/Co-generation sector.

Table 3.7-2: 2011 County GHG Emissions by Sector (million metric tons CO_2e/Year)

Sector	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano*	Sonoma*
Industrial/Commercial	2.7	17.8	0.4	0.2	1.2	1.4	4.1	2.7	0.5
Residential Fuel	1.3	1.0	0.3	0.1	0.9	0.8	1.5	0.3	0.4
Electricity/Co-gen.	0.9	7.2	0.1	0.1	0.5	0.4	2.2	0.4	0.2
Off-Road Equipment	0.2	0.2	0.0	0.0	0.2	0.1	0.4	0.0	0.
Transportation	7.9	5.0	1.3	0.9	3.0	5.0	7.6	1.6	2.0
Agriculture/Farming	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.2
Total	**13.2**	**31.4**	**2.4**	**1.5**	**5.7**	**7.7**	**16.0**	**5.1**	**3.5**

Notes:
* Portion within BAAQMD jurisdiction
BAAQMD = Bay Area Air Quality Management District; CO_2e = carbon dioxide equivalent; co-gen = cogeneration
Source: Bay Area Air Quality Management District (BAAQMD). 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011. January. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf. Accessed June 5, 2018.

Contra Costa County

A community-wide baseline (2005) GHG emissions inventory was conducted for Contra Costa County as part of the development of the Climate Action Plan (CAP).[27] Table 3.7-3 provides the estimated 2005 baseline by sector for Contra Costa County.

Table 3.7-3: 2005 Unincorporated County GHG Emissions Baseline by Sector (excluding Stationary Source Emissions)

Sector	Metric Tons CO_2e/Year	Percentage of Total
Residential Energy	274,690	20
Nonresidential Energy	118,770	8
Solid Waste	48,450	3
Landfill	193,950	14
On-road Transportation	628,200	45
Off-Road Equipment	71,880	5
Water and Wastewater	8,080	1

[27] Contra Costa County. 2015. Contra Costa County CAP. December 15. Website: http://www.co.contra-costa.ca.us/4554/Climate-Action-Plan. Accessed February 25, 2019.

Table 3.7-3 (cont.): 2005 Unincorporated County GHG Emissions Baseline by Sector (excluding Stationary Source Emissions)

Sector	Metric Tons CO_2e/Year	Percentage of Total
BART	2,300	<1
Agriculture	57,320	4
Total	1,403,610	100
Source: Contra Costa County CAP, December 2015.		

Project Site

The project site is occupied by two existing residential buildings that would generate GHG emissions from sources such as vehicle trips and typical residential uses of energy, water, and waste. Consistent with the project-specific transportation impact assessment, the baseline vehicle trips and associated emissions were assumed to be zero. As such, GHG emissions were not quantified for the two existing residential buildings.

Climate Change Trends and Effects

CO_2 accounts for more than 75 percent of all anthropogenic GHG emissions, the atmospheric residence time of CO_2 is decades to centuries, and global atmospheric concentrations of CO_2 continue to increase at a faster rate than ever previously recorded. Thus, the warming impacts of CO_2 will persist for hundreds of years after mitigation is implemented to reduce GHG concentrations.

California

Substantially higher temperatures, more extreme wildfires, and rising sea levels are just some of the direct effects experienced in California.[28,29] As reported by the California Natural Resources Agency in 2009, despite annual variations in weather patterns, California has seen a trend of increased average temperatures, more extreme hot days, fewer cold nights, longer growing seasons, less winter snow, and earlier snowmelt and rainwater runoff. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and a larger proportion of total precipitation is falling as rain instead of snow.[30] Sea level rose by as much as seven inches along the California coast over the last century, leading to increased erosion and adding pressure to the State's infrastructure, water supplies, and natural resources.

These observed trends in California's climate are projected to continue in the future. Research indicates that California will experience overall hotter and drier conditions with a continued

[28] California Natural Resources Agency (CNRA). 2009. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. Website: http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf. Accessed June 5, 2018.

[29] California Energy Commission (CEC). 2012. Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. Website: http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf. Accessed June 5, 2018.

[30] California Energy Commission (CEC). 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004. Draft Final Report. CEC-600-2006-013-D. Website: http://www.energy.ca.gov/2006publications/CEC-600-2006-013/CEC-600-2006-013-D.PDF. Accessed June 5, 2018.

reduction in winter snow (with concurrent increases in winter rains), as well as increased average temperatures and accelerating sea level rise. The frequency, intensity, and duration of extreme weather events such as heat waves, wildfires, droughts, and floods will also change.[31] In addition, increased air pollution and spread of insects potentially carrying infectious diseases will also occur as the climate-associated temperature and associated species clines shift in latitude.

The following is a summary of climate change factors and predicted trends specific to California.

In California, climate change may result in consequences such as the following.[32,33]

- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

[31] California Natural Resources Agency (CNRA). 2009. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. Website: http://resources.ca.gov/docs/climate /Statewide_Adaptation_Strategy.pdf. Accessed June 5, 2018.

[32] California Climate Change Center. (CCCC). 2006. Our Changing Climate, Assessing the Risks to California: A Summary Report from the California Climate Change Center. July 2006. CEC-500-2006-077. Website: www.scc.ca.gov/webmaster/ftp/pdf/climate_change /assessing_risks.pdf. Accessed August 17, 2015.

[33] Moser et al. 2009. Moser, Susie, Guido Franco, Sarah Pittiglio, Wendy Chou, Dan Cayan. 2009. The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California. California Energy Commission, PIER Energy-Related Environmental Research Program. CEC-500-2008-071. Website: www.energy.ca.gov/2008publications/CEC-500-2008-071/CEC-500-2008-071.PDF. Accessed May 7, 2013.

- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

Bay Area

The following is a summary of climate change factors and predicted trends specific to the Bay Area.

Temperature, Heat, Drought, and Wildfire Events

The Bay Area is expected to experience warming over the rest of the 21st century. Consistent with statewide projections, the annual average temperature in the Bay Area will likely increase by 2.7°F between 2000 and 2050, based on GHGs that have already been emitted into the atmosphere. By the end of the century, the increase in the Bay Area's annual average temperature may range from approximately 3.5°F to 11°F relative to the average annual temperature simulated for the 1961–1990 baseline period used for the study, depending on the GHG emissions scenarios.[34] The projected rate of warming, especially in the latter half of the 21st century, is considerably greater than warming rates derived from historical observed data.

Specific predictions related to temperature/heat are summarized below.

- The annual average temperature in the Bay Area has been increasing over the last several decades.
- The Bay Area is expected to see an increase in average annual temperature of 2.7°F by 2050, and 3.5°F to 11°F by 2100. Projections show a greater warming trend during the summer season. The coastal parts of the Bay Area will experience the most moderate warming trends.[35]
- Extreme heat events are expected to increase in duration, frequency, and severity by 2050. Extreme freeze events are expected to decrease in frequency and severity by 2100, but occasional colder-than-historical events may occur by 2050.[36]

Precipitation, Rainfall, and Flooding Events

Studies of the effect of climate change on the long-term average precipitation for California show some disagreement.[37] Considerable variability exists across individual models, and examining the average changes can mask more extreme scenarios that project much wetter or drier conditions. California is expected to maintain a Mediterranean climate through the next century, with dry summers and wet

[34] California Climate Change Center (CCCC). 2009. Climate Change Scenarios and Sea Level Rise Estimates for the California 2009 Climate Change Scenarios Assessment. Final Paper. CEC-500-2009-014-F. Website: http://www.energy.ca.gov/2009publications /CEC-500-2009-014/CEC-500-2009-014-F.PDF. Accessed June 5, 2018.
[35] Cal-Adapt. 2014. Climate Tools. Website: http://cal-adapt.org/tools/. Accessed 2014.
[36] *Ibid*.
[37] California Climate Change Center (CCCC). 2009. Climate Change Scenarios and Sea Level Rise Estimates for the California 2009. Climate Change Scenarios Assessment. Final Paper. CEC-500-2009-014-F. Website: http://www.energy.ca.gov/2009publications/ CEC-500-2009-014/CEC-500-2009-014-F.PDF. Accessed June 5, 2018.

winters that vary between seasons, years, and decades. Wetter winters and drier springs are also expected, but overall annual precipitation is not projected to change substantially. By mid-century, more precipitation is projected to occur in winter in the form of less frequent but larger events. The majority of global climate models predict drying trends across the State by 2100.[38]

Specific factors related to precipitation/rainfall/extreme events are summarized below.

- The Bay Area has not experienced substantial changes in rainfall depth or intensities over the past 30 years.
- The Bay Area will continue to experience a Mediterranean climate, with little change in annual precipitation projected by 2050, although a high degree of variability may persist.
- An annual drying trend is projected to occur by 2100. The greatest decline in precipitation is expected to occur during the spring months, while minimal change is expected during the winter months.
- Increases in drought duration and frequency coupled with higher temperatures, as experienced in 2012, 2013, and 2014, will increase the likelihood of wildfires.
- California is expected to see increases in the magnitude of extreme events, including increased precipitation delivered from atmospheric river events, which would bring high levels of rainfall during short time periods and increase the chance of flash floods. The Bay Area is also expected to see an increase in precipitation intensities, but possibly through less frequent events.[39]

Reduced Sierra Nevada Snowpack and Water Supply Shortages

If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate surface water supplies.

Vectors and Disease Events

Climate change will likely increase the vectors of insects and, in turn, may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects, such as malaria, dengue fever, yellow fever, and encephalitis.

Air Quality and Pollution Events

Respiratory disorders will be exacerbated by warming-induced increases in the frequency of smog (ground-level ozone) events and particulate air pollution.[40] Although there could be health effects resulting from changes in the climate and the consequences that can occur, inhalation of GHGs at levels currently in the atmosphere would not result in adverse health effects, with the exception of

[38] California Natural Resources Agency (CNRA). 2009. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. Website: http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf. Accessed June 5, 2018.

[39] California Climate Change Center (CCCC). 2009. Climate Change Scenarios and Sea Level Rise Estimates for the California 2009 Climate Change Scenarios Assessment. Final Paper. CEC-500-2009-014-F. Website: http://www.energy.ca.gov/2009publications/CEC-500-2009-014/CEC-500-2009-014-F.PDF. Accessed June 5, 2018.

[40] United States Environmental Protection Agency (EPA). 2009. Ozone and your Health. EPA-456/F-09-001. Website: http://www.epa.gov/airnow/ozone-c.pdf. Accessed August 21, 2016.

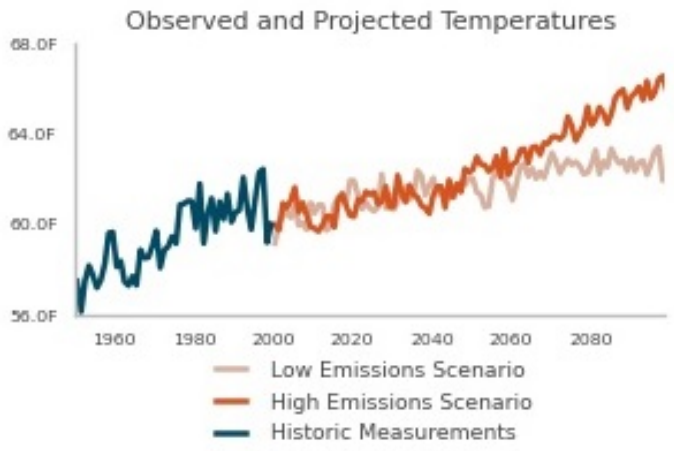
ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, SF_6, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen.[41,42]

Contra Costa County

Temperature and Heat

Figure 3.7-4 displays a chart of measured historical (i.e., observed) and projected annual average temperatures in the Contra Costa County area. As shown in the figure, temperatures are expected to rise as part of both the low and high GHG emissions scenarios.[43] The results indicate that temperatures are predicted to increase by 3.3°F under the low emission scenario and 5.7°F under the high emissions scenario.[44]

Figure 3.7-4: Observed and Projected Temperatures in Contra Costa County



Source: CalAdapt 2019[45]

Drought and Wildfires

Fire hazards present a considerable problem to vegetation and wildlife habitats throughout Contra Costa County. Grassland fires are easily ignited, particularly in dry seasons. (See Section 3.8, Hazards, Hazardous Materials, and Wildfire, for a more detailed discussion related to wildfire hazard areas and wildfire-conducive conditions.) The potential for increased temperatures and drought conditions due to climate change would result in increased risk from wildfire in these areas.

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41 Centers for Disease Control and Prevention (CDC). 2010. Department of Health and Human Services, the National Institute for Occupational Safety and Health. Carbon Dioxide. Website: www.cdc.gov/niosh/npg/npgd0103.html. Accessed February 14, 2017.

42 Occupational Safety and Health Administration (OSHA). 2003. United States Department of Labor. Safety and Health Topics: Methane. Website: www.osha.gov/dts/chemicalsampling/data/CH_250700.html. Accessed August 21, 2016.

43 The low and high GHG emissions scenarios are based on IPCC's Special Report on Emissions Scenarios B1 and A1, respectively. The higher global GHG emissions scenario (A1) assumes a global trend of rapid economic growth. The lower GHG emissions scenario (B1) assumes the same global population as in the A1 storyline but with rapid changes in economic structures toward a service and information economy, with reductions in material intensity, and the introduction of clean and resource-efficient technologies. Overall, the B1 scenario places more focus on global environmental sustainability rather than rapid economic growth.

44 CalAdapt. 2019. Local Climate Snapshots. Website: http://cal-adapt.org/tools/factsheet/. Accessed March 19, 2019.

45 *Ibid*.

Reduced Sierra Nevada Snowpack and Water Supply Shortages

As described in Section 3.17, Utilities and Service Systems, Contra Costa County receives potable water from the Contra Costa Water District (CCWD), which pumps water from four intakes in the San Joaquin Delta. The CCWD's water source is provided by the Central Valley Project (CVP), which receives water from storage releases from Shasta, Folsom, and Clair Eagle reservoirs into the Sacramento River in the San Joaquin Delta.[46] Originating in the Sierra Nevada Mountains, water flows into the Sacramento and San Joaquin Rivers into the Delta where it is drawn and transported via Contra Costa Canal. The availability of surface water supply could decline if climate change results in reduced snowpack in the Sierra Nevada.

Project Site

The project site is located within an urban area with limited vegetative fuel-load and no steep hillside conditions that are not conducive to wildfires. However, there are hilly, vegetated areas located in the vicinity of the project site that have a higher risk for wildfires. The closest hilly, vegetated areas are located approximately 2.5 miles northwest of the project site. The potential for increased temperatures and drought conditions due to climate change would result in increased risk from wildfire in those areas, as well as increased risk related to water supply shortage.

3.7.3 - Regulatory Framework

International

Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of five percent against 1990 levels over the five-year period from 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

[46] United States Bureau of Reclamation. 2019. Central Valley Project (CVP) Mid-Pacific Region. Website: https://www.usbr.gov/mp/cvp/. Accessed March 19, 2019.

On September 23, 2014, more than 100 heads of state and government, and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

United Nations Climate Change Framework Convention

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Climate Change Framework Convention. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Paris Climate Change Agreement

Parties to the United Nations Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a 4-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st Session of the UNFCCC Conference of the Parties, or "COP 21." Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every 5 years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;

- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC.[47]

On June 1, 2017, President Trump announced the decision for the United States to withdraw from the Paris Climate Accord.[48] California remains committed to combating climate change through programs aimed to reduce GHGs.[49]

Continental

Western Climate Initiative (Western North America Cap-and-Trade Program)

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Each emitter caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce North America GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Currently only California and Quebec are participating in the cap-and-trade program.[50]

Federal

Clean Air Act

Coinciding with the 2009 meeting in Copenhagen, on December 7, 2009, the United States Environmental Protection Agency (EPA) issued an Endangerment Finding under Section 202(a) of the Clean Air Act, opening the door to federal regulation of GHGs. The Endangerment Finding notes that GHGs threaten public health and welfare and are subject to regulation under the Clean Air Act. To date, the EPA has not promulgated regulations on GHG emissions, but it has already begun to develop them.

Previously the EPA had not regulated GHGs under the Clean Air Act, because it asserted that the Act did not authorize it to issue mandatory regulations to address global climate change and that such regulation would be unwise without an unequivocally established causal link between GHGs and the increase in global surface air temperatures. In Massachusetts v. Environmental Protection Agency et al. (127 S. Ct. 1438 (2007), however, the U.S. Supreme Court held that GHGs are pollutants under the

[47] Center for Climate and Energy Solutions (C2ES). 2015a. Outcomes of the U.N. Climate Change Conference. Website: http://www.c2es.org/international/negotiations/cop21-paris/summary. Accessed April 19, 2016.
[48] The White House. Statement by President Trump on the Paris Climate Accord. Website: https://www.whitehouse.gov/the-press-office/2017/06/01/statement-president-trump-paris-climate-accord. Accessed June 23, 2017.
[49] California Air Resources Board (ARB). 2017. New Release: California and China Team Up to Push for Millions More Zero-emission Vehicles. Website: https://www.arb.ca.gov/newsreel/newsrelease.php?id=934. Accessed June 27, 2017.
[50] Center for Climate and Energy Solutions (C2ES). 2015b. Multi-State Climate Initiatives. Website: http://www.c2es.org/us-states-regions/regional-climate-initiatives. Accessed July 12, 2018.

Clean Air Act and directed the EPA to decide whether the gases endangered public health or welfare (see discussion below).

The EPA had also not moved aggressively to regulate GHGs because it expected Congress to make progress on GHG legislation, primarily from the standpoint of a cap-and-trade system. However, proposals circulated in both the House of Representatives and the Senate have been controversial and it may be some time before the U.S. Congress adopts major climate change legislation. The EPA's Endangerment Finding paves the way for federal regulation of GHGs with or without Congress.

U.S. Clean Air Act Permitting Programs (New GHG Source Review)

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the federal code of regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Energy Independence and Security Act

The Energy Policy Act of 2005 created the Renewable Fuel Standard program. The Energy Independence and Security Act of 2007 expanded this program by:

- Expanding the Renewable Fuel Standard program to include diesel in addition to gasoline;
- Increasing the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022;
- Establishing new categories of renewable fuel, and setting separate volume requirements for each one; and
- Requiring the EPA to apply life-cycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

This expanded Renewable Fuel Standard program lays the foundation for achieving substantial reductions of GHG emissions from the use of renewable fuels, reducing the use of imported petroleum, and encouraging the development and expansion of the nation's renewable-fuels sector.

Signed on December 19, 2007, by the President, the Energy Independence and Security Act (EISA) of 2007 aims to:

- move the United States toward greater energy independence and security;
- increase the production of clean renewable fuels;
- protect consumers;
- increase the efficiency of products, buildings, and vehicles;
- promote research on and deploy GHG capture and storage options;
- improve the energy performance of the Federal Government; and
- increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy.

EISA reinforces the energy reduction goals for federal agencies put forth in Executive Order 13423, as well as introduces more aggressive requirements. The three key provisions enacted are the Corporate Average Fuel Economy Standards, the Renewable Fuel Standard, and the appliance/lighting efficiency standards.

The EPA is committed to developing, implementing, and revising both regulations and voluntary programs under the following subtitles in EISA, among others:

- Increased Corporate Average Fuel Economy Standards
- Federal Vehicle Fleets
- Renewable Fuel Standard
- Biofuels Infrastructure
- Carbon Capture and Sequestration[51]

The EPA and National Highway Traffic Safety Administration Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy Standards Final Rule

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, the President put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these

[51] United States Environmental Protection Agency (EPA). Summary of the Energy Independence and Security Act. Website: https://www.epa.gov/laws-regulations/summary-energy-independence-and-security-act

vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

The EPA and the NHTSA issued final rules on a second-phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012.[52] The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleet wide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The EPA and NHTSA issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20-percent reduction in CO_2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles, and a 15-percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10-percent reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

The State of California has received a waiver from the EPA to have separate, stricter corporate average fuel economy standards. Although global climate change did not become an international concern until the 1980s, efforts to reduce energy consumption began in California in response to the oil crisis in the 1970s, resulting in the incidental reduction of GHG emissions. In order to manage the State's energy needs and promote energy efficiency, AB 1575 created the California Energy Commission (CEC) in 1975.

Massachusetts et al. v. EPA (U.S. Supreme Court GHG Endangerment Ruling)

Massachusetts et al. v. EPA (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four GHGs, including CO_2, under Section 202(a)(1) of the Clean Air Act (CAA). A decision was made on April 2, 2007, in which the Supreme Court found that GHGs are air pollutants covered by the CAA. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

[52] United States Environmental Protection Agency (EPA). 2012. The EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks. Website: http://www.epa.gov/otaq/climate/documents/420f12051.pdf. Accessed August 21, 2016.

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations; and
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed under "Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling upholding that upheld the EPA Administrator findings.

U.S. Consolidated Appropriations Act (Mandatory GHG Reporting)

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to the EPA in 2011.

State

California AB 1493: Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011.[53]

The standards are to be phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in an approximately 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed

[53] California Air Resources Board (ARB). 2013d. Clean Car Standards—Pavley, Assembly Bill 1493. Website: http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed February 14, 2017.

transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.[54]

The second phase of the implementation for the Pavley Bill was incorporated into Amendments to the Low-Emission Vehicle (LEV) Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.[55]

California Executive Order S-3-05 (GHG Emissions Reduction Targets)

Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

California AB 32: Global Warming Solutions Act and Scoping Plan

The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The ARB is the State agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

[54] California Air Resources Board (ARB). 2013e. Facts About the Clean Cars Program. Website: http://www.arb.ca.gov/msprog/zevprog/factsheets/advanced_clean_cars_eng.pdf. Accessed February 14, 2017.

[55] California Air Resources Board (ARB). 2011c. Status of Scoping Plan Recommended Measures. Website: www.arb.ca.gov/cc/scoping plan/sp_measures_implementation_timeline.pdf. Accessed February 14, 2017.

The ARB approved the 1990 GHG emissions level of 427 million metric tons of carbon dioxide equivalents (MMT CO_2e) on December 6, 2007.[56] Therefore, to meet the State's target, emissions generated in California in 2020 are required to be equal to or less than 427 MMT CO_2e. Emissions in 2020 in a Business as Usual (BAU) scenario were estimated to be 596 MMT CO_2e, which do not account for reductions from AB 32 regulations.[57] At that rate, a 28 percent reduction was required to achieve the 427 MMT CO_2e 1990 inventory. In October 2010, the ARB prepared an updated 2020 forecast to account for the effects of the 2008 recession and slower forecasted growth. The 2020 inventory without the benefits of adopted regulation is now estimated at 545 MMT CO_2e. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels.[58]

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by the ARB for 2000 through 2012 to show progress achieved to date.[59] The State has also achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target. Also shown are the average reductions needed from all statewide sources (including all existing sources) to reduce GHG emissions back to 1990 levels.

- **1990:** 427 million MT CO_2e (AB 32 2020 Target)
- **2000:** 463 million MT CO_2e (an average 8-percent reduction needed to achieve 1990 base)
- **2010:** 450 million MT CO_2e (an average 5-percent reduction needed to achieve 1990 base)
- **2020:** 545 million MT CO_2e BAU (an average 21.7-percent reduction from BAU needed to achieve 1990 base)

The ARB Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32.[60] The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a Statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;

[56] California Air Resources Board (ARB). 2007. Staff Report. California 1990 Greenhouse Gas Level and 2020 Emissions Limit. November 16, 2007. Website: www.arb.ca.gov/cc/inventory/pubs/reports/staff_report_1990_level.pdf. Accessed February 14, 2017.
[57] California Air Resources Board (ARB). 2008. (includes edits made in 2009) Climate Change Scoping Plan, a framework for change. Website: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed February 14, 2017.
[58] California Air Resources Board (ARB). 2010a. 2020 Greenhouse Gas Emissions Projection and BAU Scenario Emissions Estimate. Website: http://www.arb.ca.gov/cc/inventory/archive/captrade_2010_projection.pdf. Accessed February 14, 2017.
[59] California Air Resources Board (ARB). 2014a. California Greenhouse Gas Emissions for 2000 to 2012—Trends of Emissions and Other Indicators. Website: http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf. Accessed April 25, 2016.
[60] California Air Resources Board (ARB). 2008 (includes edits made in 2009). Climate Change Scoping Plan, a framework for change. Website: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed February 14, 2017.

- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. Capped strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. Uncapped strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions.[61]

The ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities Climate for the next several years. The Update does not set new targets for the State, but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050.

AB 32 does not give the ARB a legislative mandate to set a target beyond the 2020 target from AB 32 or to adopt additional regulations to achieve a post-2020 target. The Update estimates that reductions averaging 5.2 percent per year would be required after 2020 to achieve the 2050 goal. With no estimate of future reduction commitments from the State, identifying a feasible strategy including plans and measures to be adopted by local agencies is not currently possible.[62]

The Cap-and-Trade Program is a key element of the Scoping Plan. It sets a Statewide limit on sources responsible for 85 percent of California's GHG emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest cost options to reduce emissions. The program conducted its first auction in November 2012. Compliance obligations began for power plants and large industrial sources in January 2013. Other significant milestones include

[61] California Air Resources Board (ARB). 2008 (includes edits made in 2009). Climate Change Scoping Plan, a framework for change. Website: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.

[62] California Air Resources Board (ARB). 2014b. First Update to the Climate Change Scoping Plan. Website: http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

linkage to Quebec's Cap-and-Trade system in January 2014 and starting the compliance obligation for distributors of transportation fuels, natural gas, and other fuels in January 2015.[63]

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 Statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by the ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative.[64]

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade

[63] California Air Resources Board (ARB). 2015. ARB Emissions Trading Program. Website: http://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. Accessed February 14, 2017.

[64] California Air Resources Board (ARB). 2014b. First Update to the Climate Change Scoping Plan. Website: http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm. Accessed February 14, 2017.

Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures.[65]

California Senate Bill 375: Sustainable Communities and Climate Protection Act

SB 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning California Environmental Quality Act (CEQA), SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that ARB accepts as achieving the GHG emission reduction targets;
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies); and
3. Incorporates the mitigation measures required by an applicable prior environmental document.

California SB 1368: Emission Performance Standards

In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 lbs CO_2 per megawatt-hour (MWh).

[65] California Air Resources Board (ARB). 2014b. First Update to the Climate Change Scoping Plan. Website: http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm. Accessed February 14, 2017.

California Executive Order S-01-07: Low Carbon Fuel Standard

The Governor signed Executive Order S 01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by CEC on December 24, 2007) and was submitted to the ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The LCFC was subject to legal challenge in 2011. Ultimately, on August 8, 2013, the Fifth District Court of Appeal (California) ruled that the ARB failed to comply with CEQA and the Administrative Procedure Act when adopting regulations for Low Carbon Fuel Standards. In a partially published opinion, the Court of Appeal directed that Resolution 09-31 and two executive orders of the ARB approving LCFS regulations promulgated to reduce GHG emissions be set aside. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while the ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, the ARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing for the new LCFS regulation was held on September 24, 2015 and September 25, 2015, where the LCFS Regulation was adopted. The Final Rulemaking Package adopting the regulation was filed with the Office of Administrative Law (OAL) on October 2, 2015. The OAL approved the regulation on November 16, 2015.[66]

California Executive Order S-13-08

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy was adopted, which is the ". . . first Statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

[66] California Air Resources Board (ARB). 2015e. Low Carbon Fuel Standard Regulation. Website: http://www.arb.ca.gov/regact/2015/lcfs2015/lcfs2015.htm. Accessed September 22, 2017.

California SBX 7-7: Water Conservation Act

This 2009 legislation directs urban retail water suppliers to set individual 2020 per capita water use targets and begin implementing conservation measures to achieve those goals. Meeting this statewide goal of 20 percent decrease in demand will result in a reduction of almost 2 million acre-feet in urban water use in 2020.

California SB 97 and the CEQA Guidelines Update

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The Code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)."

Section 21097 was also added to the Public Resources Code, which provided an exemption until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA. The Natural Resources Agency completed the approval process and the Amendments became effective on March 18, 2010.

The 2010 CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of GHG emissions:

- The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guidelines amendments do not identify a threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, they call for a

"good-faith effort, based on available information, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project." The amendments encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies' discretion to make their own determinations based upon substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable; however, it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of GHG Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

In addition, the 2010 CEQA amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in CEQA Guidelines Appendix G was amended to include GHG questions. The most recent sample environmental checklist in Appendix G was further amended in 2018 to include two energy questions.

CEQA emphasizes that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis (CEQA Guidelines § 15130(f)).

Center for Biological Diversity v. California Department of Fish and Wildlife (California Supreme Court GHG Ruling)

In a November 30, 2015 ruling, the California Supreme Court in *Center for Biological Diversity (CBD) v. California Department of Fish and Wildlife* (CDFW) on the Newhall Ranch project concluded that whether the project was consistent with meeting Statewide emission reduction goals is a legally permissible criterion of significance, but the significance finding for the project was not supported by a reasoned explanation based on substantial evidence. The Court offered potential solutions on pages 25–27 of the ruling to address this issue summarized below:

Specifically, the Court advised that:

- **Substantiation of Project Reductions from BAU**. A lead agency may use a BAU comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with statewide goals. The Court suggested a lead agency could examine the "data behind the Scoping Plan's business-as-usual model" to determine the necessary project-level reductions from new land use development at the proposed location (p. 25).
- **Compliance with Regulatory Programs or Performance Based Standards**. A lead agency "might assess consistency with A.B. 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities.

(See Final Statement of Reasons, supra, at p. 64 [greenhouse gas emissions 'may be best analyzed and mitigated at a programmatic level.']).)" To the extent a project's design features comply with or exceed the regulations outlined in the Scoping Plan and adopted by the Air Resources Board or other state agencies, a lead agency could appropriately rely on their use as showing compliance with 'performance based standards' adopted to fulfill 'a statewide . . . plan for the reduction or mitigation of greenhouse gas emissions' (CEQA Guidelines § 15064.4(a)(2), (b)(3); see also id., § 15064(h)(3) [determination that impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including 'plans or regulations for the reduction of greenhouse gas emissions']) (p. 26).

- **Compliance with GHG Reduction Plans or CAPs**. A lead agency may utilize "geographically specific GHG emission reduction plans" such as climate action plans or GHG emission reduction plans to provide a basis for the tiering or streamlining of project-level CEQA analysis (p. 26).
- **Compliance with Local Air District Thresholds**. A lead agency may rely on "existing numerical thresholds of significance for greenhouse gas emissions" adopted by, for example, local air districts (p. 27).

Therefore, consistent with 2019 CEQA Guidelines Appendix G, the three factors identified in CEQA Guidelines Section 15064.4 and the recently issued Newhall Ranch opinion, the GHG impacts would be considered significant if the project would:

- Conflict with a compliant GHG Reduction Plan if adopted by the lead agency;
- Exceed the applicable GHG Reduction Threshold; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

California SB 350: Clean Energy and Pollution Reduction Act

In 2015, the State legislature approved and the Governor signed SB 350 which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the Renewables Portfolio Standard, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum Statewide were removed from the Bill due to opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce Statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission, the California Energy Commission, and local publicly owned utilities.

- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.[67]

California Executive Order B-30-15

On April 29, 2015, an executive order was issued by the Governor to establish a California GHG emissions reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The executive order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050, and directs the ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMCO_2e$. The executive order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this executive order is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

California Senate Bill 32

The Governor signed SB 32 in September of 2016, giving the ARB the statutory responsibility to include the 2030 target previously contained in Executive Order B-30-15 in the 2017 Scoping Plan Update. SB 32 states that "In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030." The 2017 Climate Change Scoping Plan Update addressing the SB 32 targets was adopted on December 14, 2017. The major elements of the framework proposed to achieve the 2030 target are as follows:

1. SB 350
   - Achieve 50 percent Renewables Portfolio Standard by 2030.
   - Doubling of energy efficiency savings by 2030.
2. Low Carbon Fuel Standard
   - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
3. Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
   - Maintaining existing GHG standards for light- and heavy-duty vehicles.
   - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
   - Increase ZEV buses, delivery and other trucks.

[67] California Legislative Information (California Leginfo). 2015. Senate Bill 350 Clean Energy and Pollution Reduction Act of 2015. Website: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350. Accessed September 28, 2017.

4. Sustainable Freight Action Plan
   - Improve freight system efficiency.
   - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
   - Deploy over 100,000 zero-emission trucks and equipment by 2030.
5. Short-Lived Climate Pollutant Reduction Strategy
   - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
   - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
6. SB 375 Sustainable Communities Strategies
   - Increased stringency of 2035 targets.
7. Post-2020 Cap-and-Trade Program
   - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
   - The ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, ARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
8. 20 percent reduction in GHG emissions from the refinery sector.
9. By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

California Code of Regulations Title 24

Part 6 (Energy Efficiency Standards for Residential and Nonresidential Buildings)

California Code of Regulations Title 24 Part 6 (California's Energy Efficiency Standards for Residential and Nonresidential Buildings), was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards went into effect on January 1, 2017.[68] The 2019 Building Energy Efficiency Standards are scheduled to go into effect on January 1, 2020.

Part 11 (California Green Building Standards Code)

California Code of Regulations Title 24, Part 11, is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect January 1, 2011. The code is updated on a regular basis, with the most recent update consisting of the 2016 California Green

[68] California Energy Commission (CEC). 2016. 2016 Building Energy Efficiency Standards Frequently Asked Questions. Website: http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf. Accessed December 1, 2016.

Building Code Standards that became effective January 1, 2017.[69] Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

California Model Water Efficient Landscape Ordinance

The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881 Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected for Ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed the Department of Water Resources (DWR) to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015, which became effective on December 15, 2015. New development projects that include landscaped areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

California Green Building Code

The Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations Title 24, Part 6) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technology and methods. The most recent update of standards became effective in January 1, 2017. California's building efficiency standards (including standards for energy-efficient appliances). The Energy Commission staff has estimated that the implementation of the 2016 Building Energy Efficiency Standards may reduce Statewide annual electricity consumption by approximately 281 gigawatt-hours per year and reduce GHG emissions by 160 thousand metric tons CO_2e per year.[70]

[69] California Building Standards Commission (CBSC). 2016. Green Building Standards. Website: https://www.ladbs.org/docs/default-source/publications/code-amendments/2016-calgreen_complete.pdf?sfvrsn=6. Accessed June 27, 2017.

[70] California Energy Commission (CEC). 2016 Building Energy Efficiency Standards for Residential and Nonresidential Buildings. Website: https://www.energy.ca.gov/2015publications/CEC-400-2015-037/CEC-400-2015-037-CMF.pdf.

Regional

Bay Area 2017 Clean Air Plan

BAAQMD is responsible for attaining and maintaining federal and state air quality standards in the San Francisco Bay Area Air Basin, as established by the federal CAA and the California Clean Air Act (CCAA), respectively. The CAA and CCAA require that plans be developed for areas that do not meet air quality standards. BAAQMD adopted the Bay Area Clean Air Plan: Spare the Air, Cool the Climate (Bay Area Clean Air Plan) on April 19, 2017, to provide a regional strategy to improve Bay Area air quality and meet public health goals.[71] The control strategy described in the Bay Area Clean Air Plan includes a wide range of control measures designed to reduce emissions and lower ambient concentrations of harmful pollutants, safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, and reduce GHG emissions to protect the climate.

In addition, BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The program includes GHG-reduction measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative energy sources.[72]

The BAAQMD CEQA Air Quality Guidelines also assist lead agencies in complying with CEQA requirements regarding potentially adverse impacts on air quality. BAAQMD advises lead agencies to consider adopting a GHG reduction strategy capable of meeting AB 32 goals. This is consistent with the approach to analyzing GHG emissions described in State CEQA Guidelines Section 15183.5.

Local

Contra Costa County General Plan

The Contra Costa County General Plan establishes goals, objectives, and policies associated with GHG emissions.[73] Those goals and policies that are relevant to this analysis are listed below.

Conservation Element

- **Goal 8-C**: To achieve a balance of uses of the County's natural and developed resources to meet the social and economic needs of the County's residents.
- **Goal 8-K:** To encourage the use of renewable resources where they are compatible with the maintenance of environmental quality.
- **Goal 8-L:** To reduce energy use in the County to avoid risks of air pollution and energy shortages which could prevent orderly development.
- **Goal 8-AD**: To reduce the percentage of Average Daily Traffic (ADT) trips occurring at peak hours.
- **Policy 8-101**: A safe, convenient and effective bicycle and trail system shall be created and maintained to encourage increased bicycle use and walking as alternatives to driving.

[71] Bay Area Air Quality Management District (BAAQMD). 2017. Final 2017 Clean Air Plan. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed April 24, 2018.

[72] Bay Area Air Quality Management District (BAAQMD). 2010. Climate Protection Planning Program. Website: http://www.baaqmd.gov/plans-and-climate/climate-protection/climate-protection-program. Accessed June 5, 2018.

[73] Contra Costa County. 2005 (includes 2010 reprint revisions). Contra Costa County General Plan. Website: http://www.co.contra-costa.ca.us/4732/General-Plan. Accessed February 26, 2019.

- **Policy 8-102**: A safe and convenient pedestrian system shall be created and maintained in order to encourage walking as an alternative to driving.
- **Policy 8-107**: New housing in infill and peripheral areas which are adjacent to existing residential development shall be encouraged.

Transportation and Circulation Element

- **Goal 5-C**: To balance transportation and circulation needs with the desired character of the community.
- **Goal 5-I**: To encourage use of transit.
- **Goal 5-J**: To reduce single-occupant auto commuting and encourage walking and bicycling.
- **Goal 5-L**: To reduce GHG emissions from transportation sources through provision of transit, bicycle, and pedestrian facilities.
- **Policy 5-3**: Transportation facilities serving new urban development shall be linked to and compatible with existing and planned roads, bicycle facilities, pedestrian facilities and pathways of adjoining areas, and such facilities shall use presently available public and semi-public rights of way where feasible.
- **Policy 5-23**: All efforts to develop alternative transportation systems to reduce peak period traffic congestion shall be encouraged.
- **Policy 5-24**: Use of alternative forms of transportation, such as transit, bike and pedestrian modes, shall be encouraged in order to provide basic accessibility to those without access to a personal automobile and to help minimize automobile congestion and air pollution.
- **Policy 5-25**: Improvement of public transit shall be encouraged to provide for increased use of local, commuter and intercity public transportation.

Contra Costa County CAP

On December 15, 2015, the Contra Costa County CAP was approved by the Board of Supervisors.[74] The CAP identifies specific measures on how the County can achieve a GHG reduction target of 15 percent below baseline levels by the year 2020. In addition to reducing GHG emissions, the CAP includes proposed policies and actions to improve public health and provide additional community benefits, and it lays the groundwork for achieving long-term GHG reduction goals for 2020 and 2035.

3.7.4 - Impacts and Mitigation Measures

According 2019 CEQA Guidelines Appendix G, to determine whether impacts related to GHG emissions are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

[74] Contra Costa County. 2015. Contra Costa County CAP. Website: http://www.co.contra-costa.ca.us/4554/Climate-Action-Plan. Accessed February 26, 2019.

Approach to Analysis

GHG Emissions Generation Calculation Methodology

The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to estimate the project's construction and operation-related GHG emissions. CalEEMod was developed in cooperation with air districts throughout the State and is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential GHG emissions associated with construction and operation from a variety of land uses.

Construction

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from on-site and off-site activities. On-site GHG emissions principally consist of exhaust emissions from heavy-duty construction equipment. Off-site GHG emissions would occur from motor vehicle exhaust from material delivery vehicles and construction worker traffic.

Construction activities would consist of demolition, mass grading, building construction, asphalt paving of roadways, and architectural coating of the inside and outside of the buildings. For each construction activity, the construction equipment operating hours and numbers represent the average equipment activity over the duration of the activity. The project is anticipated to begin in July 2020 and last approximately two years. The construction schedule used in the analysis represents a "worst-case" analysis scenario since emission factors for construction equipment decrease as the analysis year increases, due to improvements in technology and compliance with more stringent regulatory requirements. Therefore, construction emissions would decrease if the construction schedule moves to later years.

The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required by the CEQA Guidelines. Full construction emissions modeling parameters and assumptions are provided in Appendix B.

Operation

Operational GHG emissions are those GHG emissions that would occur during long-term operation of the project. Project operations were modeled for the year 2022 and the year 2030. The major sources for operational GHG emissions are summarized below.

Motor Vehicles

These emissions refer to GHG emissions contained in the exhaust from the cars and trucks that would travel to and from the project site. Trip generation rates used in estimating mobile-source emissions were consistent with those presented in the Del Hombre Apartments Transportation Impact Assessment (TIA) prepared by Fehr and Peers. As detailed in the TIA, the project is expected to generate approximately 1,800 net daily vehicle trips. The vehicle trips estimated by for the project includes a 20-percent reduction based on the project's proximity to existing transit and pedestrian pathways and five-percent increase to account for Transportation Company use.

Natural Gas

These emissions refer to the GHG emissions that occur when natural gas is burned on the project site. Natural gas uses could include heating water, space heating, dryers, stoves, or other uses.

Indirect GHG Emissions

For GHG emissions, CalEEMod contains calculations to estimate indirect GHG emissions. Indirect emissions are emissions where the location of consumption or activity is different from where the actual emissions are generated. For example, electricity would be consumed at the proposed apartment building; however, the emissions associated with producing that electricity are generated off-site at a power plant.

CalEEMod includes calculations for indirect GHG emissions for electricity consumption, water consumption, and solid waste disposal. For water consumption, CalEEMod calculates the embedded energy (e.g., treatment, conveyance, and distribution) associated with providing each gallon of potable water to the project. For solid waste disposal, CalEEMod calculates the GHG emissions generated as solid waste generated by the project decomposes in a landfill.

For electricity-related emissions, CalEEMod contains default electricity intensity factors for various utilities throughout California. For the purposes of the project, emission factors for PG&E were selected to quantify electricity emissions. The project is proposed to be operational in the year 2022. As such, the CO_2 emission factor was adjusted consistent to the SB-1078 RPS goal of achieving utility providers achieving 33 percent mix of renewable energy in their retail sales. The adjusted PG&E CalEEMod emission factors are shown below for the year 2022.

- **Carbon dioxide:** 491.65 pound per megawatt hour (lb/MWh)
- **Methane:** 0.029 lb/MWh
- **Nitrous oxide:** 0.006 lb/MWh

SB 350 requires an increase in the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030. Therefore, the adjusted PG&E CalEEMod emission factors are shown below for the year 2030.

- **Carbon dioxide:** 366.91 pound per megawatt hour (lb/MWh)
- **Methane:** 0.029 lb/MWh
- **Nitrous oxide:** 0.006 lb/MWh

Refrigerants

During operation, there may be leakage of refrigerants from air conditioners and the refrigeration system. HFCs are typically used for refrigerants, which are long-lived GHGs. Residential uses of refrigerants are minor; therefore, they were not estimated.

Life Cycle Emissions

An upstream GHG emissions source (also known as life cycle emissions) refers to emissions that are generated during the manufacturing and transportation of products that would be utilized for project construction. Upstream emission sources for construction of the project include but are not limited to GHG emissions from the manufacturing of cement and steel as well as from the transportation of

building materials to the seller of such products. The upstream emissions associated with construction of the project has not been estimated as part of this impact analysis, because such upstream emissions are not within the control of the project, the information is not readily available, and to characterize these emissions would be speculative. Additionally, the California Air Pollution Control Officers Association (CAPCOA) White Paper on CEQA and Climate Change supports this approach by stating, "The full life-cycle of GHG emissions from construction activities is not accounted for . . . and the information needed to characterize [life-cycle emissions] would be speculative at the CEQA analysis level."[75] Therefore, pursuant to CEQA Guidelines Sections 15144 and 15145, upstream/life cycle emissions are speculative, and is not further discussed as part of this impact analysis.

Vegetation

There is currently carbon sequestration occurring on-site from existing vegetation. Specifically, the project site contains non-native grassland and approximately 189 trees. As stated in Section 3.3, Biological Resources, foliage present on the project site can be characterized as a mixed oak woodland, dominated by valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia*), in conjunction with a variety of other mature, adult tree species.[76] To facilitate the development of the proposed apartment building, the project includes the removal of approximately 161 trees (approximately 145 code-protected trees and approximately 16 not code-protected). The project would plant trees and integrate landscaping into the project design, which would provide carbon sequestration. However, data are insufficient to accurately determine the impact that existing plants have on carbon sequestration. For this analysis, it was assumed that the loss and addition of carbon sequestration that are due to the project would be balanced; therefore, emissions due to carbon sequestration were not included.

GHG Emissions Reduction Plan Consistency Determination Methodology

In determining whether a project or plan conflicts with any applicable plan, policy, or regulation, the California Natural Resources Agency has stated that in order to be used for the purpose of determining significance, an applicable plan, policy, or regulation must contain specific requirements that result in reductions of GHG emissions to a less than significant level. The project is assessed for its consistency with the Contra Costa County CAP. This would be achieved with an assessment of the project's compliance with applicable measures contained in the CAP.

Specific Thresholds of Significance

GHG Emissions Generation

Contra Costa County utilizes BAAQMD quantitative thresholds for evaluation of GHG emissions. BAAQMD provides multiple options in its 2017 BAAQMD CEQA Guidelines for operational GHG emissions generation significance thresholds. However, at the time of this analysis, BAAQMD has not yet provided a construction-related GHG emissions generation significance threshold, but it does recommend that construction-generated GHGs be quantified and disclosed.

[75] California Air Pollution Control Officers Association (CAPCOA). 2008. CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to California Environmental Quality Act (CEQA). Available: http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White- Paper.pdf. Accessed: December 18, 2011.

[76] Hort Science. 2019. Tree Inventory Report, Del Hombre Lane Contra Costa County, CA. May.

BAAQMD's project-level significance threshold for operational GHG generation was deemed appropriate to use when determining the project's potential GHG impacts. The thresholds suggested by BAAQMD are as follows:

- Compliance with a qualified GHG Reduction Strategy, or
- 1,100 MT CO_2e per year, or
- 4.6 MT CO_2e per service population (employees plus residents) per year.

It should be noted that the BAAQMD's thresholds of significance was established based on meeting the 2020 GHG targets set forth in the AB 32 Scoping Plan. For developments that would occur beyond 2020, the service population threshold of significance was adjusted to a "substantial progress" threshold that was calculated based on the SB 32 target of 40 percent below 1990 levels and the forecasted 2030 service population.

GHG Emissions Reduction Plan Consistency

The project would be determined to conflict with an applicable GHG emissions reduction plan if it would not adhere to applicable GHG reduction measures included in the Contra Costa County CAP.

Impact Evaluation

GHG Emissions Generation

Impact GHG-1:	**Implementation of the project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment.**

This GHG emissions generation analysis is restricted to emissions of the GHGs identified as those of California concern by AB 32, which include CO_2, CH_4, N_2O, HFC, PFC, and SF_6. As such, project-related CO_2e emissions discussed below are limited to a combination of emissions of CO_2, CH_4, N_2O, HFC, PFC, and SF_6. The project would generate a variety of GHG emissions during construction and operation, including several defined by AB 32 such as CO_2, methane, and nitrous oxide.

Certain GHGs defined by AB 32 would not be generated by the project, such as PFCs and SF_6. PFC and SF_6 are typically used in industrial applications, none of which would be used during construction or operation of the project; therefore, it is not anticipated that the project would emit PFC or SF_6. As discussed in Approach to Analysis, it is not anticipated the project would emit substantial quantities of HFC.

Construction and Operation

This impact discussion combines amortized construction GHG emissions and operational GHG emissions to determine total project GHG emissions.

The project would emit GHG emissions during construction from the off-road construction equipment, worker vehicles, and any hauling that may occur. Total GHG emissions generated during all construction activities were quantified and combined and are presented in Table 3.7-4. In order to assess the construction emissions, the total emissions generated during construction were amortized based on the life of the development (30 years) and added to the operational emissions.

Construction of the project is estimated to generate approximately 875 MT CO_2e. The amortized emissions from construction were added to the operational emissions to determine the total emissions of the project. These total project emissions were analyzed against the 2020 BAAQMD efficiency threshold of 4.6 MT CO_2e/service population/year and the projected 2030 efficiency threshold of 2.6 MT CO_2e/service population/year.

Table 3.7-4: Unmitigated Project Construction GHG Emissions

Construction Activity	Total Emissions (MT CO_2e/year)
2020	
Demolition	7
Site Preparation	4
Grading—2020	176
2021	
Grading—2021	14
Building Construction—2021	455
2022	
Building Construction—2022	157
Architectural Coating	53
Paving	5
Off-site Road Improvements	4
2020–2022	
Total Construction Emissions	**875**
Construction Emissions Amortized Over the Life of the Project (30 years)	**29**
Note: As noted in Appendix B and discussed in Section 3.2, Air Quality, all construction equipment other than cranes and forklifts were assumed to be diesel-powered. Consistent with applicant-provided information, it was assumed that cranes would be powered by electricity, and forklifts would be powered by liquid propane or compressed natural gas. Source: CalEEMod Output (see Appendix B).	

As shown in Table 3.7-4, during construction the project would generate approximately 875 MT CO_2e, which is approximately 29 MT CO_2e pre year when amortized over 30 years.

Operational or long-term emissions occur over the life of a project. The operational GHG emissions from the project are combined with the amortized construction emissions and compared with the BAAQMD's per-service-population threshold to make a significance determination. Sources for operational emissions include:

- **Motor Vehicles:** These emissions refer to GHG emissions contained in the exhaust from the cars and trucks that would travel to and from the project site.

- **Natural Gas:** These emissions refer to the GHG emissions that occur when natural gas is burned on the project site. Natural gas uses could include heating water, space heating, dryers, stoves, or other uses.
- **Indirect Electricity:** These emissions refer to those generated by off-site power plants to supply electricity required for the project.
- **Water Transport:** These emissions refer to those generated by the electricity required to transport and treat the water to be used on the project site.
- **Waste:** These emissions refer to the GHG emissions produced by decomposing waste generated by the project.

Operational GHG emissions by source are shown in Table 3.7-5. As previously indicated, the analysis includes construction emissions amortized over the project's life. The project would generate approximately 2,346 MT CO_2e per year with the addition of amortized construction emissions. The project is expected to accommodate 818 residents and five employees, resulting in a service population of 823. The estimated total annual project-generation emissions, including operational emissions and amortized construction emissions, were compared with the efficiency threshold of 4.6 MT CO_2e/service population/year to determine significance at project buildout in the year 2022. The estimated total annual GHG emissions generated by the project in the year 2030 were compared with the applicable threshold of 2.6 MT CO_2e/service population/year.

Table 3.7-5: Project Operational GHG Emissions (Unmitigated)

Emission Source	Year 2022 Total Emissions (MT CO_2e per year)	Year 2030 Total Emissions (MT CO_2e per year)
Area	9	9
Energy	615	493
Mobile	1,599	1,269
Waste	49	49
Water	45	39
Amortized Construction Emissions	29	29
Total Project Emissions	*2,346*	*1,888*
Service Population (Employees + Residents)	**823**	**823**
Project Emission Generation (MT CO_2e/service population/year)	**2.9**	**2.3***
BAAQMD 2017 Threshold (MT CO_2e/service population/year)	**4.6**	**2.6**
Does Project exceed threshold?	**No**	**No**

Notes:
MT CO_2e = metric tons of carbon dioxide equivalent.
* Adjusted threshold to account for 2017 Scoping Plan Update 40% Reduction Goal by 2030
Source of Emissions: CalEEMod Output (Appendix B)

As shown in Table 3.7-5, the project would generate approximately 2.9 MT CO_2e per service person per year in the year 2022 and 2.3 MT CO_2e per service person per year in the year 2030 in terms of total (amortized construction plus operational) project GHG emissions. Therefore, the project would not exceed the BAAQMD's threshold of 4.6 MT CO_2e/service population/year or the projected 2.6 MT CO_2e/service population/year for the 2030 GHG emissions. Therefore, the impact related to construction and operational GHG emissions would be less than significant.

Level of Significance

Less Than Significant

GHG Emissions Reduction Plan Consistency

Impact GHG-2:	**Implementation of the project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce the emissions of greenhouse gases.**

Significance for this impact is determined by project compliance with the Contra Costa County CAP.

Construction

Impacts related to a project's consistency with a GHG emissions reduction plan are primarily related to long-term operational activities. However, short-term construction activities would comply with and use equipment and fuel consistent with Statewide requirements. Because construction of the project would not conflict with the Contra Costa County CAP, the construction impact related to consistency with an applicable GHG emissions reduction plan would be less than significant.

Operation

Contra Costa County CAP Consistency

As discussed in Section 3.7.3, Regulatory Framework, the Board of Supervisors approved the Contra Costa County CAP in December of 2015. The CAP identifies specific measures on how the County can achieve a GHG reduction target of 15 percent below baseline levels by the year 2020. In addition to reducing GHGs, the CAP includes policies and actions to improve public health and provide additional community benefits, and it lays the groundwork for achieving long-term greenhouse reduction goals for 2020 and 2035 a qualified GHG Reduction Strategy. The CAP contains an analysis demonstrating that it meets the BAAQMD's minimum standards for a qualified GHG reduction strategy. The CAP includes a project consistency checklist that was created to help both project applicants and County staff determine where a proposed new development project is consistent with the CAP. The checklist is to be filled out for each new project subject to discretionary review. As stated in the CAP, the County would work with applicants on a project-by-project basis to identify appropriate measures to integrate with the project through conditions of approval or project design, or other techniques as applicable. This approach allows the County to ensure that new projects are consistent with and do not compromise the County's ability to attain the GHG reduction targets outlined in this CAP. To assist with implementation, the checklist provides descriptions and performance criteria that explain how individual projects can comply with requirements. The individual project criterion clarifies implementation of the CAP, providing additional information that is consistent with the assumptions identified in Appendix D of the CAP.

The CAP checklist measures applicable residential development and the project's consistency with these measures are described below.

> **EE 1 and EE 6.** New residential development will install high-efficiency appliances and insulation to prepare for the statewide transition to zero net energy.

The project would install new high efficiency appliances meeting Title 20 appliance efficiency standards. Insulation and other building envelope related energy efficiency requirements would be required to meet the applicable Title 24 Energy Efficiency Standards in effect at the time building permits are received. The current version of Title 24 is the 2016 Title 24 update that went into effect January 1, 2017. The 2019 Title 24 energy standards will go into effect January 1, 2020 and are estimated to be 5 percent more stringent compared to the 2016 Title 24 energy standards.

> **RE 1.** New residential and nonresidential development will meet the standards to be solar ready as defined by the California Building Standards Code.

The project would comply with the California Building Codes Standards requiring proposed apartment building to be solar ready.

> **LUT 2.** New single-family houses and multi-family units with private attached garages or carports will provide prewiring for EV charging stations inside the garage or carport.

The proposed building would be required to provide wiring that would allow installation of EV charging equipment in any private garages or carports.

> **LUT 4.** New residential and nonresidential development will be located within one half-mile of a BART or Amtrak station, or within one quarter-mile of bus station.

As described in Chapter 2, Project Description, the project is located approximately 0.12 mile from the nearest bus stop and 0.12 mile from the nearest Bay Area Rapid Transit (BART) Station.

Based on the project's compliance with the CAP checklist measures described above, the project would be consistent with the measures in the CAP. However, the CAP requires completion of a Development Checklist to ensure that new projects are consistent with and do not compromise Contra Costa County's ability to attain the GHG reduction targets outlined in the CAP. Since the project description currently does not include completion of the Development Checklist, implementation of the project could conflict with the CAP. To ensure compliance and consistency with the CAP, Mitigation Measure (MM) GHG-2 requires that the project applicant submit a completed development checklist prior to the issuance of building permits. Thus, with implementation of MM GHG-2, the project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of GHGs. Therefore, the GHG emissions reduction plan consistency impact would be less than significant with mitigation.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM GHG-2 Prepare Climate Action Plan (CAP) Development Checklist

Prior to issuance of building permits, the applicant shall prepare and submit a CAP Development Checklist completed for the project to the County of Contra Costa that demonstrates to the County's satisfaction that project would be constructed and operated to be consistent with measures required in the CAP Development Checklist.

Level of Significance After Mitigation

Less Than Significant with Mitigation

3.7.5 - Cumulative Impacts

GHG emissions and global climate change inherently represent cumulative impacts. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the GHG emissions from past, present, and future projects and activities have contributed to and would contribute to global climate change and its associated environmental impacts.

According to the BAAQMD, project GHG emissions are inherently cumulative and do not require the estimation of cumulative projects in the region of the project. CAPs and the BAAQMD thresholds are based on the State goals. Thus, the determination of GHG cumulative impacts is based on the State target established by AB 32 to reduce GHG emissions to 1990 levels by 2020. In order to ensure that this goal would be achieved, Air Districts and Lead Agencies developed GHG thresholds to ensure compliance with the State target. As stated in Appendix D of the 2017 BAAQMD CEQA Guidelines, projects with GHG emissions in conformance with these thresholds, therefore, would not be considered significant for purposes of CEQA. In addition, although the emissions from such cumulative projects would add an incremental amount to the overall GHG emissions that cause global climate change impacts, emissions from projects consistent with these thresholds would not be a "cumulatively considerable" contribution under CEQA. Such projects would not be "cumulatively considerable," because they would be helping to solve the cumulative problem as a part of the AB 32 process. As such, there would be a less than significant impact related to GHG emissions generation.

Level of Cumulative Significance

Less Than Significant

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3.8 - Hazards and Hazardous Materials

3.8.1 - Introduction

This section describes the existing hazards and hazardous materials conditions in the project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to hazards and hazardous materials that could result from implementation of the project. Information included in this section is based on the Phase I Environmental Site Assessment (ESA) and Phase II ESA, included as Appendix G. During the Environmental Impact Report (EIR) scoping period no comments related to hazards and hazardous materials were received.

3.8.2 - Environmental Setting

Fundamentals

Hazards

This description of existing conditions focuses on hazards from fire and overhead power lines, as well as hazardous materials and wastes. A hazard is a situation that poses a level of threat to life, health, property, or the environment. Hazards can be dormant or potential, with only a theoretical risk of harm. However, once a hazard becomes active, it can create an emergency. A hazardous situation that has already occurred is called an incident. Emergency response is action taken in response to an unexpected and dangerous occurrence in an attempt to mitigate its impact on people, structures, or the environment. Emergency situations can range from natural disasters to hazardous-materials problems and transportation incidents.

Hazards Materials and Wastes

Hazardous materials include but are not limited to hazardous materials, hazardous substances, and hazardous wastes, as defined in Section 25501 and Section 25117, respectively, of the California Health and Safety Code (HSC). A hazardous material is any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released; and any material that a handler or an administering regulatory agency under Section 25501 has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment. Various properties may cause a substance to be considered hazardous, including:

- Toxicity—causes human health effects;
- Ignitibility—has the ability to burn;
- Corrosivity—causes severe burns or damage to materials; and
- Reactivity—causes explosions or generates toxic gases.

Hazardous waste is any hazardous material that is to be discarded, abandoned, or recycled. The criteria that define a material as hazardous also define a waste as hazardous. Specifically, materials and waste may be considered hazardous if they are poisonous (toxic); can be ignited by open flame (ignitable); corrode other materials (corrosive); or react violently, explode, or generate vapors when mixed with water (reactive). Soil or groundwater contaminated with hazardous materials above

specified regulatory state or federal thresholds is considered hazardous waste if it is removed from a site for disposal. If handled, disposed, or otherwise handled improperly, hazardous materials and hazardous waste can result in public health hazards if released into the soil or groundwater or through airborne releases in vapors, fumes, or dust. Soil and groundwater having concentrations of hazardous constituents higher than specific regulatory levels must be handled and disposed of as hazardous waste when excavated or pumped from an aquifer. The California Code of Regulations, Title 22, Sections 66261.20-24 contains technical descriptions of toxic characteristics that could cause soil or groundwater to be classified as hazardous waste.

Hazardous Building Materials

Many older buildings contain building materials that consist of hazardous materials. These materials include lead-based paint, asbestos-containing material, and polychlorinated biphenyls (PCBs).

Prior to the United States Environmental Protection Agency (EPA) ban in 1978, lead-based paint was commonly used on interior and exterior surfaces of buildings. Disturbances such as sanding and scraping activities, renovation work, gradual wear and tear, old peeling paint, and paint dust particulates have been found to contaminate surface soils or cause lead dust to migrate and affect indoor air quality. Exposure to residual lead can cause severe health effects, especially in children.

Asbestos is a naturally occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction materials before such uses were banned by the EPA in the 1970s. In addition, many types of electrical equipment contained PCBs as an insulator, including transformers and capacitors. After PCBs were determined to be a carcinogen in the mid to late 1970s, the EPA banned PCB use in new equipment and began a program to phase out certain existing PCB-containing equipment. For example, fluorescent lighting ballasts manufactured after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit.

Hazardous Substances

A hazardous substance can be any biological, natural, or chemical substance, whether solid, liquid, or gas, that may cause harm to human health. Hazardous substances are classified on the basis of their potential health effects, whether acute (immediate) or chronic (long-term). Dangerous goods are classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion, and poisoning. An accident involving dangerous goods could seriously harm human health or damage property or the environment. Harm to human health may happen suddenly (acute), such as dizziness, nausea, and itchy eyes or skin; or it may happen gradually over years (chronic), such as dermatitis or cancer. Some people can be more susceptible than others. Hazardous substances and dangerous goods can include antiseptic used for a cut, paint for walls, a cleaning product for the bathroom, chlorine in a pool, carbon monoxide from a motor vehicle, fumes from welding, vapors from adhesives, or dust from cement, stone, or rubber operations. Such hazardous substances can make humans very sick if they are not used properly.

Hazardous Wastes

Hazardous waste is any hazardous material that is to be discarded, abandoned, or recycled. The criteria that define a material as hazardous also define a waste as hazardous. Specifically, materials

and waste may be considered hazardous if they are poisonous (toxic); can be ignited by open flame (ignitable); corrode other materials (corrosive); or react violently, explode, or generate vapors when mixed with water (reactive). Soil or groundwater contaminated with hazardous materials above specified regulatory state or federal thresholds is considered hazardous waste if it is removed from a site for disposal. If handled, disposed, or otherwise handled improperly, hazardous materials and hazardous waste can result in public health hazards if released into the soil or groundwater or through airborne releases in vapors, fumes, or dust. Soil and groundwater having concentrations of hazardous constituents higher than specific regulatory levels must be handled and disposed of as hazardous waste when excavated or pumped from an aquifer. The California Code of Regulations, Title 22, Sections 66261.20-24 contains technical descriptions of toxic characteristics that could cause soil or groundwater to be classified as hazardous waste.

Hazardous Materials Listing

The Cortese List is a list of known hazardous materials or hazardous waste facilities that meet one or more of the provisions of Government Code Section 65962.5, including:

- The list of hazardous waste and substances sites from the California Department of Toxic Substances Control (DTSC) EnviroStor database.[1] The project site is not located on the EnviroStor database.
- The list of leaking underground storage tank (LUST) sites by county and fiscal year from the State Water Resources Control Board (State Water Board) GeoTracker database.[2] No LUST sites are listed in GeoTracker database for the project site.
- The list of solid waste disposal sites identified by the State Water Board with waste constituents exceeding hazardous waste levels outside the waste management unit.[3] No such disposal site exists within the vicinity of the project site.
- The list of active cease-and-desist orders and cleanup and abatement orders from the State Water Board.[4] The project site is not on this list.

The list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, as identified by the DTSC.[5]

Existing Fire Related Conditions and Presence of Hazardous Materials

The hazards in Contra Costa County and the project area discussed in this section are related primarily to fire hazards and hazardous materials. Fire hazards and hazards from hazardous

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[1] California Department of Toxic Substances Control (DTSC). "Cortese" list of DTSC's EnviroStor database list of Hazardous Waste and Substances sites. DTSC's Hazardous Waste and Substances Site List—Site Cleanup (Cortese List). Website: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm.

[2] State Water Resources Control Board (State Water Board). "Cortese" List of Leaking Underground Storage Tank Sites by County (San Francisco County). Website: https://geotracker.waterboards.ca.gov/sites_by_county.

[3] California Environmental Protection Agency (Cal/EPA). "Cortese" list of solid waste disposal sites identified with waste constituents above hazardous waste levels outside the waste management unit. Website: http://www.calepa.ca.gov/files/2016/10/SiteCleanup-CorteseList-CurrentList.pdf.

[4] California Environmental Protection Agency (Cal/EPA). "Cortese" list of SWRCB sites with active Cease and Desist Orders or Cleanup Abatement Orders. Website: http://www.calepa.ca.gov/files/2016/10/SiteCleanup-CorteseList-CDOCAOList.xlsx.

[5] California Environmental Protection Agency (Cal/EPA). "Cortese" list of sites subject to Corrective Action pursuant to Health and Safety Code 25187.5. Available: https://www.calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/.

materials are typically site-specific, so existing conditions related to fire hazards and the transport, use, and disposal of hazardous materials are discussed below under "project site."

Fire hazards present a considerable problem to vegetation and wildlife habitats throughout the County. Grassland fires are easily ignited, particularly in dry seasons. These fires are relatively easily controlled if they can be reached by fire equipment; the burned slopes, however, are highly subject to erosion and gullying. While brushlands are naturally adapted to frequent light fires, fire protection in recent decades has resulted in heavy fuel accumulation on the ground. Wildfire is a serious hazard in undeveloped areas and on large lot home sites with extensive areas of unirrigated vegetation.[6] Wildfire is a serious hazard in undeveloped areas, particularly near areas of natural vegetation and steep slopes, since fires tend to burn more rapidly on steeper terrain. Wildfire is also a serious hazard in areas of high wind, given that fires will travel faster and farther geographically when winds are higher.

Contra Costa County

Contra Costa County contains extensive heavy industrial development that may be associated with hazardous materials uses along its west and north coasts. These heavy industrial uses present potential risks to public safety due to explosion and flammability of petroleum and chemical materials.[7] In addition, storage tanks and pipelines are located throughout the County and could present public safety risks due to geologic conditions. No particular routes for hazardous materials transportation are designated in the County.[8]

Hazardous materials such as asbestos and lead are also likely present in building materials and paints in older structures. Emergency response in Contra Costa County and the project area is coordinated by the Contra Costa County Fire Protection District (CCCFPD). The CCCFPD provides response services to hazardous materials incidents, as well as fire protection and emergency medical services, as discussed further in Section 3.13, Public Services.

The Contra Costa County Office of the Sheriff: Emergency Services Division is responsible for planning, outreach, and training or disaster management and emergency preparedness.[9] Land uses in Contra Costa County range from rural, agricultural, and open space to urban and developed. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone Map, much of Contra Costa County is located in a moderate, high, and very high fire hazard zone due to the mountainous terrain and natural vegetation.

Project Site

A Phase I and limited Phase II ESA were prepared for the project site (Appendix F).

Phase I ESA

As part of preparation of the Phase I ESA, ENGEO reviewed local, State and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical

[6] Contra Costa County General Plan, page 10-42.
[7] Contra Costa County General Plan, page 10-34.
[8] *Ibid.*
[9] Contra Costa County Office of the Sheriff. 2018. http://www.cocosheriff.org/bureaus/support_services/emergency.htm.

setting sources. ENGEO also conducted a reconnaissance of the project site to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials; and interviewed persons knowledgeable about current and past site use.

Based on the findings of Phase I ESA, no Recognized Environmental Conditions (RECs), no historical RECs, and no controlled RECs were identified for the project site. However, the Phase I ESA identified the following potential environmental concerns:

- A review of historical records indicates that the project site was used as an orchard from at least the 1930s until the 1950s. Pesticides or other agricultural chemicals might have been applied to the project site at that time, and could be present in near-surface soils on the project site. These chemicals are persistent in the environment and toxic concentrations may remain many years after application.
- Given the age of the existing structures on the project site, it is conceivable that asbestos-containing materials and lead-based paint materials may exist within the structure.

A site reconnaissance of the project site was conducted on March 14, 2018. The site reconnaissance did not identify storage tanks, hazardous substances, or other hazardous materials on the project site.

Limited Phase II ESA

Initial field sampling activities associated with the limited Phase II ESA were performed on May 4, 2018. Laboratory results indicated detectable concentrations of metallic analytes and organochlorine pesticides in excess of respective residential screening levels in the upper one foot of soil on the project site. No detectable concentrations of target analytes were reported in the soil samples recovered from a depth of five feet below the surface.

As part of the limited Phase II ESA effort, on August 7, 2018, additional subsurface soil sampling was performed to further delineate the vertical extent of impact to soils on the project site. Review of the laboratory test results found detectable concentrations of several metallic analytes, including arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. The reported metal concentrations were either below the applicable residential screening levels and/or background concentrations observed in the San Francisco Bay area. Detectable concentrations of the pesticide dieldrin, were reported for samples S5 and S8. Additionally, sample S8 exhibited detectable concentrations of the pesticides dichlorodiphenyldichloroethylene (DDE) and dichlorodiphenyltrichloroethane (DDT).

3.8.3 - Regulatory Framework

Federal

Occupational Health and Safety Act

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor is responsible for implementing and enforcing federal laws and regulations that address worker health and safety. OSHA requires specific training for hazardous materials users and handlers, provision of information (procedures for personal safety, hazardous-materials storage and handling, and

emergency response) to employees who may be exposed to hazardous materials, and acquisition of material safety data sheets from materials manufacturers. Material safety data sheets describe the risks, as well as proper handling and procedures, related to particular hazardous materials. Employee training must include response and remediation procedures for hazardous materials releases and exposures. Construction workers and operational employees at the project site would be subject to these requirements.

Code of Federal Regulations, Titles 29 and 40

Regulations in Code of Federal Regulations Title 29 include requirements to manage and control exposure to lead-based paint and asbestos containing materials. In California, these requirements are implemented by the California Occupational Safety and Health Administration (Cal/OSHA) under California Code of Regulations Title 8 (see further discussion of California Code of Regulations Title 8 below). The removal and handling of asbestos-containing materials is governed primarily by EPA regulations under Code of Federal Regulations Title 40. The regulations require that the appropriate state agency be notified before any demolition, or before any renovations, of buildings that could contain asbestos or asbestos-containing materials above a specified threshold.

Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation, and Liability Act

The EPA is responsible for implementing and enforcing federal laws and regulations pertaining to hazardous materials. The primary legislation includes the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) and the Emergency Planning and Community Right-to-Know Act (known as SARA Title III). RCRA and the 1984 RCRA Amendments regulate the treatment, storage, and disposal of hazardous and non-hazardous wastes and mandate that hazardous wastes be tracked from the point of generation to their ultimate fate in the environment, including detailed tracking of hazardous materials during transport and permitting of hazardous material handling facilities. As permitted by RCRA, in 1992, the EPA approved California's program called the Hazardous Waste Control Law (HWCL), administered by DTSC, to regulate hazardous wastes in California, as discussed further below. The purpose of CERCLA is to identify and clean up chemically contaminated sites that pose a significant environmental health threat, and the Hazard Ranking System is used to determine whether a site should be placed on the National Priorities List for cleanup activities. SARA relates primarily to emergency management of accidental releases and requires annual reporting of continuous emissions and accidental releases of specified compounds that are compiled into a nationwide Toxics Release Inventory. Finally, SARA Title III requires formation of state and local emergency planning committees that are responsible for collecting material handling and transportation data for use as a basis for planning and provision of chemical inventory data to the community at large under the "right-to-know" provision of the law.

Hazardous Materials Transportation Act

Under the Hazardous Materials Transportation Act of 1975, the United States Department of Transportation (DOT), Office of Hazardous Materials Safety regulates the transportation of hazardous materials on water, rail, highways, through air, or in pipelines, and enforces guidelines created to

protect human health and the environment and reduce potential impacts by creating hazardous-material packaging and transportation requirements. It also includes provisions for material classification, packaging, marking, labeling, placecarding, and shipping documentation. The DOT provides hazardous-materials safety training programs and supervises activities involving hazardous materials. In addition, the DOT develops and recommends regulations governing the multimodal transportation of hazardous materials.

Aboveground Petroleum Storage Act, and Spill Prevention, Control, and Countermeasure Rule

The Aboveground Petroleum Storage Act of 1990, and the Spill Prevention, Control, and Countermeasure (SPCC) Rule (amended 2010) of the Oil Pollution Prevention regulation (40 CFR 112) require the owner or operator of a tank facility with an aggregate storage capacity greater than 1,320 gallons to notify the local certified unified program agency (CUPA) and prepare an SPCC plan. The SPCC plan must identify appropriate spill containment measures and equipment for diverting spills from sensitive areas, and must discuss facility-specific requirements for the storage system, inspections, recordkeeping, security, and training.

Clean Water Act

The Clean Water Act (CWA) (Title 33 § 1251 et seq. of the United States Code [33 USC 1251, et seq.]) is the major federal legislation governing water quality. The CWA established the basic structure for regulating discharges of pollutants into waters of the United States (not including groundwater). The objective of the act is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." The CWA establishes the basic structure for regulating the discharge of pollutants into waters of the United States. Responsibility for administering the CWA resides with the State Water Board and nine Regional Water Quality Control Boards (RWQCBs); the San Francisco Bay RWQCB administers the CWA for western Contra Costa County. Section 404 of the CWA regulates temporary and permanent fill and disturbance of waters of the United States, including wetlands. The United States Army Corps of Engineers (USACE) requires that a permit be obtained if a project proposes to place fill in navigable waters and/or to alter waters of the United States below the ordinary high-water mark in non-tidal waters. Section 401 of the CWA requires compliance with State water quality standards for actions within State waters. Compliance with the water quality standards required under Section 401 is a condition for issuance of a Section 404 permit. Under Section 401 of the CWA, every applicant for a permit or license for any activity that may result in a discharge to a water body must obtain a State water quality certification from the RWQCB to demonstrate that the proposed activity would comply with State water quality standards.

State

California Hazardous Waste Control Law

The Hazardous Waste Control Law is the primary hazardous waste statute in the State of California, and implements RCRA as a "cradle-to-grave" waste management system for handling hazardous wastes in a manner that protects human health and the environment and would reduce potential resulting impacts. The law specifies that generators have the primary duty to determine whether their waste is hazardous and to ensure proper management. The Hazardous Waste Control Law also establishes criteria for the reuse and recycling of hazardous waste used or reused as raw materials. The law exceeds federal requirements by mandating source reduction planning, and a much broader

requirement for permitting facilities that treat hazardous waste. It also regulates a number of types of waste and waste management activities that are not covered by federal law.

California Health and Safety Code

The California Health and Safety Code (HSC § 25141) defines hazardous waste as a waste or combination of waste that may:

> . . . because of its quantity, concentration, or physical, chemical, or infection characteristics:
> (1) Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitation-reversible illness.
> (2) Pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of or otherwise managed.

These regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management practices for hazardous wastes; establish permit requirements for hazardous-waste treatment, storage, disposal, and transportation; and identify hazardous waste that commonly would be disposed of in landfills.

Under both the RCRA and the HWCL, hazardous-waste manifests must be retained by the generator for a minimum of 3 years. The generator must match copies of the manifests with copies of manifest receipts from the treatment, disposal, or recycling facility.

In accordance with Chapter 6.11 of the California Health and Safety Code (HSC § 25404, et seq.), local regulatory agencies enforce many federal and State regulatory programs through the CUPA program, including:

- Hazardous materials business plans (HMBPs) (HSC § 25501, et seq.);
- State Uniform Fire Code (UFC) requirements (UFC § 80.103, as adopted by the State Fire Marshal pursuant to HSC § 13143.9);
- Underground Storage Tanks (USTs) (HSC § 25280, et seq.);
- Aboveground storage tanks (HSC § 25270.5[c]); and
- Hazardous-waste-generator requirements (HSC § 25100, et seq.).

Contra Costa Health Services (CCHS) Hazardous Materials Division is the CUPA for Contra Costa County. As the CUPA, CCHS enforces State statutes and regulations through the Hazardous Materials Unified Program Agency (HMUPA). The HMUPA oversees aboveground petroleum tanks; generation of hazardous materials; storage and treatment; USTs; generation of medical waste; the accidental-release prevention program; and the Local Oversight Program, which interfaces with the SWRCB and the San Francisco RWQCB on LUSTs and UST release sites. An HMBP must be submitted if a facility

ever handles any individual hazardous material in an aggregate amount equal to or greater than 55 gallons (liquids), 500 pounds (solids), or 200 cubic feet (gases). An HMBP must include:

- Details that include facility floor plans and identify the business conducted at the site;
- An inventory of hazardous materials handled or stored on the site;
- An emergency response plan; and
- A training program in safety procedures and emergency response for new employees who may handle hazardous materials, with an annual refresher course in the same topics for those same employees.

California Code of Regulations, Title 8

Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations. These regulations concern the use of hazardous materials in the workplace, including requirements for employee safety training; availability of safety equipment; accident and illness prevention programs; hazardous-substance exposure warnings; and preparation of emergency action and fire prevention plans.

Cal/OSHA also enforces hazard communication program regulations, including procedures for identifying and labeling hazardous substances, and requires that safety data sheets (formerly known as material safety data sheets) be available for employee information and training programs. Cal/OSHA standards are generally more stringent than federal regulations. Construction workers and operational employees at the project site would be subject to these requirements.

California Code of Regulations, Title 8, Section 1529 authorizes Cal/OSHA to implement the survey requirements of Code of Federal Regulations Title 29 relating to asbestos. These federal and State regulations require facilities to take all necessary precautions to protect employees and the public from exposure to asbestos. Workers who conduct asbestos abatement must be trained in accordance with federal and State OSHA requirements. The Bay Area Air Quality Management District (BAAQMD) oversees the removal of regulated asbestos-containing materials (see “Asbestos Demolition, Renovation, and Manufacturing Rule” below).

California Code of Regulations, Title 8, Section 1532.1 includes requirements to manage and control exposure to lead-based paint. These regulations cover the demolition, removal, cleanup, transportation, storage, and disposal of lead-containing material. The regulations outline the permissible exposure limit, protective measures, monitoring, and compliance to ensure the safety of construction workers exposed to lead-based material. Loose and peeling lead-based paint must be disposed of as a State and/or federal hazardous waste if the concentration of lead equals or exceeds applicable hazardous waste thresholds. Federal and State OSHA regulations require a supervisor who is certified with respect to identifying existing and predictable lead hazards to oversee air monitoring and other protective measures during demolition activities in areas where lead-based paint may be present. Special protective measures and notification of Cal/OSHA are required for highly hazardous construction tasks related to lead, such as manual demolition, abrasive blasting, welding, cutting, or torch burning of structures, where lead-based paint is present.

California Code of Regulations Title 22, Division 4.5

California Code of Regulations, Title 22, Division 4.5, contains the Environmental Health Standards for the Management of Hazardous Waste, which includes California waste identification and classification regulations. California Code of Regulations, Title 22, Chapter 11, Article 3, "Soluble Threshold Limits Concentrations/Total Threshold Limits Concentration Regulatory Limits," identifies the concentrations at which soil is determined to be a California hazardous waste. California's Universal Waste Rule (22 California Code of Regulations [CCR] § 66273) provides an alternative set of management standards in lieu of regulation as hazardous wastes for certain common hazardous wastes, as defined in California Code of Regulations, Title 22, Section 66261.9. Universal wastes include fluorescent lamps, mercury thermostats, and other mercury-containing equipment. Existing structures may contain fluorescent light ballasts that could contain mercury or lead. The Alternative Management Standards for Treated Wood Waste (22 CCR § 67386) were developed by the DTSC to allow for disposal of treated wood as a nonhazardous waste, to simplify and facilitate the safe and economical disposal of such waste. Chemically treated wood can contain elevated levels of hazardous chemicals (e.g., arsenic, chromium, copper, pentachlorophenol, or creosote) that equal or exceed applicable hazardous waste thresholds. The Alternative Management Standards provide for less stringent storage requirements and extended accumulation periods, allow shipments without a hazardous waste manifest and a hazardous waste hauler, and allow disposal at specific nonhazardous waste landfills.

Porter-Cologne Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) is California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The RWQCBs are required to formulate and adopt water quality control plans (also known as basin plans) for all areas of the region and establish water quality objectives in the plans. The Porter-Cologne Act sets forth the obligations of State Water Board and RWQCBs to adopt and periodically update water quality control plans that recognize and reflect the differences in existing water quality, the beneficial uses of the region's groundwater and surface water, and local water quality conditions and problems. It also authorizes the State Water Board and RWQCBs to issue and enforce waste discharge requirements and to implement programs for controlling pollution in State waters. Finally, the Porter-Cologne Act also authorizes the State Water Board and RWQCBs to oversee site investigation and cleanup for unauthorized releases of pollutants to soils and groundwater and in some cases to surface waters or sediments.

California Emergency Response Plan

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Responding to hazardous-materials incidents is one part of this plan. The plan is administered by the California Governor's Office of Emergency Services, which coordinates the responses of other agencies. The Contra Costa County Office of the Sheriff's Emergency Services Division coordinates response to emergencies in unincorporated areas of Contra Costa County. Emergency response team members respond and work with local fire and police agencies, emergency medical providers, the California Highway Patrol (CHP), CAL FIRE, California Department of Fish and Wildlife (CDFW), and California Department of Transportation (Caltrans).

California Department of Forestry and Fire Protection

CAL FIRE has mapped fire threat potential throughout California. CAL FIRE maps fire threat based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The threat levels include no fire threat, moderate, high, and very high fire threat. Further, the maps designate Contra Costa County as the Local Responsibility Area (LRA) for the project site. Additionally, CAL FIRE produced a 2010 Strategic Fire Plan for California, which contains goals, objectives, and policies to prepare for and mitigate the effects of fire on California's natural and built environments. CAL FIRE's Office of the State Fire Marshal provides oversight of enforcement of the California Fire Code as well as overseeing hazardous liquid pipeline safety.

California Building Code

The State of California provided a minimum standard for building design through the 2016 California Building Code (CBC), which is located in Part 2 of Title 24 of the California Code of Regulations. The 2016 CBC is based on the 2015 International Building Code, but has been modified for California conditions. It is generally adopted on a jurisdiction by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local City and County building officials for compliance with the CBC. Typical fire safety requirements of the CBC include the installation of sprinklers in all new high-rise buildings and residential buildings; the establishment of fire resistance standards for fire doors, building material; and particular types of construction.

California Public Resources Code

The California Public Resources Code (PRC) includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors[10] on construction equipment that use an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided on-site for various types of work in fire-prone areas.

These regulations include the following:

- Earthmoving and portable equipment with internal combustion engines would be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC § 4442);
- Appropriate fire suppression equipment would be maintained during the highest fire danger period—from April 1 to December 1 (PRC § 4428);
- On days when a burning permit is required, flammable materials would be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor would maintain the appropriate fire suppression equipment (PRC § 4427); and
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines would not be used within 25 feet of any flammable materials (PRC § 4431).

[10] A spark arrestor is a device that prohibits exhaust gases from an internal combustion engine from passing through the impeller blades where they could cause a spark. A carbon trap is commonly used to retain carbon particles from the exhaust.

Regional

BAAQMD Asbestos Demolition, Renovation and Manufacturing Rule

The removal of asbestos-containing building materials is subject to the limitations of BAAQMD Regulation 11, Rule 2, "Hazardous Materials; Asbestos Demolition, Renovation and Manufacturing." This rule prohibits visible emissions to outside air from any operation involving the demolition of any structure containing asbestos, and sets out requirements for demolition of such structures, including a pre-demolition survey conducted by a certified professional. All friable (i.e., crushable by hand) asbestos-containing materials or non-friable asbestos-containing materials that may be damaged must be abated before demolition in accordance with applicable requirements. Friable asbestos-containing materials must be disposed of as asbestos waste at an approved facility. Non-friable asbestos-containing materials may be disposed of as nonhazardous waste at landfills that accept such wastes.

Association of Bay Area Governments Hazard Mitigation Plan

The Association of Bay Area Governments' multijurisdictional Local Hazard Mitigation Plan for the San Francisco Bay area was updated in 2010 in partnership with the Bay Conservation and Development Commission (BCDCs). Adapting to Rising Tides Program to support local governments in the regional plan for existing and future hazards of climate change. This detailed 5-year plan identifies potential natural and human-made hazards, assesses their potential risks, and includes mitigation methods to reduce risks. The potential hazards identified in the Plan include earthquakes and liquefaction, wildfires, floods, drought, solar storms, dam or levee failure, disease outbreak, freezes, wind, heat, thunder and lightning storms, siltation, tornadoes, hazardous materials, slope failure and mudflows, and other hazards. Similarly, mitigation measures include hazard event planning, emergency preparedness coordination, education, facility upgrades, and monitoring actions.

Local

Contra Costa County Hazard Mitigation Plan

Contra Costa County and a partnership of local governments within the County have developed a Hazard Mitigation Plan (HMP) to reduce future losses resulting from disasters. Hazard mitigation is the use of long- and short-term strategies to reduce the loss of life, personal injury, and property damage that can result from a disaster. It involves planning efforts, policy changes, programs, capital projects, and other activities that can mitigate the impacts of hazards. The HMP contains the following Goals aimed at reducing the vulnerability from natural hazards within the County in a cost-effective manner:

- **Goal 1:** Save, or protect lives and reduce injury.
- **Goal 2:** Increase resilience of infrastructure and critical facilities.
- **Goal 3:** Avoid, minimize, or reduce damage to property.
- **Goal 4:** Encourage the development and implementation of long-term, cost-effective, and environmentally sound mitigation projects.
- **Goal 5:** Build and support capacity to enable local government and the public to prepare, respond, and recover from the impact of natural hazards.

Contra Costa County Emergency Operations Plan

The Contra Costa County Operational Area Emergency Operations Plan (EOP) addresses the response to emergency incidents associated with emergencies affecting Contra Costa County. The Contra Costa OA consists of the cities/towns, special districts, reclamation districts, municipal improvement districts and the unincorporated areas within the County. This plan is based on the functions and principles of the California Standardized Emergency Management System, the National Incident Management System, and the Incident Command System. It identifies how the Contra Costa County emergency operational system fits into the overall California and national risk-based, all-hazard emergency response and recovery operations plans.

Contra Costa County General Plan

The Contra Costa County General Plan establishes the following goals and policies related to hazards and hazardous materials that are related to this analysis:

Hazardous Materials Uses

- **Goal 10-I:** To provide public protection from hazards associated with the use, transport, treatment, and disposal of hazardous substances.
- **Policy 10-62:** Storage of hazardous materials and wastes shall be strictly regulated.
- **Policy 10-68:** When an emergency occurs in the transportation of hazardous materials, the County Office of Emergency Services shall be notified as soon as possible.
- **Goal 10-N:** To provide for a continuing high level of public protection services and coordination of services in a disaster.
- **Policy 10-86:** In order to ensure prompt public protection services, dwelling unit numbers shall be required to be easily seen from the street or road.

Fire Protection

- **Goal 7-AA:** To incorporate requirements for fire-safe construction into the land use planning and approval process.
- **Goal 7-AD:** To provide special fire protection for high-risk land uses and structures.
- **Policy 7-64:** New development shall pay its fair share of costs for new fire protection facilities and services.
- **Policy 7-66:** Sprinkler systems may be required in new residential structures, where necessary to protect health, safety and welfare.
- **Policy 7-81:** All structures located in Hazardous Fire Areas, as defined in the Uniform Fire Code, shall be constructed with fire-resistant exterior materials, such as fire safe roofing, and their surroundings are to be irrigated and landscaped with fire-resistant plants, consistent with drought resistance and water conservation policies.
- **Implementation Measure 7-at:** The Conservation and Development Department shall include fire agency code requirements requested by the districts as advisory notes to the applicant within proposed conditions of project approval when the Planning Agency is considering subdivisions, development plans, use permits and other entitlement requests.
- **Implementation Measure 7-au:** Fire protection agencies shall be afforded the opportunity to review projects and submit conditions of approval for consideration to determine whether:
  - There is an adequate water supply for fire fighting

- Road widths, road grades and turnaround radii are adequate for emergency equipment; and
- Structures are built to the standards of the Uniform Building Code, the Uniform Fire Code, other State regulations, and local ordinances regarding the use of fire-retardant materials and detection, warning and extinguishment devices.

- **Policy 10-89:** Every high-rise building shall be designed and constructed to provide for the evacuation of occupants and/or for the creation of a safe environment in case of a substantial disaster, such as a severe earthquake or fire.

Contra Costa County Ordinance Code

Division 450, Hazardous Materials and Wastes, of the Contra Costa County Ordinance Code provides regulations regarding hazardous material response plans, inventories, underground storage, and risk management. In part, this County Ordinance Code requires that any business that handles a specific quantity of hazardous materials establish a business plan for emergency response to a release or threatened release of a hazardous material.

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Responding to hazardous-materials incidents is one part of this plan. The plan is administered by the California Governor's Office of Emergency Services, which coordinates the responses of other agencies. The Contra Costa County Office of the Sheriff: Emergency Services Division coordinates response to emergencies in the County. Emergency response team members respond and work with local fire and police agencies, emergency medical providers, the California Highway Patrol, CAL FIRE, CDFW, and Caltrans.

3.8.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 CEQA Guidelines Appendix G, to determine whether impacts related to hazards and hazardous materials have significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

d) Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and, as a result, create a significant hazard to the public or the environment?

e) Be 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 and result in a safety hazard or excessive noise for people residing or working 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?

Approach to Analysis

This evaluation focuses on whether the project would result in changes to the physical environment that would cause or exacerbate adverse effects related to the use, transportation, disposal, accidental release, or emission of hazardous materials. The evaluation also includes a determination of whether the changes to the physical environment caused by the project or variant would impair or interfere with emergency response plans, or expose people or structures to increased wildfire hazards or dangers from overhead power lines. For the evaluation of potential construction-related and operational impacts from existing hazardous materials in project site soils, sediments, groundwater, surface water, and structures, the results of environmental sampling are compared to identified screening levels. The following analysis is based, in part, on information provided by the Contra Costa General Plan, the project-site-specific Phase I ESA, and State of California websites.

Additional analyses regarding hazards and health risk related to emissions of toxic air contaminants (TACs) are addressed in Section 3.2, Air Quality. Flooding and inundation hazards, including those related to erosion and mudflow, are addressed in Section 3.9, Hydrology and Water Quality. Traffic-related safety hazards are addressed in Section 3.15, Transportation. Other geotechnical-related safety hazards, such as earthquakes, are addressed in Section 3.6, Geology and Soils. Finally, excessive noise exposure with respect to airport use or air traffic is addressed in Section 3.11, Noise.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of hazards and hazardous materials impacts resulting from implementation of the project.

- Routine transport, use, and/or disposal of hazardous materials.
- Regular transport of hazardous materials to/from the project site on an unsuitable road or use of highly volatile hazardous materials.
- Location within 0.25-mile of an existing or proposed school in conjunction with hazardous emissions or handle hazardous materials, waste, or substances.
- Listing on hazardous materials site list and distance of project site to listed hazardous material sites. These lists include the following:
  - The California Environmental Protection Agency (Cal/EPA)
  - California Facility Inventory Database (CA FID) UST and State Water Efficiency and Enhancement Program (SWEEP)

- Hazardous Waste Tracking System (HAZNET)
- California Department of Toxic Substance Control (DTSC EnviroStor and BAAQMD)
- State Water Board GeoTracker regulated facilities databases for files related to possible Recognized Environmental Conditions (RECs)

- Location proximate to an airport and reduction of safety of people working or residing in the area.
- Impairing implementation of or interference with an adopted emergency response plan or emergency evacuation plan via blockage of an evacuation route or provision of only one access point for emergency vehicles.
- Placement of housing or offices in a designated wildland fire urban interface zone or proximate to unmanaged open space area that is susceptible to wildfires.

Impact Evaluation

Routine Transport, Use, or Disposal of Hazardous Materials

Impact HAZ-1:	**The project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.**

Construction

During construction, the project would be expected to involve the transport, use, and disposal of hazardous materials, such as diesel fuels, aerosols, and paints. However, the duration of these actions would only be temporary and limited to the period of construction. Furthermore, the project would be subject to the Hazardous Materials Transportation Act, California Public Resources Code, and other State and local regulations that would reduce and limit the associated risks. Any handling, transporting, use, or disposal would comply with applicable laws, policies, and programs set forth by various federal, State, and local agencies and regulations, including the EPA, RCRA, Caltrans, and Contra Costa Hazardous Materials Program. Required compliance with applicable hazardous material laws and regulations would ensure that construction-related hazardous material use would not result in significant impacts.

Additionally, site reconnaissance identified the presence of potentially hazardous materials or conditions that would need to be addressed on the project site prior to the commencement of project construction. The project would demolish the existing single-family residence and attached garage located at 3018 Del Hombre Lane and the existing single-family residence located at 112 Roble Road. Given the age of the existing structures on the property, it is conceivable that asbestos-containing materials and lead-based paint may exist within the structure. Removal of these existing buildings could potentially create a significant hazard to the construction workers on the project site. This represents a potentially significant impact.

However, implementation of Mitigation Measure HAZ-1 that requires the applicant to conduct asbestos and lead paint surveys prior to demolition activities and safely remove and dispose of any such materials in accordance with State standards would ensure impacts are reduced to a less-than-significant level.

The Phase I ESA found that the project site was used as an orchard from at least the 1930s until the 1950s. Pesticides or other agricultural chemicals might have been applied to the project site at that time, and could be present in near-surface soils on the project site. These chemicals are persistent in the environment and toxic concentrations may remain many years after application. A Phase II ESA was conducted to determine if pesticides are present in the near-surface soil at the property. The initial field sampling activities indicated detectable concentrations of metallic analytes and organochlorine pesticides in excess of respective residential screening levels in the upper 1-foot of the property. Additional subsurface soil sampling was performed to further delineate the vertical extent of impact to soils on the property. Review of the laboratory test results found detectable concentrations of several metallic analytes, including arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. The reported metal concentrations were either below the applicable residential screening levels and/or background concentrations observed in the San Francisco Bay Area. Detectable concentrations of the pesticide dieldrin, were reported for samples S5 and S8. Additionally, sample S8 exhibited detectable concentrations of the pesticides DDE and DDT. However, reported concentrations of target analytes were below the applicable residential screening levels.[11] Thus, exposure risk related to target analytes is considered less than significant.

Therefore, overall construction impacts related to public hazard risk as a result of the hazardous materials transport, use, or disposal would be less than significant with mitigation.

Operation

During project operations, hazardous materials may be handled on the project site. Because of the nature of the project, hazardous materials used on-site may vary but would likely be limited to small quantities of fertilizers, herbicides, pesticides, solvents, cleaning agents, and similar materials used for daily residential operations and maintenance activities. These types of materials are common for residential developments such as the project and represent a low risk to people and the environment when used as intended. Further, compliance with applicable plans and regulations, including the Contra Costa County General Plan policies, would provide public protection from hazards associated with the use, transport, treatment, and disposal of hazardous substances. Therefore, operational impacts related to public hazard risk as a result of hazardous materials transport, use, or disposal would be less than significant.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM HAZ-1 Conduct Asbestos and Lead Surveys Prior to Demolition

Prior to the issuance of demolition permits for the two existing residences and associated structures, the applicant shall retain a licensed professional to conduct asbestos and lead paint surveys. These surveys shall be conducted prior to the disturbance or removal of any suspect asbestos-containing materials and lead-based paint, and these materials shall be characterized for asbestos and lead by a reliable

[11] ENGEO. Phase II Environmental Site Assessment, page 2. May 24, 2018.

method. All activities involving asbestos-containing materials and lead-based paint shall be conducted in accordance with governmental regulations, and all removal shall be conducted by properly licensed abatement contractors.

Level of Significance After Mitigation

Less Than Significant with Mitigation

Hazardous Materials Upset Risk

Impact HAZ-2: The project would not 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.

Construction

Construction activity would be expected to involve the transport, use, and disposal of hazardous materials, such as diesel fuels, aerosols, and paints. However, the duration of these actions would only be temporary and limited to the period of construction. In addition, the use of these materials would be subject to the Hazardous Materials Transportation Act, California Public Resources Code, and other State and local regulations that would limit the use of hazardous materials and reduce the associated risks of exposure. Therefore, construction impacts related to hazardous materials upset risk would be less than significant.

Operation

The project proposes an apartment building consisting of 284 residential units. As such, the project would not be expected to include industrial or retail development that involves hazardous materials such as gas stations, paint stores, or auto parts stores. Unlike industrial or retail facilities, residential development does not involve the type or quantity of hazardous materials that could pose a significant environmental accident.

Small quantities of hazardous materials would be used on site during operation of the project, but not in sufficient quantities to create significant hazard in the unlikely event of upset or accident. These types of materials are common in such residential projects and represent a low risk to people and the environment when used as intended, and would not be expected to result in the release of hazardous materials into the environment. As such, operational impacts related to hazardous materials upset risk would be less than significant.

Level of Significance

Less Than Significant

Hazardous Emissions Proximate to a School

Impact HAZ-3:	**The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

Construction

The project site is not located within 0.25-mile of an existing or proposed school. The closest school, Bancroft Elementary, is located approximately 0.82 mile to the east. Construction activity would be expected to involve the transport, use, and disposal of hazardous materials, such as diesel fuels, aerosols, and paints. However, the duration of these actions would only be temporary and limited to the period of construction. In addition, the use of these materials would be subject to the Hazardous Materials Transportation Act, California Public Resources Code, and other State and local regulations that would limit the use of hazardous materials and reduce the associated risks of exposure. As such, the project would not emit hazardous emissions or handle hazardous materials within 0.25-mile of a school. Therefore, construction impacts related to hazardous emissions proximate to a school would be less than significant.

Operation

The project site is not located within 0.25-mile of a school. In addition, the project would not be expected to include industrial or retail development that involves hazardous materials such as gas stations, paint stores, or auto parts stores. Unlike industrial or retail facilities, residential development does not involve the type or quantity of hazardous materials that could pose a significant environmental accident. Therefore, operational impacts related to hazardous emissions proximate to a school would be less than significant.

Level of Significance

Less Than Significant

Government Code Section 65962.5 Sites

Impact HAZ-4:	**The project would not 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.**

Construction

Impacts related to locating a project on a hazardous materials site per Government Code Section 65962.5 are limited to operational impacts. No respective construction impacts would occur.

Operation

A regulatory records review of the Cal/EPA, State Water Board, CA FID UST and SWEEPS, HAZNET, DTSC EnviroStor, BAAQMD, and GeoTracker regulated facilities databases for files related to possible RECs was conducted for the project site. The results are compiled in the Phase I ESA included as Appendix F. Based on the findings of this assessment, no RECs, no historical RECs, and no controlled RECs were identified for the project site. Therefore, impacts related to potential location on a hazardous materials site and, thus, creating a hazard to the public or environment would be less than significant.

Level of Significance

Less Than Significant

Proximity to Airport Safety Hazard

Impact HAZ-5:	**The project would not be 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, and result in a safety hazard or excessive noise for people residing or working in the project area.**

Construction

Impacts related to exposure of people to safety hazards or excessive noise in proximity to an airport are limited to operational impacts. No respective construction impacts would occur.

Operation

As part of operation, the project would not be located within an airport land use plan or within 2 miles of a public airport. The closest public airport, Buchanan Field, is located approximately 3.5 miles to the north of the project site. At this distance, the project is not located within an airport land use plan or within 2 miles of a public airport. Therefore, no impact related to exposure of people to safety hazards or excessive noise in proximity to an airport would occur.

Level of Significance

No Impact

Emergency Response and Evacuation

Impact HAZ-6:	**The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.**

Construction

During construction, it is expected that construction equipment and vehicles would be accessing and leaving the project site, which in turn could potentially impede evacuation or emergency vehicle access. However, as discussed under Impact TRANS-5 in Section 3.15, Transportation, the project would result in less than significant impacts related to emergency vehicle access. In addition, the project would comply with the Contra Costa County Emergency Plan, ensuring efficient response to emergency incidents associated with emergencies affecting Contra Costa County. Therefore, construction impacts related to emergency response and evacuation would be less than significant.

Operation

The Contra Costa County Operational Area EOP outlines general procedures in response to emergency crises, such as evacuations. Included in this Plan is information regarding evacuations and shelter-in-place orders as well as who has the authority to issue these orders. The main arterial roads into and out of the project vicinity would be Treat Boulevard in the east-west direction and Ygnacio Valley Road and Interstate 680 (I-680) in the north-south direction. These roads would act as the main evacuation routes into and out of the project vicinity. With adherence to the

procedures of the Contra Costa County Operational Area EOP, the project would not conflict with the Contra Costa County Operational Area EOP or General Plan safety policies.

As indicated in Section 3.13, Public Services, the project would be adequately served by police and fire services. The project would not create a permanent increase in population unaccounted for in the Contra Costa County General Plan that could lead to overwhelming call for services. In addition, the project site would be designed in accordance with the County's standards to accommodate emergency vehicle access by providing two points of access that would be available to emergency vehicles. Therefore, operational impacts related to emergency response and evacuation would be less than significant.

Level of Significance

Less Than Significant

Wildland Fires

Impact HAZ-7:	**The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.**

Construction

Impacts related to wildland fire hazard risks are limited to operational impacts. No respective construction impacts would occur.

Operation

As indicated by the Contra Costa County General Plan, fire hazards present a considerable problem throughout the County. The project site is located in a County island and is surrounded to the east, west, and south by the City of Walnut Creek, to the northeast by the City of Concord, and to the northwest by the City of Pleasant Hill. Although the project site currently contains trees, some of which are proposed for removal, the project site is located in an urbanized area and is not surrounded by woodlands or vegetation that could provide fuel load for wildfire.

According to CAL FIRE, the project site is not located in a Severe or Very High Hazard Severity Zone. The BAAQMD monitors the Bay Area's air quality at a number of stations, and the closest station to the project site is located in Concord, approximately 2.24 miles to the east. According to the BAAQMD, the average wind speed for the City of Concord varies month to month and ranges from 2 to 5 miles per hour.[12] Given that the project site is not located on or near steep terrain surrounded by natural vegetation or consistently experiences high winds, the project site would not be prone to wildfires.

The proposed removal of several trees from the project site would reduce the site's existing fuel load. Furthermore, compliance with applicable State and local plans and regulations would decrease the risk of impacts related to wildland fire hazards. Specifically, Contra Costa General Plan policies incorporate requirements for fire-safe construction into the land use planning and approval process and ensure special fire protection for high-risk land uses and structures. Contra Costa County also

[12] Bay Area Air Quality Management District (BAAQMD). Air Monitoring Data. Accessed September 28, 2018. http://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data?DataViewFormat=yearly&DataView=met&StartDate=12/11/2017&ParameterId=203&StationId=4902

implements the Contra Costa County Operational Area EOP, which addresses the response to emergency incidents associated with emergencies affecting Contra Costa County. Furthermore, as indicated in Section 3.13, Public Services, the project would be adequately served in terms of fire protection services by the CCCFPD. Finally, project structures would be required to comply with the California Fire Code with regard to emergency access and types of building materials. Therefore, impacts related to wildland fire risk would be less than significant.

Level of Significance

Less Than Significant

3.8.5 - Cumulative Impacts

The geographic scope of the cumulative hazards and hazardous materials cumulative analysis is the project vicinity or roughly the central portion of Contra Costa County. The cumulative projects included in this analysis are those listed in Table 3-1 as well as the project.

Hazardous Materials Exposure Risk

In general, exposure to hazardous materials may cause localized adverse effects. A combination of federal, State, and local regulations limit or minimize the potential for exposure to hazardous materials. Development listed in Table 3-1 (See, Chapter 3.0: Environmental Setting) consists predominantly of residential development with some childcare facilities, library components, commercial retail, hotel uses, and road improvements. The types and sizes of development anticipated in the project area would not involve large quantities of hazardous materials or activities that transport or handle hazardous materials. In addition, there are no land uses in the vicinity of the project site that are known to utilize large quantities of hazardous materials or involve hazardous activities or are located on a Government Code Section 65962.5 site.

However, cumulative projects listed in Table 3-1 may include demolition of existing structures that have the potential to contain hazardous building materials. Building materials may contain asbestos and lead-based paint. To address potential release of hazardous materials, the County would assess structures and impose standard mitigation (required testing, removal, and proper disposal) to minimize release prior to any demolition. Therefore, there would be a less than significant cumulative impact related to exposure to hazardous materials.

Hazards and Emergency Response

The central portion of Contra Costa County contains main arterial streets that would act as the most likely evacuation routes out of the County and provide access to I-680 and State Highway 4. The central portion of Contra Costa County is not proximate to an airport but is an urbanized area that is adjacent to wildlands. The cumulative projects, listed in Table 3-1, would result in predominantly in-fill development in the City of Walnut Creek, City of Pleasant Hill, and Contra Costa County and would not significantly increase need for emergency services, including related to wildfires. Cumulative construction in unincorporated Contra Costa County would be required to demonstrate consistency with the Contra Costa County applicable codes, ordinances, and policies related to hazards and emergency response. Cumulative construction in the City of Walnut Creek would be

required to demonstrate consistency with the City of Walnut Creek applicable codes, ordinances, and policies related to hazards and emergency response. Cumulative construction in the City of Pleasant Hill would be required to demonstrate consistency with the City of Pleasant Hill applicable codes, ordinances, and policies related to hazards and emergency response. Furthermore, all construction would adhere to the California Building Codes that are designed to minimize the potential for uncontrolled fires. Once development is proposed, the County assesses the needs for fire protection services and informs efforts to improve or expand needed facilities.

As listed in Table 3-1, development in the central portion of the County would result in predominantly residential development. The types of development would increase the population. However, all development would comply with emergency access requirements as a project condition. Furthermore, the development in Contra Costa County would not result in permanent road closures, not impede an established emergency access route, or interfere with emergency response requirements. As such, there would be a less than significant cumulative impact associated with hazards and emergency response.

Level of Cumulative Significance

Less Than Significant

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3.9 - Hydrology and Water Quality

3.9.1 - Introduction

This section describes the existing hydrology and water quality setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on information contained in the Contra Costa County General Plan and memos provided by the Contra Costa County Public Works Department. During the Environmental Impact Report (EIR) scoping period, no comments were received related to the project's potential hydrologic impacts.

3.9.2 - Environmental Setting

Surface Hydrology

Walnut Creek Watershed

The Contra Costa Clean Water Program (CCCWP) designates watersheds in Contra Costa County. According to the CCCWP, the Walnut Creek Watershed is composed of the following subwatersheds: Grayson-Murderers, Concord, Pine-Galindo, San Ramon, and Las Trampas. The overarching Walnut Creek Watershed and its tributaries encompass 93,556 acres in Central Contra Costa County. All tributaries within the Walnut Creek Watershed eventually drain into Suisun Bay and ultimately the Pacific Ocean.[1]

Project Site

The project site is located within the Grayson-Murderer's Creek Subwatershed within the overarching Walnut Creek Watershed. The project site does not contain any creeks or bodies of water. The closest creek to the project site is Walnut Creek located approximately 1,500 feet to the east. The project site generally slopes 1 percent to the northwest.[2]

Surface Water Quality

Contra Costa County

Surface water quality in Contra Costa County is monitored by the San Francisco Bay Regional Water Quality Control Board (RWQCB) and Contra Costa County. The San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) outlines the beneficial water uses that the State Water Board will protect, and the water quality objectives and strategies for achieving these objectives.

Project Site

The project site is located in Contra Costa County and would be subject to regulations imposed by the San Francisco Bay RWQCB and Contra Costa County.

[1] Contra Costa Clean Water Program (CCCWP)
[2] BKF. Preliminary Stormwater Control Plan, page 2. October 9, 2018.

Groundwater Basin Hydrology

Contra Costa County Area

The CCWD 2015 Urban Water Management Plan (UWMP) identified the Ygnacio, Clayton, Pittsburg Plain, and Tracy groundwater basins as the primary groundwater basins within its service area. The CCWD does not manage groundwater nor does it use groundwater to meet water demand.

The Ygnacio Valley Groundwater Basin is located in northern Contra Costa County along the south shore of Suisun Bay. The basin surface area is approximately 15,900 acres bounded by Suisan Bay to the North, Interstate 680 to the west, by the Concord Fault to the east, and by the City of Walnut Creek to the south.[3] The Ygnacio Valley Groundwater Basin underlies the City of Pleasant Hill and City of Walnut Creek.

The Ygnacio Valley Basin occupies a structural depression between the Berkeley Hills and the Diablo Range. Thick alluvial deposits that cover a faulted and folded complex of consolidate Cretaceous and Tertiary rocks underlie the basin. The water-bearing units in the basin are Quaternary alluvium and alluvial valley fill deposits. Aquifers in the basin area are hydrologically connected to the Sacramento River.[4]

Project Site

The project site does not contain active groundwater wells and is located within the boundaries of the Ygnacio Valley Groundwater Basin.

Groundwater Water Quality

Contra Costa County Area

According to California Department of Water Resources Bulletin 118: Ygnacio Valley Groundwater Basin, no published groundwater quality data is available for the Basin.[5]

Project Site

The project site is located within the Ygnacio Valley Groundwater Basin under the jurisdiction of the San Francisco Bay RWQCB.

Stormwater Runoff

Contra Costa County

The San Francisco Bay RWQCB administers the National Pollution Discharge Elimination System (NPDES) stormwater permitting program and regulates stormwater in the San Francisco Bay region. Contra Costa County is a permittee under the Phase II NPDES Municipal Stormwater Permit. Contra Costa County implements the County-specific components of the CCCWP.

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[3] Contra Costa County. 2016 California Groundwater Bulletin 118. Website: https://www.contracosta.ca.gov/DocumentCenter/View/34130/CDWR-2004_Ygnacio-Valley-Bulletin-118. Accessed November 8, 2018.

[4] *Ibid*.

[5] Department of Water Resources, California's Groundwater Bulletin 118. Ygnacio Valley Groundwater Basin.

The Contra Costa County Flood Control and Water Conservation District guides regional drainage plans throughout incorporated and unincorporated County areas. The Flood Control and Water Conservation District owns property throughout the County for the purpose of constructing and maintaining regional flood control basins, channels, and creeks.[6]

Project Site

The project site is located in Drainage Area 44, which is "unformed."[7] Drainage Areas are formed to collect fees from developers to pay for planned drainage infrastructure including detention basins, pipes, channels, and related costs. An unformed drainage area is a watershed that has been identified, but does not have development fees. The nearest point of connection to Drainage Area 44 is located approximately 160 feet to the north along Las Juntas Way; however, the existing elevation difference between the invert for the catch basin and the invert of the proposed storm drain leaving the project site would not allow for positive drainage.

A private 18-inch storm drain is located in Roble Road bordering the project's northern boundary. The nearest point of connection to this drain is approximately 250 feet to the east of the project site, and drains eastward to the Walnut Creek Channel within Drainage Area 44. The applicant does not have permission to construct new storm drainage infrastructure in this private street.

The project therefore proposes to connect to Drainage Area 44B. A public storm drain is located in Del Hombre Lane bordering the project site's western boundary, and the nearest point of connection is at the intersection of Del Hombre Lane and Roble Road. This drain connects to an 84-inch storm drain line in Iron Horse Trail.[8]

Flooding and Inundation

Contra Costa County

100-year Flood

Flood hazard areas—those areas susceptible to flooding—are mapped by the Federal Emergency Management Agency (FEMA). FEMA maps do not take into account future conditions. To protect such areas from flood hazards, FEMA administers the National Flood Insurance Program (NFIP). The NFIP is a federal program created to avert future flood losses through building and zoning ordinances and to provide federally backed flood insurance protection for property owners. The County is a participant in the NFIP.

To support the NFIP, FEMA publishes Flood Insurance Rate Maps (FIRMs) for participating communities, which are used for flood insurance and floodplain management purposes. The FIRMs delineate different special flood hazard area zones. Special flood hazard areas associated with the 1 percent probability of annual exceedance are zones that begin with the letter "A" (e.g., Zone A, Zone AE, and Zone AO). FEMA released preliminary FIRM 06013C0291F for the County on June 16, 2009. The project site is listed under Zone X—an area of minimal flood hazard.

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6 Contra Costa County, Flood Control District. Website: http://www.cccounty.us/5586/Flood-Control. Accessed 11/19/2018.
7 BKF. Technical Memorandum. May 23, 2018.
8 BKF. Preliminary Stormwater Control Plan. October 9, 2018.

Mudflow

Mudflows typically occur on steep slopes where vegetation is not sufficient to prevent rapid erosion.

Project Site

100-year Flood

According to FEMA FIRM Map 06013C0291F effective June 16, 2009, the project site is located within Zone X—Area of Minimal Flood Hazard.[9]

Mudflow

The project site is relatively flat and does not contain steep, unvegetated slopes susceptible to mudflows.

3.9.3 - Regulatory Framework

Federal

Clean Water Act

The Clean Water Act (CWA) (33 United States Code [USC] § 1251, *et seq*.) is the major federal legislation governing the water quality aspects of construction and operation of the project or variant. The CWA established the basic structure for regulating discharges of pollutants into waters of the United States (not including groundwater) and waters of the State. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." The CWA establishes the basic structure for regulating the discharge of pollutants into waters of the United States.

The CWA authorizes the United States Environmental Protection Agency (EPA) to implement pollution control programs. Under the CWA, it is unlawful for any person to discharge any pollutant from a point source into navigable waters, unless an NPDES permit is obtained. In addition, the CWA requires each state to adopt water quality standards for receiving water bodies and to have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality objectives necessary to support those uses.

Responsibility for protecting water quality in California resides with the State Water Board and nine RWQCBs. The State Water Board establishes Statewide policies and regulations for the implementation of water quality control programs mandated by federal and State water quality statutes and regulations. The RWQCBs develop and implement water quality control plans (basin plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. Water quality standards applicable to the project are listed in the San Francisco Bay's (Region 2) RWQCB's Basin Plan.

[9] Federal Emergency Management Agency (FEMA). FEMA Flood Map Service Center: Search By Address. Website: https://msc.fema.gov/portal/search?AddressQuery=1350%20treat%20blvd%2C%20Walnut%20Creek%2C%20CA#searchresultsanchor. Accessed December 27, 2018.

Section 303—Water Quality Standards and Total Maximum Daily Loads

Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface waters of the United States based on the water body's designated beneficial use. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based on biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards.

CWA Section 303(d) requires states and authorized Native American tribes to develop a list of water quality–impaired segments of waterways. The list includes waters that do not meet water quality standards necessary to support a waterway's beneficial uses even after the minimum required levels of pollution control technology have been installed. Listed water bodies are to be priority ranked for development of a total maximum daily load (TMDL). A TMDL is a calculation of the total maximum daily load (amount) of a pollutant that a water body can receive on a daily basis and still safely meet water quality standards. The TMDLs include waste load allocations for urban stormwater runoff as well as municipal and industrial wastewater discharges, with allocations apportioned for individual Municipal Separate Storm Sewer Systems (MS4s) and wastewater treatment plants, including those in Contra Costa County. For stormwater, load reductions would be required to meet the TMDL waste load allocations within the 20 years required by the TMDLs.

The State Water Board, RWQCBs, and EPA are responsible for establishing TMDL waste load allocations and incorporating approved TMDLs into water quality control plans, NPDES permits, and waste discharge requirements (WDRs) in accordance with a specified schedule for completion. The San Francisco Bay RWQCB develops TMDLs for the Contra Costa County area.

Section 401—Water Quality Certification

Section 401 of the CWA requires compliance with State water quality standards for actions within State waters. Under CWA Section 401, an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) must first obtain a certificate from the appropriate agency stating that the fill is consistent with the State's water quality standards and criteria. In California, the State Water Board delegates authority to either grant water quality certification or waive the requirements to the nine RWQCBs. The San Francisco Bay RWQCB is responsible for the project site.

Section 402—National Pollution Discharge Elimination System Permits

The RWQCBs administer the NPDES stormwater permitting program, under Section 402(d) of the federal CWA, on behalf of EPA. The objective of the NPDES program is to control and reduce levels of pollutants in water bodies from discharges of municipal and industrial wastewater and stormwater runoff. CWA Section 402(d) establishes a framework for regulating nonpoint-source stormwater discharges (33 USC 1251). Under the CWA, discharges of pollutants to receiving water are prohibited unless the discharge complies with an NPDES permit. The NPDES permit specifies discharge prohibitions, effluent limitations, and other provisions, such as monitoring deemed necessary to protect water quality based on criteria specified in the National Toxics Rule (NTR), the California Toxics Rule (CTR), and the basin plan.

Discharge prohibitions and limitations in an NPDES permit for wastewater treatment plants are designed to maintain public health and safety, protect receiving-water resources, and safeguard the water's designated beneficial uses. Discharge limitations typically define allowable effluent quantities for flow, biochemical oxygen demand, total suspended matter, residual chlorine, settleable matter, total coliform, oil and grease, pH, and toxic pollutants. Limitations also typically encompass narrative requirements regarding mineralization and toxicity to aquatic life. Under the NPDES permits issued to the City/County to operate the treatment plants, the City/County is required to implement a pretreatment program. This program must comply with the regulations incorporated in the CWA and the General Pretreatment Regulations (Code of Federal Regulations [CFR] Title 40, Part 403 [40 CFR 403]).

Section 401—Water Quality Certification

Section 404 of the CWA regulates temporary and permanent fill and disturbance of wetlands and waters of the United States. Under Section 404, the discharge (temporary or permanent) of dredged or fill material into waters of the United States, including wetlands, typically must be authorized by the United States Army Corps of Engineers (USACE) through either the Nationwide Permit (general categories of discharges with minimal effects) or the Individual Permit.

River and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires that regulated activities conducted below the ordinary high-water elevation of navigable waters of the United States be approved and permitted by the USACE. Regulated activities include the placement or removal of structures, work involving dredging, disposal of dredged material, filling, excavation, or any other disturbance of soils/sediments or modification of a navigable waterway. Navigable waters of the United States are those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high-water mark and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. Section 10 also regulates tributaries and backwater areas that are associated with navigable waters of the United States and are located below the ordinary high-water elevation of the adjacent navigable waterway.

A project proponent can apply for a permit/letter of permission for work regulated under Section 404 (CWA) and Section 10 (Rivers and Harbors Act) by completing and submitting one application form. An application for a USACE permit will serve as an application for both Section 404 and Section 10 permits.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect existing water uses, water quality, and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- Existing instream uses and the water quality necessary to protect those uses shall be maintained and protected.

- Where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development.
- Where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

National Toxics Rule and California Toxics Rule

In 1992, the EPA promulgated the NTR under the CWA to establish numeric criteria for priority toxic pollutants for 14 states to bring all states into compliance with the requirements of CWA Section 303(c)(2)(B). The NTR established water quality standards for 42 pollutants not covered under California's Statewide water quality regulations at that time. As a result of the court-ordered revocation of California's Statewide basin plans in September 1994, the EPA initiated efforts to promulgate additional federal water quality standards for California. In May 2000, the EPA issued the CTR, which includes all the priority pollutants for which the EPA has issued numeric criteria not included in the NTR.

Executive Order 11988

Executive Order 11988, "Floodplain Management," directs all federal agencies to avoid, to the extent possible, long- and short-term adverse impacts of occupancy and modification of floodplains, and to avoid supporting development in a floodplain either directly or indirectly wherever there is a practicable alternative. Compliance requirements are outlined in 23 Code of Federal Regulations 650, Subpart A, "Location and Hydraulic Design of Encroachment on Floodplains."

If a project involves significant encroachment into the floodplain, the final environmental document must include:

- The reasons why the proposed action must be located in the floodplain,
- Alternatives considered and the reasons they were not practicable, and
- A statement indicating whether the action conforms to applicable state or local floodplain protection standards.

National Toxics Rule and California Toxics Rule

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were enacted to reduce the need for flood protection structures and limit disaster relief costs by restricting development in floodplains. FEMA, established in 1979, is responsible for predicting hazards from flooding events and forecasting the level of inundation under various conditions. As part of its duty to develop standards for delineating fluvial and coastal floodplains, FEMA provides information on FIRMs about the potential for flood hazards and inundation and, where appropriate, designates regions as special flood hazard areas. Special flood hazard areas are defined as areas that have a 1 percent chance of flooding in a given year.

FEMA also administers the NFIP, a federal program that enables property owners in participating communities to purchase insurance as protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) is California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The RWQCBs are required to formulate and adopt basin plans for all areas in the region and establish water quality objectives in the plans. The Porter-Cologne Act sets forth the obligations of the State Water Board and RWQCBs to adopt and periodically update basin plans. The San Francisco Bay RWQCB is responsible for the project site.

Basin plans are the regional water quality control plans required by both the CWA and the Porter-Cologne Act that establish beneficial uses, water quality objectives, and implementation programs for each of the nine regions in California. The Act also requires waste dischargers to notify the RWQCBs of their activities by filing reports of waste discharge and authorizes the State Water Board and RWQCBs to issue and enforce WDRs, NPDES permits, CWA Section 401 water quality certifications, or other approvals. The RWQCBs are also authorized to issue waivers to reports of waste discharge and WDRs for broad categories of "low threat" discharge activities that have minimal potential to cause adverse water quality effects when implemented according to prescribed terms and conditions.

National Pollutant Discharge Elimination System

The NPDES permits all involve similar processes, which include submitting notices of intent for discharging to water in areas under the San Francisco Bay RWQCB's jurisdiction and implementing Best Management Practices (BMPs) to minimize those discharges. The San Francisco Bay RWQCB may also issue site-specific WDRs, or waivers to WDRs, for certain waste discharges to land or waters of the State.

Construction Activity

The State Water Board stormwater general permit for construction activity (Order 2009-009-DWQ, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) applies to all construction activities that would disturb 1 acre of land or more. Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters.

Through the NPDES and WDR processes, the State Water Board seeks to ensure that the conditions at a project site during and after construction do not cause or contribute to direct or indirect impacts on water quality (i.e., pollution and/or hydromodification) upstream and downstream. To comply with the requirements of the construction general permit, the project applicant must file a notice of

intent with the State Water Board to obtain coverage under the permit; prepare a Storm Water Pollution Prevention Plan (SWPPP); and implement inspection, monitoring, and reporting requirements appropriate to the project's risk level as specified in the SWPPP. The SWPPP includes a site map, describes construction activities and potential pollutants, and identifies BMPs that will be employed to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources, such as petroleum products, solvents, paints, and cement. The permit also requires the discharger to consider using post-construction permanent BMPs that will remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements.

Project sites served by the combined sewer system are not required to obtain coverage under the NPDES construction general permit.

Industrial General Stormwater Permit

The Statewide stormwater NPDES permit for general industrial activity (Order 2014-0057-DWQ, superseding Order 97-03-DWQ) regulates discharges associated with 10 broad categories of industrial activities, such as operation of wastewater treatment works, and with recycling facilities. The industrial general permit requires the implementation of Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to achieve performance standards. The permit also requires development of a SWPPP that identifies the site-specific sources of pollutants and describes the measures at the facility applied to reduce stormwater pollution. A monitoring plan is also required.

Stormwater

In November 1990, the EPA published regulations establishing NPDES permit requirements for municipal and industrial stormwater discharges. Phase I of the permitting program applied to municipal discharges of stormwater in urban areas where the population exceeded 100,000 persons. Phase II of the NPDES stormwater permit regulations, which became effective in March 2003, required that NPDES permits be issued for construction activity for projects disturbing 1–5 acres. Phase II of the municipal permit system (known as the NPDES General Permit for Small MS4s, Order No. 2003-0005-DWQ as amended by 2013-0001-DWQ) required small municipalities of fewer than 100,000 persons to develop stormwater management programs. This permit authorizes discharges of stormwater and some categories of non-stormwater that are not "significant contributors of pollutants."

California Toxics Rule and State Implementation Policy

The CTR, presented in 2000 in response to requirements of EPA's NTR, establishes numeric water quality criteria for approximately 130 priority pollutant trace metals and organic compounds. The CTR criteria are regulatory criteria adopted for inland surface waters, enclosed bays, and estuaries in California that are on the CWA Section 303(c) list for contaminants. The CTR includes criteria for the protection of aquatic life and human health. Human health criteria (water- and organism-based) apply to all waters with a municipal and domestic water supply beneficial use designation as indicated in the basin plans. The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, also known as the State Implementation Policy,

was adopted by the State Water Board in 2000. It establishes provisions for translating CTR criteria, NTR criteria, and basin plan water quality objectives for toxic pollutants into:

- NPDES permit effluent limits,
- Effluent compliance determinations,
- Monitoring for 2,3,7,8-tcdd (dioxin) and its toxic equivalents,
- Chronic (long-term) toxicity control provisions,
- Site-specific water quality objectives, and
- Granting of effluent compliance exceptions.

The goal of the State Implementation Plan is to establish a standardized approach for permitting discharges of toxic effluent to inland surface waters, enclosed bays, and estuaries throughout the State.

Local

Contra Costa County General Plan

General Plan Conservation Element

The General Plan Conservation Element set forth the following applicable goals and policies that are relevant to hydrologic resources:

- **Goal 8-T:** To conserve, enhance, and manage water resources, protect their quality, and assure an adequate long-term supply of water for domestic, fishing, industrial and agricultural use.
- **Goal 8-U:** To maintain the ecology and hydrology of creeks and streams and provide an amenity to the public, while at the same time preventing flooding, erosion and danger to life and property.
- **Goal 8-W:** To employ alternative drainage system improvements which rely on increased retention capacity to lessen or eliminate the need for structural modifications to watercourses, whenever economically possible.
- **Goal 8-X:** To enhance opportunities for public accessibility and recreational use of creeks, streams, drainage channels and other drainage system improvements.
- **Policy 8-74:** Preserve watersheds and groundwater recharge areas by avoiding the placement of potential pollution sources in areas with high percolation rates.
- **Policy 8-77:** Provide development standards in recharge areas to maintain and protect the quality of groundwater supplies.
- **Policy 8-87:** On-site water control shall be required of major new developments so that no increase in peak flows occurs relative to the site's pre-development condition, unless Planning Agency determines that off-site measures can be employed which are equally effective in preventing adverse downstream impacts.

Contra Costa County Ordinance Code

Section 914-2.002 requires that all portions of a subdivision shall be protected from flood hazards and storm drainage facilities within the subdivision shall be designed and constructed in compliance with current specifications and design standards of the Public Works Department. Division 1014, Stormwater Management and Discharge carries out the conditions in the County's NPDES permit

issued by the San Francisco Bay RWQCB that require implementation of appropriate source control and site design measures and stormwater treatment measures for projects that create or replace 1 acre or more of impervious surface.

3.9.4 - Impacts and Mitigation Measures

Significance Criteria

According to CEQA Guidelines Appendix G, to determine whether impacts related to hydrology and water quality are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

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?

Approach to Analysis

Impacts related to hydrology and water quality were determined by reviewing information regarding regional and local hydrology, climate, topography, and geology contained in the Contra Costa County General Plan and EIR and San Francisco Bay RWQCB Basin Plan, FEMA FIRMs, and project utility plans. Evaluation of impacts is based on comparison of existing conditions to the project's built condition, such as changes in impervious area and facilities located within flood zones. Specifically, the impact evaluation focuses on effects on surface and groundwater quality, groundwater supply, and drainage (in terms of erosion, siltation, flooding, stormwater system exceedance, and polluted runoff). Water quality conditions are compared with water quality standards and WDRs by identifying potential contaminants and pollution pathways, amount of impervious area, and runoff treatment requirements. Finally, as part of the analysis, inundation and flooding on the project site

is assessed by reviewing potential inundation zone elevations relative to the final grade elevations of facilities and features for the project.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of Hydrology and Water Quality impacts resulting from implementation of the project.

- Violate any water quality standards or waste discharge requirements established by a regulatory body with jurisdiction over the project area.
- Deplete groundwater supplies or interfere with groundwater recharge such that the production rate or volumes of wells or aquifers would drop.
- Alter an existing drainage pattern through alteration of the course of a stream or river or increased impervious surfaces and resulting in erosion, siltation, or flooding on- or off-site.
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Expose people to pollutants due to inundation related to flooding, tsunami, or seiche.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impact Evaluation

Surface and Groundwater Quality

Impact HYD-1:	**The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.**

Construction

Construction activities would expose soils on the project site to potential water erosion and construction equipment-related pollutants. Runoff carrying eroded soils and pollutants could enter storm drainage systems and enter Walnut Creek, increasing sedimentation and degrading downstream water quality. These sediments also would be carried downstream and discharged into the Suisun Bay leading to the San Francisco Bay and Pacific Ocean, degrading surface water quality, or allowed to seep into the associated groundwater table. This would represent a potentially significant construction impact related to surface and groundwater quality.

Given that proposed construction would disturb more than 1 acre of land, the project would be required to comply with the terms of NPDES permits and the Contra Costa County Ordinance Code Chapter 1014-4, which requires the preparation and implementation of a SWPPP. The SWPPP includes BMPs to ensure reduction of pollutants from construction activities potentially entering surface waters. Additionally, implementation of the SWPPP would also prevent pollutants from entering the Ygnacio groundwater basin by preventing pollutants from moving off-site. As described in Section 3.6, Geology and Soils, the project site contains soils that are poorly drained and would prevent pollutants from seeping into groundwater.

Although construction activities have the potential to generate increased sedimentation, compliance with Contra Costa County Ordinance Code Division 1014 would minimize the potential to degrade water quality in downstream water bodies to the maximum extent possible. As a result, construction-related project impacts related to surface and groundwater and respective water quality would be less than significant.

Operation

The project site is located in an urbanized area with mostly pervious surfaces. Project operation would generate runoff, which may carry pollutants, such as pesticides, fertilizers, and deposits of fluids and metals from motor vehicles into Walnut Creek or allow seepage of such pollutants into the associated groundwater table. This would represent a potentially significant operational impact related to surface and groundwater quality.

The project would increase impervious surfaces compared to existing conditions, and would therefore would generate increased amounts of runoff that could carry pollutants into Walnut Creek or groundwater basins. However, the project would comply with the County's NPDES program and the CCCWP, and all County Ordinance Codes related to stormwater pollution, which would minimize the potential to degrade water quality in downstream water bodies to the maximum extent possible. Furthermore, the project site's existing soils are poorly drained and seepage of pollutants into the groundwater basin would be unlikely. Therefore, operation-related project impacts related to surface and groundwater and respective water quality would be less than significant.

Level of Significance

Less Than Significant

Groundwater Supply/Recharge

Impact HYD-2:	**The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.**

Construction

Impacts related to depletion of groundwater supplies or interference with groundwater recharge are limited to operational impacts. No respective construction impacts would occur.

Operation

The project would develop a 2.37-acre project site that is mostly composed of pervious surfaces. The project site contains groundwater depths of 15 to 20 feet.[10] In addition, the project site's clay and silty fine soils are poorly drained, and therefore would not be expected to impact groundwater supplies or recharge. In addition, the CCWD does not utilize groundwater as a water source.

Compared to existing conditions, the project would increase impervious surfaces. However, the project would not significantly impact groundwater recharge rate due to the existing soils and groundwater depth. As discussed in Section 3.17, Utilities and Service Systems, the CCWD would be

[10] ENGEO. Geotechnical Report, page 4. April 6, 2018.

able to provide adequate water services to the project site and the rest of its service area during normal, dry, and multiple dry years under its Water Conservation Plan, and no groundwater would be used. Thus, the project would not interfere substantially with groundwater supply, recharge, or groundwater management. Therefore, impacts related to groundwater recharge and supply would be less than significant.

Level of Significance

Less Than Significant

Drainage Leading to Erosion/Siltation, Flooding, Additional Sources of Polluted Runoff, or Impedance of Flood Flows

Impact HYD-3: **The project could 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?

i) Construction-related Erosion and Siltation

The project would have a significant impact if it were to substantially alter the existing drainage pattern of the site in a manner that would result in substantial erosion or siltation on- or off-site. Such drainage effects could occur from grade changes at the project site, exposure of soils for periods of time during stormwater discharge, or alterations to creek beds. These types of changes would have a potentially significant impact to on-site drainage patterns.

The project would involve grading and construction of a 2.37-acre project site that is currently composed of pervious surfaces. Construction activity could result in substantial erosion or siltation, leading to drainage pattern alteration and the potential for polluted runoff entering Walnut Creek, which is located approximately 1,500 feet to the east. This would represent a potentially significant impact.

However, implementation of Mitigation Measure (MM) HYD-3 would ensure the project complies with regulations of the NPDES permit consistent with Division 1014 of the Ordinance Code. Additionally, as part of compliance with Ordinance Code Division 1014 the project would be required to prepare and implement a SWPPP. The SWPPP would be designed to ensure that erosion, siltation, and flooding are prevented or minimized to the maximum extent feasible during construction. In addition, the SWPPP includes both structural (physical devices or measures) and operational (timing of construction) BMPs, that prevent or reduce the discharge of pollutants directly or indirectly into waterbodies. Therefore, the construction impact related to alteration of drainage patterns resulting in erosion or siltation would be less than significant.

Operation-related Erosion and Siltation

The project site is located in an urbanized area and primarily consists of pervious surfaces. Development of the project site would increase impervious surfaces compared to existing conditions. Thus, project operation could result in increased amounts of stormwater runoff that could carry pollutants into Walnut Creek.

However, implementation of MM HYD-3 would ensure the project collects and conveys stormwater entering or originating from the project site consistent with Division 914 of the Ordinance Code, and the project applicant prepares and submits a Final Storm Water Control Plan and Stormwater Control Operation and Maintenance Plan to the County Public Works Department for approval. In addition, the project would comply with the County's NPDES program and the CCCWP, and all relevant provisions of the Ordinance Code related to stormwater pollution. Therefore, the operational impact related to alteration of drainage pattern resulting in erosion or siltation would be less than significant.

ii) Construction-related Surface Runoff

Impacts related to the potential for the project to increase the rate or amount of surface runoff resulting in flooding are limited to operational impacts. As such, no construction impacts would occur.

Operation-related Surface Runoff

The project would develop a 2.37-acre project site composed of mostly pervious surfaces. At operation, the project would result in 83,228 square feet of building roof coverage and 21,305 square feet of landscaped space.[11] Compared to existing conditions, the project would result in an increase of 78,320 square feet of impervious surfaces. This would represent a potentially significant impact.

The applicant will be required to comply with Division 914 collect and convey requirements, and MM HYD-3, which requires that the site discharge to facilities with adequate capacity or that the downstream facilities be made adequate for runoff from and through the site. Therefore, operation of the project would not result in substantial off-site flooding.

On-site drainage flows first to C.3 facilities, which includes an underground detention pipe system with a high-flow rate media filter and pump to overcome the lack of fall and regulate flow from the C.3 facility to pre-project flow rates for small storms in accordance with C.3 hydro-modification requirements. An overflow pipe shall be included in the design for larger storms and to convey flow should the pump system fail. As such, the operation of the project would not result in substantial on-site flooding. Therefore, the operational impact related to increased impervious surfaces in turn increasing the rate or amount of surface runoff resulting in flooding would be less than significant.

iii) Construction-related Exceedance of Storm Drain Capacity

The project would be required to implement a SWPPP as part of its Construction General Permit to ensure that additional sources of polluted runoff is prevented during construction. Thus, construction of the project would not create or contribute runoff water that would provide substantial additional sources of polluted runoff. Therefore, the construction impact related to additional sources of polluted runoff would be less than significant.

[11] BKF. Del Hombre Due Diligence, Appendix C. May 23, 2018.

Operation-related Exceedance of Storm Drain Capacity

The project would result in increased impervious surface area and increased runoff. The project would drain most of the site to an underground detention pipe system along the northern portions of the property. The project would divert additional runoff from DA44 to DA44B via an existing 24-inch storm drain pipe that connects to the 84-inch storm drain line in the Iron Horse Trail.[12] Such a diversion would conflict with Contra Costa County Code 914-2.004 and would require an exception request in conjunction with the tentative map (pursuant to Contra Costa County Code, Chapter 92.6). The underground detention basin would be privately maintained, and because it is only necessary to meet C.3 requirements and is not necessary to meet collection and conveyance requirements as set forth in the Contra Costa County Ordinance Code Division 914, the detention system would not require an exception. Implementation of MM HYD-3 would ensure the project collects and conveys stormwater entering or originating from the project site in accordance with Division 914 of the Ordinance Code. MM HYD-3 would also ensure that the project complies with regulations of the NPDES permit, and that the project applicant prepares and submits a Final Storm Water Control Plan and Stormwater Control Operation and Maintenance Plan to the County Public Works Department for approval.

In addition, consistent with Provision C.3 San Francisco Bay Regional Municipal Stormwater NPDES Permit, Low Impact Development (LID) techniques are required to be implemented in order to treat stormwater runoff. LID techniques such as bioretention areas, allow for stormwater infiltration into the soil and detain stormwater on-site in order to reduce peak flows and prevent erosion and siltation. Per the Municipal Regional Stormwater Permit Order No. R2-0074, certain "Special Projects" are eligible for LID Treatment Reduction Credits.[13] The LID Treatment Reduction Credit is the maximum percentage of the amount of runoff that may be treated with non-LID treatment measures, such as tree-box-type high flowrate biofilters or vault-based high flowrate media filters.[14] The project would be eligible for a 100 percent LID Treatment Reduction Credit due to the project site being located within one-quarter mile of a transit hub, having a project housing density greater than 100 units per acre, and having zero surface parking. A 100 percent LID Treatment Credit would allow 100 percent of the runoff to be treated with mechanical treatment.

Furthermore, compliance with the CCCWP and County Ordinance Code would ensure that project operation would not create runoff that exceeds the capacity of existing or planned stormwater drainage systems or provide sources of stormwater or polluted runoff. Thus, operation of the project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems (see Impact UTIL-1) or provide substantial additional sources of polluted runoff. Therefore, the operational impact related to additional sources of polluted runoff would be less than significant with mitigation.

iv) Construction-related Impacts to Flood Flows

Impacts related to impedance of flood flows would only occur during the operational phase of the project. As such, no construction impedance of flood flow impacts would occur.

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[12] BKF Engineers. 2018. Del Hombre Apartment Project—Annexation to Drainage Area 44B. October.
[13] BKF. Del Hombre Due Diligence. May 23, 2018.
[14] *Ibid.*

Operation-related Impacts to Flood Flows

The project would not be located in an area prone to flooding or within a designated flood hazard zone. As described in further detail under Impact HYD-4, the project site is not susceptible to inundation from flood hazards, tsunamis, or seiches. As a result, the project would not impede of redirect flood flows. Therefore, there would be no operational impedance of flood flow impact.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM HYD-3 Prepare Drainage Plan Prior to Grading

- In accordance with Division 914 of the Ordinance Code, the project applicant shall collect and convey all stormwater entering and/or originating on this property, without diversion and within an adequate storm drainage facility, to a natural watercourse having definable bed and banks, or to an existing adequate public storm drainage system that conveys the stormwater to a natural watercourse. Any proposed diversions of the watershed shall be subject to hearing body approval. Prior to issuance of a grading permit, the applicant shall submit improvement plans for proposed drainage improvements, and a drainage report with hydrology and hydraulic calculations to the Engineering Services Division of the Public Works Department for review and approval that demonstrates the adequacy of the in-tract drainage system and the downstream drainage system. The applicant shall verify the adequacy at any downstream drainage facility accepting stormwater from this project between the site and the outfall of the downstream storm drain system to the Walnut Creek Channel prior to discharging runoff. If the downstream system(s) is not adequate to handle the Existing Plus Project condition for the required design storm, improvements shall be constructed to make the system adequate. The applicant shall obtain access rights to make any necessary improvements to off-site facilities.
- Comply with all rules, regulations and procedures of the National Pollutant Discharge Elimination System (NPDES) for municipal, construction and industrial activities as promulgated by the California State Water Resources Control Board, or any of its Regional Water Quality Control Boards (San Francisco Bay—Region II); and
- Submit a Final Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan (O+M Plan) to the Public Works Department, which shall be reviewed for compliance with the County's National Pollutant Discharge Elimination System (NPDES) Permit and shall be deemed consistent with the County's Stormwater Management and Discharge Control Ordinance (Division 1014) prior to issuance of a building permit. Improvement Plans shall be reviewed to verify consistency with the Final Stormwater Control Plan and compliance with Provision C.3 of the County's NPDES Permit and the County's Stormwater Management and Discharge Control Ordinance (Division 1014).

Level of Significance After Mitigation

Less Than Significant with Mitigation

Risk of Pollutant Release Due to Inundation

Impact HYD-4: The project would not be located in a flood hazard zone, tsunami, or seiche zone, or risk release of pollutants due to project inundation.

Construction

Impacts related to inundation are limited to operational impacts. As such, no construction impacts would occur.

Operation

The project site is not located within a designated FEMA flood hazard zone or 100-year flood zone. According to the FEMA Flood Map Service Center, the project site is located within Zone X "Area of Minimal Flood Hazard." In addition, the closest designated flood hazard zone to the project site is along Walnut Creek, located approximately 1,500 feet to the east. The Contra Costa County General Plan identifies the areas immediately adjacent to Walnut Creek as a 100-year flood zone. The project site is not adjacent to Walnut Creek and would not be located within a recognized flood hazard area.

The project site is not located near the ocean, and as such would not be susceptible to inundation from a tsunami. The project site is not located near a large, enclosed body of water and as such would not be susceptible to inundation from a seiche. As a result, the project site would not be a risk for inundation from flooding, tsunami, or seiche. Therefore, impacts related to risk of pollutant release due to inundation would be less than significant.

Level of Significance

Less Than Significant

Water Quality Control or Sustainable Groundwater Management Plans Consistency

Impact HYD-5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Construction

The project would not conflict with the County Watershed Program and the County's NPDES program. Given that proposed construction would disturb more than 1 acre of land, the project would be required to comply with the terms of the Construction General Permit, which require the preparation and implementation of a SWPPP that includes BMPs to ensure reduction of pollutants from construction activities potentially entering surface waters. Therefore, construction impacts related to water quality control plan or groundwater management plan consistency would be less than significant.

Operation

The project site is located within the Ygnacio Valley Groundwater Basin. The project site has little potential for groundwater recharge due to poorly drained soils and shallow groundwater levels. In addition, CCWD would provide potable water to the project site and does not use groundwater as a water source. As a result, the project would not conflict with or obstruct a sustainable groundwater management plan. Therefore, operational impacts related to a water quality control plan or groundwater management plan consistency would be less than significant.

Level of Significance

Less Than Significant

3.9.5 - Cumulative Impacts

Hydrology

Cumulative impacts related to hydrology and water quality typically occur within a defined watershed. All properties on the cumulative projects list in Table 3-1 are located within the Walnut Creek Watershed, and all respective surface water in the watershed eventually discharges into Suisun Bay. Some cumulative projects are located within Contra Costa County, including the project, and would be required to comply with the CCCWP and Contra Costa County General Plan policies, which prevent a project from increasing off-site surface water flow from existing conditions and ensure that projects adhere to best practices during construction to prevent pollutants from being carried off-site. Some cumulative projects are located in the Cities of Pleasant Hill and Walnut Creek. Cumulative development in the City of Walnut Creek would be required to demonstrate consistency with the City of Walnut Creek General Plan and applicable codes, ordinances, and policies related to preventing pollutants from being conveyed off-site. Cumulative development in the City of Pleasant Hill would be required to demonstrate consistency with the City of Pleasant Hill General Plan and applicable codes, ordinances, and policies related to preventing pollutants from being conveyed off-site. The combination of these policies and best practices would prevent significant cumulative impacts to hydrology. Thus, there would be a less than significant cumulative impact related to hydrology.

Water Quality

The geographic context for consideration of cumulative impacts related to surface water quality is the Walnut Creek Watershed. All cumulative projects, including the project, would involve short-term construction and long-term operational activities that would have the potential to degrade water quality in downstream water bodies, including Walnut Creek and Suisun Bay. All cumulative project construction would be required to obtain a Construction General Permit from the State Water Board, which would require preparation of a SWPPP that would control potential discharges of contaminants into Walnut Creek and Suisun Bay. Operations of these cumulative projects would be required to comply with the CCCWP, County Ordinance Code regarding stormwater, or the Cities of Walnut Creek and Pleasant Hill applicable codes, ordinances, and policies related to water quality. Development in the County would be required to implement similar measures in accordance with adopted regulations, while projects would be subject to the Construction General Permit if applicable. Development in the City of Walnut Creek would be required to implement similar measures in accordance with adopted regulations, while projects would be subject to the

Construction General Permit if applicable. Development in the City of Pleasant Hill would be required to implement similar measures in accordance with adopted regulations, while projects would be subject to the Construction General Permit if applicable. Thus, there would be a less than significant cumulative impact related to surface water quality.

The geographic context for consideration of cumulative impacts related to groundwater quality and management is the Ygnacio Valley Groundwater Basin. All cumulative projects, including the project, would involve short-term construction and long-term operational activities that would have the potential to impact groundwater quality and management. All cumulative project construction would be required to obtain a Construction General Permit from the State Water Board, which would require preparation of a SWPPP that would control pollutants that could seep into groundwater. Operations of cumulative projects in Contra Costa County would be required to comply with the CCCWP and the County Ordinance Code regarding groundwater. Operations of cumulative projects in Walnut Creek would be required to comply with the CCCWP and the City of Walnut Creek Ordinance Code regarding groundwater. Operations of cumulative projects in Pleasant Hill would be required to comply with the CCCWP and the City of Pleasant Hill Ordinance Code regarding groundwater. Thus, there would be a less than significant cumulative impact related to groundwater quality.

Level of Cumulative Significance

Less Than Significant

3.10 - Land Use and Planning

3.10.1 - Introduction

This section describes existing conditions related to land use and planning as well as the relevant regulatory framework. This section also evaluates the possible impacts related to land use and planning that could result from implementation of the project. Information included in this section is based on review of applicable land use policies and regulations, including the Contra Costa County General Plan and Contra Costa County Ordinance Code. During the Environmental Impact Report (EIR) scoping period, the following comments were received related to land use and planning:

- Question as to whether the proposed 284-unit project exceeds the current zoning for 45 units per acre;
- Suggestion that the project should be located on a bigger site to ensure adequate setbacks and greenspace; and
- Question as to whether the height of the project would exceed the current height maximum of six stories.

3.10.2 - Environmental Setting

Physical Land Use

Surrounding Area

To the West

The Pleasant Hill/Contra Costa Centre Bay Area Rapid Transit (BART) station and Interstate 680 are located to the west of the project site, approximately 0.12 mile and 0.36 mile, respectively. The Iron Horse Regional Trail runs parallel to and immediately west of Del Hombre Lane. The Iron Horse Regional Trail spans a distance of 32 miles; it starts in Concord near Highway 4 then runs south traversing the cities of Walnut Creek, Alamo, Danville, and San Ramon, where it terminates at Shadow Cliffs Regional Recreation Area.[1] Block C of the Specific Plan, consisting of 200 apartment units, is currently under construction southwest of the project site across Del Hombre Lane. The Avalon Walnut Creek portion of Block C, an apartment complex, is to the south of the Pleasant Hill/Contra Costa Centre BART station. The Pleasant Hill/Contra Costa Centre BART station and Avalon Walnut Creek are within unincorporated Contra Costa County.

To the North

Multi-family apartments are located to the north (on Las Juntas Way and Santos Way and Roble Road). There are single-family homes further north across the BART tracks that run parallel to Las Juntas Way before Las Juntas Way turns north. The BART tracks delineate unincorporated Contra Costa County from the City of Walnut Creek, and these single-family homes are in the City of Walnut Creek.

[1] East Bay Regional Park District. 2018. Iron Horse Regional Trail. Website: https://www.ebparks.org/parks/trails/iron_horse/default.htm. Access November 15, 2018.

To the East

Multi-family homes are located to the east of the project site (on Roble Road and Santos Lane). There are single-family homes within unincorporated Contra Costa County further east. Walnut Creek forms the eastern County boundary, and the Countrywood Planned Community is within the City of Walnut Creek just to the east of the County line.

To the South

There are multi-family apartments to the south of the project site (on Honey Trail). The Eaves Walnut Creek is a multi-family apartment complex further to the south of the project site just north of Treat Boulevard.

Project Site

The 2.37-acre project site consists of five assessor's parcels, as shown in Exhibit 2-3 and listed in Table 3.10-1. The site is bound by Del Hombre Lane to the west as well as the Iron Horse Regional Trail (just west of Del Hombre Lane), Roble Road to the north, Avalon Walnut Ridge Apartments to the east, and Honey Trail to the south.

Table 3.10-1: Project Site Assessor's Parcel Numbers

Assessor's Parcel Numbers	Addresses	Ownership
148-170-042	3070 Del Hombre Lane	Reco Investors, LLC (Private)
148-170-037	112 Roble Road	Duncan (Private)
148-170-041	3050 Del Hombre Lane	3000 Del Hombre Holdings, LLC (Private)
148-170-001	3010 Del Hombre Lane	Kohler Trust Et Al (Private)
148-170-022	3018 Del Hombre Lane	McKeen (Private)
Source: Contra Costa County 2018.		

The project site is relatively flat and is currently occupied by two single-story residential houses (3018 Del Hombre Lane and 112 Roble Road), which are 1,040 gross square feet (gsf) and 1,465 gsf, respectively.[2] The property at 3018 Del Hombre Lane also has an attached garage that is 380 gsf.[3] In addition, there is also an unmaintained concrete path with an east-west orientation in the center of the project site that does not connect to anything within or on the project site. In addition, there are various fences and pole-mounted electrical light, power, and telecommunication lines throughout and around the project site. There are no streets or light poles currently on the project site.[4]

[2] Contra Costa County Assessor's Parcel Map. 2018. Website: https://ccmap.cccounty.us/Html5/index.html?viewer=CCMAP. Accessed December 5, 2018.

[3] Zillow. 3018 Del Hombre Lane. Website: https://www.zillow.com/homedetails/3018-Del-Hombre-Ln-Walnut-Creek-CA-94597/18387555_zpid/. Accessed December 5, 2018.

[4] BKF. 2018. Del Hombre Utility Due Diligence. May.

Land Use Designations and Zoning

Surrounding Area

Exhibits 2-5 and 2-6 depict the land use designations and zoning for surrounding properties, as described below. Exhibit 3.10-1 depicts the existing land jurisdiction.

To the West

The Contra Costa County General Plan designates the surrounding area west of the project site as Public and Semi-Public and Pleasant Hill BART Mixed Use (M-3) further to the west. The Contra Costa County Zoning Map zones the surrounding area directly west of the project as Planned Unit District (P-1) and zones northwest of the project site as Single-Family Residential (R-15).

To the North

The Contra Costa County General Plan designates the surrounding area north of the project site as Multiple-Family Residential Very-High Density (MV). The Contra Costa County Zoning Map zones the surrounding area north of the project site as P-1.

To the East

The Contra Costa County General Plan designates the surrounding area east of the project site as MV. The Contra Costa County Zoning Map zones the surrounding area east of the project site as P-1.

To the South

The Contra Costa County General Plan designates the surrounding area south of the project site as Multiple-Family Residential-Medium Density. The Contra Costa County Zoning Map zones the surrounding area south of the project site as Multiple-Family Residential District (M-17).

Project Site

The Contra Costa County General Plan designates the project site as MV. The Contra Costa County Zoning Map zones the project site as R-15 and P-1.

3.10.3 - Regulatory Framework

Federal

No federal plans, policies, regulations, or laws related to land use and planning are applicable to the project.

State

California Senate Bill 1818

California Senate Bill (SB) 1818, Chapter 928, provides developers with a density bonus and other incentives for constructing lower income housing units within a development provided the developer meets certain requirements, as enumerated in Section 65915(b) of the Government Code:

> 65915 (b) A city, county, or city and county shall grant a density bonus and incentives or concessions described in subdivision (d) when the applicant for the housing development seeks and agrees to construct at least any one of the following:

(1) Ten percent of the total units of a housing development for lower income households, as defined in Section 50079.5 of the Health and Safety Code.

(2) Five percent of the total units of a housing development for very low income households, as defined in Section 50105 of the Health and Safety Code.

(3) A senior citizen housing development as defined in Sections 51.3 and 51.12 of the Civil Code.

(4) Ten percent of the total dwelling units in a condominium project as defined in subdivision (f) of, or in a planned development as defined in subdivision (k) of, Section 1351 of the Civil Code, for persons and families of moderate income, as defined in Section 50093 of the Health and Safety Code.

With respect to parking requirements, Section 65915.p(1) states:

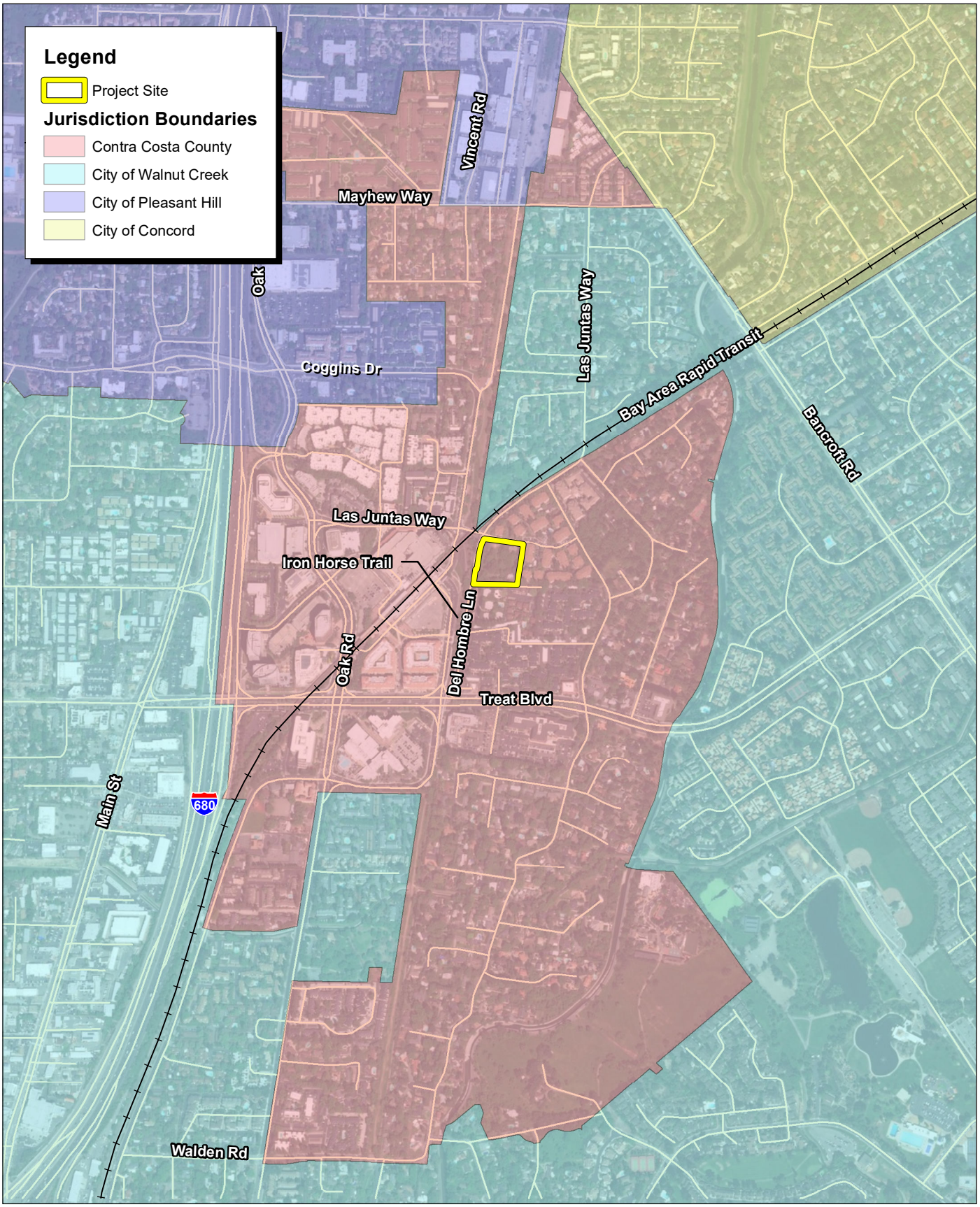
> Upon the request of the developer no city, county, or city and county shall require a vehicular ratio, inclusive of handicapped and guest parking, of a development meeting the criteria of subdivision (b) that exceeds the following ratios:
> (A) Zero to one bedrooms: one on-site parking space
> (B) Two to three bedrooms: two on-site parking spaces

- Contra Costa County Off-Street Parking Ordinance Section 82-16.404(b)(1)(c) requires driveway aisle widths of 25 feet for spaces with an angle of parking of 90 degrees. Pursuant to Section 65915(e) of the California Government Code, the project is requesting a reduction of this development standard to allow a driveway aisle width of 24 feet.

Regional

Plan Bay Area

Plan Bay Area, published by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), is a long-range integrated transportation and land use/housing strategy through 2040 for the Bay Area. Plan Bay Area functions as the sustainable communities' strategy mandated by SB 375. As a regional land use plan, Plan Bay Area aims to reduce per-capita greenhouse gas (GHG) emissions through the promotion of more compact, mixed-use residential and commercial neighborhoods located near transit. Plan Bay Area is built on Priority Development Areas selected and approved by city and county governments with planning grants, technical assistance, and prioritization for regional and State transportation and affordable housing funds. Plan Bay Area is a limited and focused update that builds upon a growth pattern and strategies developed in the original Plan Bay Area (adopted by MTC in 2013) but with updated planning assumptions that incorporate key economic, demographic, and financial trends from the last 4 years.



Source: ESRI Aerial Imagery.

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Exhibit 3.10-1
Existing Land Jurisdiction Map

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Regional Housing Need Plan

In December 2013, the ABAG projected regional housing needs in its Regional Housing Needs Plan for the San Francisco Bay Area: 2015–2023.[5] According to this Plan, unincorporated Contra Costa County's projected housing need from 2015 to 2023 is 1,367 residential units, consisting of:

- 374 units within the very-low-income level (0–50 percent of area median income);
- 218 units within the low-income level (51–80 percent of area median income);
- 243 units within the moderate-income level (81–120 percent of area median income); and
- 532 units within the above-moderate-income level (more than 120 percent of area median income).

Local

Contra Costa County General Plan

The Contra Costa County General Plan serves as the fundamental land use and development policy document and identifies how the unincorporated areas will grow and conserve their resources. The Contra Costa County General Plan contains the following elements: Land Use, Growth Management, Transportation and Circulation, Housing, Public Facilities and Services, Conservation, Open Space, Safety, and Noise.

Within each element, the Contra Costa County General Plan sets forth goals, policies, and implementation measures to guide future development and land use activities. Goals provide a description of general community values and set the direction for more specific policies and implementation programs related to public health, safety, or general welfare. Policies are based upon Contra Costa County General Plan goals and provide a specific statement intended to guide the decision-making body. Implementation measures are specific actions, procedures, programs, or techniques that carry out a General Plan policy.

General Plan Land Use Element

The Contra Costa County General Plan Land Use Element includes land use goals, objectives, and policies, as well as a Land Use Element Map. The map illustrates land use designations throughout the County. The Land Use Element Map designates the site MV (Exhibit 2-5). Pursuant to the General Plan Land Use Element, the MV designation allows between 30.0 and 44.9 multiple-family units per net acre, and site can range up to 1,451 square feet. Primary land uses consist of multiple-family residences including apartments and condominiums as well as accessory buildings and structures ancillary to the primary uses. Secondary land uses that do not conflict with primary uses may also be allowed. These include accessory dwelling units, home occupations, and group care and/or childcare facilities.[6]

Goals and policies as set forth in the Land Use Element that are applicable to the project include the following:

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[5] Association of Bay Area Governments (ABAG). 2013. Regional Housing Need Plan-San Francisco Bay Area: 2015-2023. December. Website: https://abag.ca.gov/planning/housingneeds/pdfs/2015-23_RHNA_Plan.pdf. Accessed December 6, 2018.

[6] Contra Costa County General Plan, Chapter 3: Land Use Element. 2005 (reprint 2010), page 3-21. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30913/Ch3-Land-Use-Element?bidId=. Accessed November 14, 2018.

- **Goal 3-C:** To encourage aesthetically and functionally compatible development which reinforces the physical character and desired images of the County.
- **Goal 3-E:** To recognize and support existing land use densities in most communities, while encouraging higher densities in appropriate areas, such as near major transportation hubs and job centers.
- **Goal 3-F:** To permit urban development only in locations of the County within identified outer boundaries of urban development where public service delivery systems that meet applicable performance standards are provided or committed.
- **Goal 3-J:** To encourage a development pattern that promotes the individuality and unique character of each community in the County.
- **Policy 3-5:** New development within unincorporated areas of the County may be approved, providing growth management standards and criteria are met or can be assured of being met prior to the issuance of building permits in accordance with the Growth Management Program.
- **Policy 3-6:** Development of all urban uses shall be coordinated with provision of essential Community services or facilities including, but not limited to, roads, law enforcement and fire protection services, schools, parks, sanitary facilities, water and flood control.
- **Policy 3-7:** The location, timing and extent of growth shall be guided through capital improvements programming and financing (i.e., a capital improvement program, assessment districts, impact fees, and developer contributions) to prevent infrastructure, facility and service deficiencies.
- **Policy 3-8:** Infilling of already developed areas shall be encouraged. Proposals that would prematurely extend development into areas lacking requisite services, facilities and infrastructure shall be opposed. In accommodating new development, preference shall generally be given to vacant or under-used sites within urbanized areas, which have necessary utilities installed with available remaining capacity, before undeveloped suburban lands are utilized.
- **Policy 3-18:** Flexibility in the design of projects shall be encouraged in order to enhance scenic qualities and provide for a varied development pattern.
- **Policy 3-22:** Housing opportunities for all income levels shall be created. Fair affordable housing opportunities should exist for all economic segments of the county.
- **Policy 3-23:** A diversity of living options shall be permitted while ensuring community compatibility and quality residential development.
- **Policy 3-24:** Housing opportunities shall be improved through encouragement of distinct styles, desirable amenities, attractive design and enhancement of neighborhood identity.
- **Policy 3-25:** Innovation in site planning and design of housing developments shall be encouraged in order to upgrade quality and efficiency of residential living arrangements and to protect the surrounding environment.
- **Policy 3-28:** New residential development shall be accommodated only in areas where it will avoid creating severe unmitigated adverse impacts upon the environment and upon the existing community.

General Plan Growth Management Element

Goals and policies as set forth in the Growth Management Element that are applicable to the project include the following:

- **Goal 4-A:** To provide for the levels of growth and development depicted in the Land Use Element, while preserving and extending the quality of life through the provision of public facilities and ensuring traffic levels of services necessary to protect the public health, safety, and welfare.
- **Policy 4-5:** For the purpose of applying the Traffic Level of Service standards consistent with Measure C-1988 only, unincorporated areas subject to the growth management standards of this Element shall be characterized as Central Business District, Urban, Suburban, Semi-rural and Rural as depicted in Figure 4-2.

General Plan Transportation and Circulation Element

Goals and policies as set forth in the Transportation and Circulation Element that are applicable to the project include the following:

- **Goal 5-C:** To balance transportation and circulation needs with the desired character of the community.
- **Goal 5-D:** To maintain and improve air quality above air quality standards.
- **Goal 5-E:** To permit development only in locations of the County where appropriate traffic level of service standards are ensured.
- **Goal 5-I:** To encourage use of transit.
- **Goal 5-L:** To reduce greenhouse gas emissions from transportation sources through provision of transit, bicycle, and pedestrian facilities.
- **Policy 5-3:** Transportation facilities serving new urban development shall be linked to and compatible with existing and planned roads, bicycle facilities, pedestrian facilities and pathways of adjoining areas, and such facilities shall use presently available public and semi-public rights of way where feasible.
- **Policy 5-4:** Development shall be allowed only when transportation performance criteria are met and necessary facilities and/or programs are in place or committed to be developed within a specified period of time.
- **Policy 5-12:** The use of local and collector roadways for neighborhood circulation shall be encouraged.
- **Policy 5-13:** The use of pedestrian and bicycle facilities shall be encouraged. Proper facilities shall be designed to accommodate bikes, pedestrians, and transit.
- **Policy 5-15:** Adequate lighting shall be provided for pedestrian, bicyclist, and vehicular, safety, consistent with neighborhood desires.
- **Policy 5-16:** Curbs and sidewalks shall be provided in appropriate areas.
- **Policy 5-17:** Emergency response vehicles shall be accommodated in development project design.
- **Policy 5-20:** New development (including redevelopment and rehabilitation projects) shall contribute funds and/or institute programs to reduce parking demand and/or provide adequate parking.

- **Policy 5-21:** New development shall contribute funds and/or institute programs to provide adequate bicycle and pedestrian facilities where feasible.
- **Policy 5-24:** Use of alternative forms of transportation, such as transit, bike and pedestrian modes, shall be encouraged in order to provide basic accessibility to those without access to a personal automobile and to help minimize automobile congestion and air pollution.
- **Policy 5-32:** Local road dimensions shall complement the scale and appearance of adjoining properties.

General Plan Housing Element

Goals and policies as set forth in the Housing Element that are applicable to the project include the following:

- **Goal 6-1:** Maintain and improve the quality of the existing housing stock and residential neighborhoods in Contra Costa County.
- **Goal 6-3:** Increase the supply of housing with a priority on the development of affordable housing, including housing affordable to extremely-low income households.
- **Policy 6-3.3:** Increase the supply of affordable housing and encourage the development of mixed-income housing through the Inclusionary Housing Ordinance.
- **Goal 6-6:** Provide adequate sites through appropriate land use and zoning designations to accommodate the County's share of regional housing needs.

General Plan Public Facilities Element

Goals and policies as set forth in the Public Facilities Element that are applicable to the project include the following:

- **Goal 7-F:** To assure potable water availability in quantities sufficient to serve existing and future residents.
- **Goal 7-J:** To ensure that new development pays the costs related to the need for increased water system capacity.
- **Goal 7-N:** To assure that new development pays the costs related to the need for increased sewer system capacity.
- **Goal 7-T:** To ensure that new development pays its fair share of the costs related to increased runoff created by the development.
- **Goal 7-Y:** To ensure a high standard of fire protection, emergency, and medical response services for all citizens and properties throughout Contra Costa County.
- **Goal 7-AE:** To provide for the safe, efficient, and cost-effective removal of waste from residences, and businesses.
- **Goal 7-AR:** To assure that primary and secondary school facilities are adequate or committed to be adequate, prior to approvals of major applications for residential growth.
- **Policy 7-1:** New development shall be required to pay its fair share of the cost of all existing public facilities it utilizes, based upon the demand for these facilities which can be attributed to new development.

- **Policy 7-2:** New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.
- **Policy 7-21:** At the project approval stage, the County shall require new development to demonstrate that adequate water quantity and quality can be provided. The County shall determine whether (1) capacity exists within the water system if a development project is built within a set period of time, or (2) capacity will be provided by a funded program or other mechanism. This finding will be based on information furnished or made available to the County from consultations with the appropriate water agency, the applicant, or other sources.
- **Policy 7-44:** New development should be required to finance its legal share of the full costs of drainage improvements necessary to accommodate projected peak flows due to the project. Reimbursement from subsequent developments which benefit from the added capacity may be provided.
- **Policy 7-64:** New development shall pay its fair share of costs for new fire protection facilities and services.
- **Policy 7-66:** Sprinkler systems may be required in new residential structures, where necessary to protect health, safety, and welfare.

General Plan Safety Element

Goals and policies as set forth in the Safety Element that are applicable to the project include the following:

- **Goal 10-A:** To protect human life and reduce the potential for serious injuries from earthquakes; and to reduce the risks of property losses from seismic disturbances which could have severe economic and social consequences for the County as a whole.
- **Goal 10-B:** To reduce to a practical minimum injuries and health risks resulting from the effects of earthquake ground shaking on structures, facilities and utilities.
- **Policy 10-10**: Policies regarding liquefaction shall apply to other ground failures which might result from groundshaking but which are not subject to such well-defined field and laboratory analysis.

General Plan Noise Element

Goals and policies as set forth in the Noise Element that are applicable to the project include the following:

- **Goal 11-A:** To improve the overall environment in the County by reducing annoying and physically harmful levels of noise for existing and future residents and for all land uses.
- **Policy 11-2:** The standard for outdoor noise levels in residential areas is a L_{dn} of 60 dB. However, a L_{dn} of 60 dB or less may not be achievable in all residential areas due to economic or aesthetic constraints. One example is small balconies associated with multi-family housing. In this case, second and third story balconies may be difficult to control to the goal. A common outdoor use area that meets the goal can be provided as an alternative.
- **Policy 11-4:** Title 24, Part 2, of the California Code of Regulations requires that new multiple family housing projects, hotels, and motels exposed to a L_{dn} of 60 dB or greater have a

detailed acoustical analysis describing how the project will provide an interior DNL of 45 dB or less. The County also shall require new single-family housing projects to provide for an interior DNL of 45 dB or less.

- **Policy 11-5:** In developing residential areas exposed to a L_{dn} in excess of 65 dB due to single events such as train operation, indoor noise levels due to these single events shall not exceed a maximum A-weighted noise level of 50 dB in bedrooms and 55 dB in other habitable rooms. Single event indoor residential noise levels from airport related causes will be 45 dB CNEL.

Contra Costa County Ordinance Code

Contra Costa County Zoning Ordinance (Title 8) regulates land use and structures in order to implement the goals and policies presented in the Contra Costa County General Plan. The County Ordinance Code provides the basis for how to promote health, safety, and welfare to the public, and preserve and enhance the aesthetics quality of life.

The Contra Costa County Zoning Map zones the site Planned Unit District (P-1) and Single-Family Residential (R-15) (Exhibit 2-6). These designations are described below in more detail.

Planned Unit District (P-1)

As stated in Chapter 84-66.204, the intent of the P-1 district is to allow "diversification in the relationship of various uses, buildings, structures, lot sizes and open space while insuring (sic) substantial compliance with the general plan and the intent of the county code in requiring adequate standards necessary to satisfy the requirements of the public health, safety and general welfare. These standards shall be observed without unduly inhibiting the advantages of large-scale or special area planning."[7]

The following uses are allowed in the P-1 district:[8]

a) Any land use permitted by an approved final development plan that are in harmony with each other, serve to fulfill the function of the planned unit development, and are consistent with the general plan.
b) A detached single-family dwelling on each legally established lot and the accessory structures and uses normally auxiliary to it.
c) Single room occupancy facilities that meet the requirements of Chapter 82-48.
d) In a P-1 district for which residential uses are approved, the following uses are allowed:
    1) Accessory dwelling units complying with the provisions of Chapter 82-24.
    2) Supportive housing, operated by a person with all required state and local agency approvals and licenses, where not more than six person reside.
    3) Transitional housing, operated by a person with all required state and local agency approval and licenses, where not more than six persons reside.
e) Commercial cannabis activities that meet the requirements of Chapter 88-28.

[7] Contra Costa County. 2018. Contra Costa County Ordinance Code, Chapter 84-66.204-Intent and Purpose. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV84LAUSDI_CH84-66PLUNDI. Accessed November 15, 2018.

[8] Contra Costa County. 2018. Contra Costa County Ordinance Code, Chapter 84-66.402-Uses. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV84LAUSDI_CH84-66PLUNDI_ART84-66.2GE_84-66.204INPU. Accessed December 3, 2018.

Article 84-66 establishes the minimum areas for uses within the P-1 zoning district. Article 84-66.8 establishes the residential density requirements for P-1. Table 3.10-2 summarizes these requirements.

Table 3.10-2: P-1 District Development Standards

Development Feature	Requirement
Area (Minimums)	
Residential	Five acres for residential uses except that a mobile home subdivision shall have a minimum of ten acres
Nonresidential	Ten acres for nonresidential uses
Mixed	Fifteen acres for mixed residential and nonresidential uses
Office	No minimum for office uses which do not require heavy vehicular delivery or have easy automobile site access including some ancillary retail, service and residential uses when consistent with the general plan.
Density	
Residential	In computing the net development area to set residential densities, use the general plan as a guide and exclude areas set aside for churches, schools, streets, commercial use or other nonresidential use, but include areas set aside for common open space, outdoor recreation or parks.
Source: Contra Costa County Ordinance Code Articles 84-66.6 and 84-66.8 (2018).	

Single Family Residential District (R-15)

Pursuant to Contra Costa County Ordinance Code Chapter 84-12.402, the following residential uses are permitted in an R-15 district: (1) a detached single-family dwelling on each lot and the accessory structures and uses normally auxiliary to it; (2) residential care facility for the elderly, operated by a person with all required State and local agency approvals or licenses, where no more than six persons reside or receive care, not including the licensee or members of the licensee's family or persons employed as facility staff; and (3) accessory dwelling units.

Bicycle Parking

Section 82-16.412 of the Contra Costa County Ordinance Code sets forth the amounts of long-term and short-term bicycle parking that a project must provide. The County Code requires a multi-family dwelling to provide space for 15 percent of the number of bedrooms for long-term parking, or two spaces (whichever is greater) and space for 5 percent of the number of bedrooms for short-term parking, or two spaces (whichever is greater).[9] Therefore, the project would be required to provide 56 long-term and 19 short-term spaces, for a total of 75 bicycle parking spaces.

[9] Contra Costa County Ordinance Code. 2018. Chapter 82-16.412—Bicycle Parking. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV82GERE_CH82-16OREPA_82-16.412BIPA. Accessed November 26, 2018.

3.10.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 California Environmental Quality Act (CEQA) Guidelines Appendix G, to determine whether impacts related to land use and planning are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Physically divide an established community?

b) Cause a significant environmental impact due to conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Approach to Analysis

The analysis in this section focuses on whether implementing the project would physically divide an established community. It also identifies whether the project would conflict with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Conflicts and inconsistencies with a policy, in and of themselves, do not constitute significant environmental impacts, unless such conflicts or inconsistencies result in direct physical environmental impacts. The physical impacts of the project are discussed throughout Chapter 3.0 of this EIR. Conflicts with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect are discussed. The potential for land use impacts was assessed through review of applicable land use policy documents.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of land use and planning impacts resulting from implementation of the project:

- Development resulting in physically dividing the surrounding community
- Development conflicting with the Contra Costa County General Plan or the Contra Costa County Ordinance Code

Impact Evaluation

Divide an Established Community

Impact LAND-1: The project would not physically divide an established community.

Construction

Impacts related to physical division of an established community are limited to operational impacts. No respective construction impacts would occur.

Operation

The physical division of an established community would occur if the project would involve construction of a large linear feature, such as a railroad or interstate highway or if it would involve removal of access that would impact mobility, such as removal of a bridge. The project involves

development of 284 multi-family residential units and associated amenities and recreational space, as well as parking and demolition of the two existing single-family residences and attached garage. The project does not propose the type of large linear construction that would impact mobility within an existing community and the surrounding area. The Contra Costa County General Plan envisioned redevelopment of the project site within the County limits with residential uses, by applying the MV designation to the project site. The project would not divide an established community. Rather, the project would increase connectivity and pedestrian access by providing pedestrian improvements along Del Hombre Lane (along the project frontage) and Roble Road. As a result, there would be no impact related to physical division of an established community.

Level of Significance

No Impact

Conflict with Applicable Land Use Plans, Policies, or Regulations

Impact LAND-2:	**The project would not cause a significant environmental impact due to conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.**

Development of the project would result in a significant impact if it would conflict with applicable land use plans and policies of the Contra Costa County General Plan or the Contra Costa County Ordinance Code that were adopted for the purpose of avoiding or mitigating an environmental effect. A policy inconsistency is considered a significant adverse impact only if the inconsistency would result in a significant adverse physical impact based on the established significance criterion. Consistency of the project with applicable land use plans and policies is evaluated below. Consistency with the County's adopted land use compatibility standards specifically with respect to noise are evaluated in Section 3.11, Noise, and consistency with the County's adopted Ordinance Code with respect to protected trees are evaluated in Section 3.3, Biological Resources.

Construction

Impacts related to consistency with applicable land use plans and policies are limited to operational impacts. No respective construction impacts would occur.

Operation

Contra Costa County General Plan Consistency

The Contra Costa County General Plan designates the project site as MV. Pursuant to the General Plan Land Use Element, the MV designation allows between 30.0 and 44.9 multiple-family units per net acre. Primary land uses consist of multiple-family residences including apartments and condominiums, as well as accessory buildings and structures ancillary to the primary uses. The project is requesting an amendment to the Contra Costa County General Plan to re-designate the project site from MV to Multiple-Family Residential-Very Special High (MS) that would allow between 45.0 and 99.9 multiple-family units per acre.

When a project seeks an amendment to the Contra Costa County General Plan as an element of the project itself, to rectify inconsistency with the existing designation or zoning, the amendment necessitates a legislative policy decision by the agency and does not signify a potential environmental

effect. As such, the proposed General Plan amendment and rezoning, if approved, constitute a self-mitigating aspect of the project that would serve to correct a conflict that would otherwise exist.

The project includes development standards and design guidelines consistent with the MS designation. Development standards for MS designation "allows between 45.0 and 99.9 multiple-family units per net acre. Sites can range up to 967 square feet."[10] Lot sizes and dimensions would be somewhat smaller (consistent with the higher proposed density). The MS designation allows for the same land uses as permitted under the MV designation. In addition, the project would be consistent with the suburban, transit-oriented residential character of the surrounding area.

With respect to density, the project would provide 36 affordable units; representing 15 percent of the 237 units allowed by the proposed MS land use district and 12 of those (5 percent) would be affordable to very low income households. Therefore, the project would be eligible for the State density bonus of 20 percent, and the total allowable unit count would increase from 237 units to 284 units. By providing 5 percent of units as affordable to very low income households, the project is also eligible for one development incentive or concession. The project would require a concession to provide the remaining affordable units (24 total) as affordable to moderate income.

The project would be consistent with Contra Costa County General Plan goals and policies relative to providing residences in unincorporated area of the County. Table 3.10-3 summarizes the project's consistency with the applicable policies of the Contra Costa County General Plan adopted for various land use planning reasons, including the purpose of avoiding or mitigating an environmental impact.

Table 3.10-3: Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
Chapter 3—Land Use Element	Goal 3-C	To encourage aesthetically and functionally compatible development which reinforces the physical character and desired images of the County.	**Consistent:** The project would be a residential development consistent with the suburban, transit-oriented residential character of the surrounding area.
	Goal 3-E	To recognize and support existing land use densities in most communities, while encouraging higher densities in appropriate areas, such as near major transportation hubs and job centers.	**Consistent:** The project would develop 284 multi-family residential units adjacent to the Pleasant Hill/Contra Costa Center Bay Area Rapid Transit (BART) Station.
	Goal 3-F	To permit urban development only in locations of the County within identified outer boundaries of urban development where public service delivery systems that meet applicable performance standards are provided or committed.	**Consistent:** The project would be an infill development. The project site is well within identified boundaries of public service systems and would be able to receive public services at acceptable performance standards.

[10] Contra Costa County General Plan, Chapter 3: Land Use Element. 2005 (reprint 2010), page 3-22. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30913/Ch3-Land-Use-Element?bidId=. Accessed November 27, 2018.

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Goal 3-J	To encourage a development pattern that promotes the individuality and unique character of each community in the County.	**Consistent:** The project would be a residential development consistent with the suburban, transit-oriented residential character of the surrounding area.
	Policy 3-5	New development within unincorporated areas of the County may be approved, providing growth management standards and criteria are met or can be assured of being met prior to the issuance of building permits in accordance with the Growth Management Program.	**Consistent:** The project would be an infill development in a well-developed area in unincorporated Contra Costa County. The project shall meet standards and criteria set by the Growth Management Program.
	Policy 3-6	Development of all urban uses shall be coordinated with provision of essential Community services or facilities including, but not limited to, roads, law enforcement and fire protection services, schools, parks, sanitary facilities, water and flood control.	**Consistent:** The project shall ensure the provision of essential community services and facilities to the future residents. More information can be found in Section 3.13, Public Services, Section 3.14, Recreation, Section 3.15, Transportation, and Section 3.17, Utilities and Service Systems.
	Policy 3-7	The location, timing and extent of growth shall be guided through capital improvements programming and financing (i.e., a capital improvement program, assessment districts, impact fees, and developer contributions) to prevent infrastructure, facility and service deficiencies.	**Consistent:** The project applicant shall pay development impact fees to prevent infrastructure, facility and service deficiencies. More information can be found in Section 3.13, Public Services.
	Policy 3-8	Infilling of already developed areas shall be encouraged. Proposals that would prematurely extend development into areas lacking requisite services, facilities and infrastructure shall be opposed. In accommodating new development, preference shall generally be given to vacant or under-used sites within urbanized areas, which have necessary utilities installed with available remaining capacity, before undeveloped suburban lands are utilized.	**Consistent:** The project would be an infill development. The site is surrounded by residential land uses and 0.12 mile from the Pleasant Hill/Contra Costa Centre BART station. The project site is mostly vacant with two single-family residences.
	Policy 3-18	Flexibility in the design of projects shall be encouraged in order to enhance scenic qualities and provide for a varied development pattern.	**Consistent:** The project would develop a six-story podium apartment community with recreational uses. Currently, the project site contains two single-family residences and non-native grassland and trees. The project would enhance scenic qualities of the project site. More information can be found in Section 3.1, Aesthetics.

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Policy 3-22	Housing opportunities for all income levels shall be created. Fair affordable housing opportunities should exist for all economic segments of the county.	**Consistent:** The project would consist of 284 residential units. However, the project would include 36 affordable housing units: 24 moderate-income units and 12 very low income units.
	Policy 3-23	A diversity of living options shall be permitted while ensuring community compatibility and quality residential development.	**Consistent:** The project would consist of 284 residential units. However, the project would include 36 affordable housing units: 24 moderate-income units and 12 very low income units.
	Policy 3-24	Housing opportunities shall be improved through encouragement of distinct styles, desirable amenities, attractive design and enhancement of neighborhood identity.	**Consistent:** The project would be consistent with the suburban, transit-oriented residential character of the surrounding area. Furthermore, the project would be constructed in a uniform architectural style that would employ materials that are currently utilized in the surrounding development.
	Policy 3-25	Innovation in site planning and design of housing developments shall be encouraged in order to upgrade quality and efficiency of residential living arrangements and to protect the surrounding environment.	**Consistent:** The project would construct a six-story podium apartment building, consisting of residential units and two levels of parking. The project would include amenities to serve residents, including a recreational area with a swimming pool.
	Policy 3-28	New residential development shall be accommodated only in areas where it will avoid creating severe unmitigated adverse impacts upon the environment and upon the existing community.	**Consistent:** The project would be an infill development, surrounded by residential land uses. The project would be consistent with the existing uses in the community.
Chapter 4—Growth Management Element	Goal 4-A	To provide for the levels of growth and development depicted in the Land Use Element, while preserving and extending the quality of life through the provision of public facilities and ensuring traffic levels of services necessary to protect the public health, safety, and welfare.	**Consistent:** The project is an infill development and thus would be provided with public services. Further information can be found in Section 3.13, Public Services, and 3.15, Transportation.
	Policy 4-5	For the purpose of applying the Traffic Level of Service standards consistent with Measure C-1988 only, unincorporated areas subject to the growth management standards of this Element shall be characterized as	**Consistent:** The Traffic Impact Study evaluated the traffic impact of the project by applying Contra Costa Level of Service (LOS) standards. Further information can be found in Section 3. 13, Public Services and 3.15, Transportation.

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		Central Business District, Urban, Suburban, Semi-rural and Rural as depicted in Figure 4-2.	
Chapter 5—Transportation and Circulation Element	Goal 5-C	To balance transportation and circulation needs with the desired character of the community.	**Consistent:** The Traffic Impact Study evaluated the transportation and circulation of the community and determined that the project would not negatively impact the desired character of the community. Further information can be found in Section 3. 13, Public Services and 3.15, Transportation of this EIR.
	Goal 5-D	To maintain and improve air quality above air quality standards.	**Consistent:** The project would not conflict with the Bay Area Air Quality Management District (BAAQMD) standards or the 2018 Clean Air Plan with implementation of mitigation.
	Goal 5-E	To permit development only in locations of the County where appropriate traffic LOS standards are ensured.	**Consistent:** The Traffic Impact Study evaluated the transportation and circulation impacts associated with the project. Further information can be found in Section 3. 13, Public Services and 3.15, Transportation of this EIR.
	Goal 5-I	To encourage use of transit.	**Consistent:** The project would be located 0.12 mile from the Pleasant Hill/Contra Costa Centre BART station. This would encourage the use of transit.
	Goal 5-L	To reduce GHG emissions from transportation sources through provision of transit, bicycle, and pedestrian facilities.	**Consistent:** The project would be located 0.12 mile from the Pleasant Hill/Contra Costa Centre BART station. The Iron Horse Trails, which runs parallel to and immediately west of the project site, is available to pedestrian and bicyclists. The project would provide 75 bicycle parking spaces.
	Policy 5-3	Transportation facilities serving new urban development shall be linked to and compatible with existing and planned roads, bicycle facilities, pedestrian facilities and pathways of adjoining areas, and such facilities shall use presently available public and semi-public rights of way where feasible.	**Consistent:** The project would be located 0.12 mile from the Pleasant Hill/Contra Costa Centre BART station. The Iron Horse Trails, which runs parallel to and immediately west of the project site, is available to pedestrian and bicyclists. The project would provide 75 bicycle parking spaces. Further information can be found in Section 3.15, Transportation.

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Policy 5-4	Development shall be allowed only when transportation performance criteria are met and necessary facilities and/or programs are in place or committed to be developed within a specified period of time.	**Consistent:** The Traffic Impact Study evaluated the transportation and circulation impacts associated with the project. Further information can be found in Section 3. 13, Public Services, and 3.15, Transportation.
	Policy 5-12	The use of local and collector roadways for neighborhood circulation shall be encouraged.	**Consistent:** Primary vehicle access to the project site would be granted from Del Hombre Lane, a public local street. Secondary emergency access would be provided from the back of the structure from Roble Road, a two-lane private street.
	Policy 5-13	The use of pedestrian and bicycle facilities shall be encouraged. Proper facilities shall be designed to accommodate bikes, pedestrians, and transit.	**Consistent:** The project would be located 0.12 mile from the Pleasant Hill/Contra Costa Centre BART station. The Iron Horse Trails, which runs parallel to and immediately west of the project site, is available to pedestrian and bicyclists. The project would provide 75 bicycle parking spaces. Further information can be found in Section 3.15: Transportation.
	Policy 5-15	Adequate lighting shall be provided for pedestrian, bicyclist, and vehicular, safety, consistent with neighborhood desires.	**Consistent:** The project would include lighting in the parking lots, lampposts, and safety lighting. Further information can be found in Section 3.1, Aesthetics.
	Policy 5-16	Curbs and sidewalks shall be provided in appropriate areas.	**Consistent:** The project would construct an 8-foot-wide sidewalk on the eastern side of Del Hombre Lane (along the project frontage). The sidewalk would widen to 10.6 feet farther south of the garage access. The project would also construct an 8-foot-wide sidewalk on the southern side of Roble Road. The sidewalks would be Americans with Disabilities Act (ADA) accessible.
	Policy 5-17	Emergency response vehicles shall be accommodated in development project design.	**Consistent:** The project would provide sufficient access to accommodate emergency vehicles, including a secondary emergency access provided from the back of the structure from Roble Road.
	Policy 5-20	New development (including redevelopment and rehabilitation projects) shall contribute funds and/or	**Consistent:** The project apartment community would include two levels of parking for the use of future residents of

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		institute programs to reduce parking demand and/or provide adequate parking.	the project. The required roadway improvements are discussed in more detail in Section 3.15, Transportation.
	Policy 5-21	New development shall contribute funds and/or institute programs to provide adequate bicycle and pedestrian facilities where feasible.	**Consistent:** The Iron Horse Trail, which runs parallel to and immediately west of the project site, is available to pedestrian and bicyclists. The project would provide 75 bicycle parking spaces. A pedestrian walkway would connect the outdoor project courtyard area to the pool. The project would construct an 8-foot-wide sidewalk on the eastern side of Del Hombre (along the project frontage). The sidewalk would widen to 10.6 feet farther south of the garage access. The project would also construct an 8-foot-wide sidewalk on the southern side of Roble Road. The sidewalks would be ADA accessible.
	Policy 5-24	Use of alternative forms of transportation, such as transit, bike and pedestrian modes, shall be encouraged in order to provide basic accessibility to those without access to a personal automobile and to help minimize automobile congestion and air pollution.	**Consistent:** The project would be located 0.12 mile from the Pleasant Hill/Contra Costa Centre BART station. The Iron Horse Trails, which runs parallel to and immediately west of the project site, is available to pedestrian and bicyclists. The project would provide 75 bicycle parking spaces. Further information can be found in Section 3.15, Transportation.
	Policy 5-32	Local road dimensions shall complement the scale and appearance of adjoining properties.	**Consistent:** The required roadway improvements associated with the project are discussed in more detail in Section 3.15, Transportation.
Chapter 6—Housing Element	Goal 6-1	Maintain and improve the quality of the existing housing stock and residential neighborhoods in Contra Costa County.	**Consistent:** The project would construct a six-story podium apartment building with 9,442 square feet of amenity and recreational space. The project would be consistent with the suburban, transit-oriented residential character of the surrounding area.
	Goal 6-3	Increase the supply of housing with a priority on the development of affordable housing, including housing affordable to extremely-low income households.	**Consistent:** The project would consist of 284 residential units. Of the 284 residential units, the development would include 36 affordable housing units: 24 moderate-income units and 12 very low income units.

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Policy 6-3.3	Increase the supply of affordable housing and encourage the development of mixed-income housing through the Inclusionary Housing Ordinance.	**Consistent:** The project would consist of 284 residential units. However, the project would include 36 affordable housing units: 24 moderate-income units and 12 very low income units.
	Goal 6-6	Provide adequate sites through appropriate land use and zoning designations to accommodate the County's share of regional housing needs.	**Consistent:** The project would rezone the entire site to P-1. The P-1 zoning would allow flexibility with respect to use, building types, lot size, and open space while ensuring the project complies with the Contra Costa County General Plan and requirements as set forth in the Contra Costa County Ordinance Code.
Chapter 7—Public Facilities Element	Goal 7-F	To assure potable water availability in quantities sufficient to serve existing and future residents.	**Consistent:** The Contra Costa Water District would supply the project site with potable water supply. The project would construct two 30-foot-long water pipes that would connect with the existing water line along the west side of the project site within Del Hombre Lane in two different locations. The site would also construct a 20-foot long water pipe to connect with the existing eight-inch water line in Honey Trail in one location.
	Goal 7-J	To ensure that new development pays the costs related to the need for increased water system capacity.	**Consistent:** The project would develop 284 residential units, and the project applicant would pay costs related to the need for increased water demand.
	Goal 7-N	To assure that new development pays the costs related to the need for increased sewer system capacity.	**Consistent:** The project would construct a 33-foot-long sanitary sewer line that would connect with the existing 30-inch sanitary sewer line along the west side of the project site within Del Hombre Lane. The project applicant would pay costs related to the need for increased sewer capacity.
	Goal 7-T	To ensure that new development pays its fair share of the costs related to increased runoff created by the development.	**Consistent:** The project would increase impermeable surfaces on the project site thus increasing stormwater runoff. The project would drain most of the site to an underground detention pipe system along the northern edge of the property and northern half of the eastern edge of the property. The incorporation of landscaped bioretention areas are

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
			intended to absorb stormwater to prevent off-site flow at a high speed while preventing pollutants from entering into nearby creeks. The applicant would pay its fair share of the costs related to increased runoff created by the development.
	Goal 7-Y	To ensure a high standard of fire protection, emergency, and medical response services for all citizens and properties throughout Contra Costa County.	**Consistent:** The project site would be located in an urbanized area. The nearest fire station is located near enough to the project site to respond under the 5-minute response standard set by the Contra Costa County General Plan.
	Goal 7-AE	To provide for the safe, efficient, and cost-effective removal of waste from residences, and businesses.	**Consistent:** RecycleSmart would provide solid waste removal services for the project site. RecycleSmart is contracted with Republic Services for the collection, transfer, and disposal of residential and commercial garbage, recycling, and organics.
	Goal 7-AR	To assure that primary and secondary school facilities are adequate or committed to be adequate, prior to approvals of major applications for residential growth.	**Consistent:** The project would increase demand for schools and educational facilities. The project would be required to pay development impact fees towards schools.
	Policy 7-1	New development shall be required to pay its fair share of the cost of all existing public facilities it utilizes, based upon the demand for these facilities, which can be attributed to new development.	**Consistent:** The project consists of 284 residential units and thus the project would increase demand for public facilities. The applicant would pay its fair share of the cost of all existing public facilities the project utilizes.
	Policy 7-2	New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.	**Consistent:** The project consists of 284 residential units and thus the project would increase demand for public facilities. The applicant would pay its fair share of the cost of all existing public facilities the project utilizes.
	Policy 7-21	At the project approval stage, the County shall require new development to demonstrate that adequate water quantity and quality can be provided. The County shall determine whether (1) capacity exists within the water system if a development project is built	**Consistent:** This EIR's water supply analysis evaluates potential project impact to potable water supply and systems. This analysis is consistent with the County's goal to assure potable water availability. Refer to Section 3.17, Utilities and Service Systems, for further discussion.

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		within a set period of time, or (2) capacity will be provided by a funded program or other mechanism. This finding will be based on information furnished or made available to the County from consultations with the appropriate water agency, the applicant, or other sources.	
	Policy 7-44	New development should be required to finance its legal share of the full costs of drainage improvements necessary to accommodate projected peak flows due to the project. Reimbursement from subsequent developments, which benefit from the added capacity may be provided.	**Consistent:** The project would drain most of the site to an underground detention pipe system along the northern edge of the property and northern half of the eastern edge of the property. Runoff from the project would be stored in a detention system. The applicant would pay its fair share of the costs related to drainage.
	Policy 7-64	New development shall pay its fair share of costs for new fire protection facilities and services.	**Consistent:** The project applicant shall pay its fair share of costs for new fire protection facilities and services.
	Policy 7-66	Sprinkler systems may be required in new residential structures, where necessary to protect health, safety and welfare.	**Consistent:** The project would comply with the California Building Standards Code, which is adopted by the Contra Costa County Ordinance Code.
Chapter 10—Safety Element	Goal 10-A	To protect human life and reduce the potential for serious injuries from earthquakes; and to reduce the risks of property losses from seismic disturbances which could have severe economic and social consequences for the County as a whole.	**Consistent:** The project shall incorporate recommendations of the project-site-specific geotechnical report and be coordinated with a County-approved Geotechnical Engineer and Engineering Geologist in order to tailor the plans as needed to reduce risk related to known soil and geologic hazards and to improve the overall stability of the site.
	Goal 10-B	To reduce to a practical minimum injuries and health risks resulting from the effects of earthquake ground shaking on structures, facilities and utilities.	**Consistent:** The project site is not located within a designated Alquist-Priolo Earthquake Fault Zone. The project would develop 284 multi-family residential units on this property that would be constructed to the most recent California Building Code standards. The project shall incorporate recommendations of the project site-specific geotechnical report.
	Policy 10-10	Policies regarding liquefaction shall apply to other ground failures, which might result from ground shaking but	**Consistent:** The project shall incorporate recommendations of the project site-specific geotechnical report and be

Table 3.10-3 (cont.): Contra Costa County General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		are not subject to such well-defined field and laboratory analysis.	coordinated with the project Geotechnical Engineer in order to tailor the plans as needed to reduce risk related to known soil and geologic hazards and to improve the overall stability of the site.
Chapter 11—Noise Element	Goal 11-A	To improve the overall environment in the County by reducing annoying and physically harmful levels of noise for existing and future residents and for all land uses.	**Consistent:** This EIR's noise analysis evaluates potential construction and operational noise impacts to the surrounding areas and identifies mitigation measures. This analysis is consistent the County's goal of maintaining acceptable noise levels. Refer to Section 3.11, Noise, further discussion.
	Policy 11-2	The standard for outdoor noise levels in residential areas is a Day/Night Noise Average Level (L_{dn}) of 60 decibel (dB). However, a L_{dn} of 60 dB or less may not be achievable in all residential areas due to economic or aesthetic constraints. One example is small balconies associated with multi-family housing. In this case, second and third story balconies may be difficult to control to the goal. A common outdoor use area that meets the goal can be provided as an alternative.	**Consistent:** This EIR's noise analysis evaluates potential construction and operational noise impacts to the surrounding areas and identifies mitigation measures. This analysis is consistent the County's goal of maintaining acceptable noise levels. Refer to Section 3.11, Noise, for further discussion.
	Policy 11-4	Title 24, Part 2, of the California Code of Regulations requires that new multiple-family housing projects, hotels, and motels exposed to a L_{dn} of 60 dB or greater have a detailed acoustical analysis describing how the project will provide an interior L_{dn} of 45 dB or less. The County also shall require new single-family housing projects to provide for an interior L_{dn} of 45 dB or less.	**Consistent:** Refer to Section 3.11, Noise, for further discussion.
	Policy 11-5	In developing residential areas exposed to a L_{dn} in excess of 65 dB due to single events such as train operation, indoor noise levels due to these single events shall not exceed a maximum A-weighted noise level of 50 dB in bedrooms and 55 dB in other habitable rooms. Single event indoor residential noise levels from airport related causes will be 45 dB CNEL.	**Consistent:** Refer to Section 3.11, Noise, for further discussion.

Contra Costa County Zoning Code Consistency

The project site is currently zoned Residential (R-15) and Planned Unit District (P-1) by the Contra Costa County Zoning Map. As stated in Chapter 84-66.204, the intent of the P-1 district is to allow "diversification in the relationship of various uses, buildings, structures, lot sizes and open space while insuring (sic) substantial compliance with the general plan and the intent of the county code in requiring adequate standards necessary to satisfy the requirements of the public health, safety and general welfare. These standards shall be observed without unduly inhibiting the advantages of large-scale or special area planning."[11]

The project would rezone the entire site to P-1. The P-1 zoning would allow flexibility with respect to use, building types, lot size, and open space while ensuring the project complies with the Contra Costa County General Plan and requirements as set forth in the Contra Costa County Ordinance Code. It allows necessary public health and safety standards to be observed without inhibiting large-scale development.

As shown in Table 3.10-2, the minimum lot size for residential uses under the P-1 zoning is 5 acres (Section 84-66.602). This project site is 2.37 acres, and therefore requires a variance from the minimum lot size requirement of the P-1 zone district. In order to approve a variance, Pursuant to Section 26-2.2006, the planning agency must make the following findings:

(1) That any variance authorized shall not constitute a grant of special privilege inconsistent with the limitations on other properties in the vicinity and the respective land use district in which the subject property is located;

(2) That because of special circumstances applicable to the subject property because of its size, shape, topography, location or surroundings, the strict application of the respective zoning regulations is found to deprive the subject property of rights enjoyed by other properties in the vicinity and within the identical land use district;

(3) That any variance authorized shall substantially meet the intent and purpose of the respective land use district in which the subject property is located. Failure to so find shall result in a denial.

Parking

As discussed above, pursuant to SB 1818, the project would be required to provide 369 spaces. The project would provide 380 spaces and thus would satisfy the number of spaces required.

Contra Costa County Off-Street Parking Ordinance Section 82-16.404(b)(1)(c) requires driveway aisle widths of 25 feet for spaces with an angle of parking of 90 degrees. Pursuant to Section 65915(e) of the California Government Code, the project would require a reduction of this development standard to allow a driveway-aisle width of 24 feet.

[11] Contra Costa County. 2018. Contra Costa County Ordinance Code, Chapter 84-66.204-Intent and Purpose. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV84LAUSDI_CH84-66PLUNDI. Accessed November 15, 2018.

Bicycle Parking

There are no designated bicycle lanes proposed as part of the project, and no bicycle circulation would be available on site. However, the project would be consistent with Contra Costa Zoning Code Sections 82-16.412. Section 82-16.412 sets forth the amounts of long-term and short-term bicycle parking that a project must provide. The Contra Costa County Ordinance Code requires a multi-family dwelling to provide space for 15 percent of the number of bedrooms for long-term parking, or two spaces (whichever is greater) and space for 5 percent of the number of bedrooms for short-term parking, or two spaces (whichever is greater).[12] Therefore, the project would be required to and would provide 56 long-term and 19 short-term spaces, for a total of 75 bicycle parking spaces.

Overall, the project would not conflict with applicable land use plans, policies, or regulations of the Contra Costa County General Plan or the Contra Costa County Ordinance Code that were adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, impacts would be less than significant.

Level of Significance

Less Than Significant

Cumulative Impacts

The geographic scope of the cumulative land use analysis is the unincorporated area of Contra Costa County with a focus on the area surrounding the project site. Land use decisions for both the project and for some of the other cumulative projects listed in Table 3-1 are made at the County level. Some of the projects listed in Table 3-1 are located in the cities of Pleasant Hill and Walnut Creek, and land use decisions for those projects are made at the City level.

Development within unincorporated Contra Costa County is governed by Contra Costa County General Plan and the Contra Costa County Ordinance Code, which ensure logical and orderly development and require discretionary review to ensure that projects do not result in environmental impacts due to inconsistency with the Contra Costa County General Plan and other land use planning regulations. This would minimize any cumulative impact related to division of an established community.

Development in unincorporated Contra Costa County would be required to demonstrate consistency with the Contra Costa County General Plan and applicable codes, ordinances, and policies. Development in the City of Walnut Creek would be required to demonstrate consistency with the City of Walnut Creek General Plan and applicable codes, ordinances, and policies. Development in the City of Pleasant Hill would be required to demonstrate consistency with the City of Pleasant Hill General Plan and applicable codes, ordinances, and policies. This would ensure that these cumulative projects comply with applicable planning regulations. Given the above information, there would be a less than significant cumulative impact related to land use and planning.

Level of Cumulative Significance

Less Than Significant

[12] Contra Costa County Ordinance Code. 2018. Chapter 82-16.412—Bicycle Parking. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV82GERE_CH82-16OREPA_82-16.412BIPA. Accessed November 26, 2018.

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3.11 - Noise

3.11.1 - Introduction

This section describes existing conditions related to noise and vibration in the project area as well as the regulatory framework. This section also evaluates the possible impacts related to noise and vibration that could result from implementation of the project. For purposes of this analysis, noise impacts will be compared to the thresholds of Contra Costa County and the City of Walnut Creek, as these jurisdictions contain receptors that could be potentially affected by project construction and operation. Information included in this section is based on the Contra Costa County General Plan, as well as the City of Walnut Creek General Plan, the project-specific traffic analysis report included in Appendix I, and project-specific noise modeling results (noise modeling data is provided in Appendix H). No public comments were received during the Environmental Impact Report (EIR) scoping period related to noise.

3.11.2 - Environmental Setting

Characteristics of Noise

Noise is generally defined as unwanted or objectionable sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in the extreme, hearing impairment. Noise effects can be caused by pitch or loudness. *Pitch* is the number of complete vibrations or cycles per second of a wave that result in the range of tone from high to low; higher-pitched sounds are louder to humans than lower-pitched sounds. *Loudness* is the intensity or amplitude of sound.

Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit, which expresses the ratio of the sound pressure level being measured to a standard reference level. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Only audible changes in existing ambient or background noise levels are considered potentially significant.

The human ear is not equally sensitive to all frequencies within the audible sound spectrum, so sound pressure level measurements can be weighted to better represent frequency-based sensitivity of average healthy human hearing. One such specific “filtering” of sound is called “A-weighting.” A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear. Because decibels are logarithmic units, they cannot be added or subtracted by ordinary arithmetic means. For example, if one noise source produces a noise level of 70 dB, the addition of another noise source with the same noise level would not produce 140 dB; rather, they would combine to produce a noise level of 73 dB.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level. Noise levels diminish or attenuate as distance from the source increases based on an inverse square rule, depending on how the noise source is physically configured. Noise levels from a single-point source, such as a single piece of construction equipment at ground level, attenuate at a rate of 6 dB for each doubling of distance (between the single-point source of noise and the noise-sensitive receptor of concern). Heavily traveled roads with few gaps in traffic behave as continuous line sources and attenuate roughly at a rate of 3 dB per doubling of distance.

Table 3.11-1 shows some representative noise sources and their corresponding noise levels in dBA.

Table 3.11-1: Typical A-Weighted Noise Levels

Indoor Noise Source	Noise Level (dBA)	Outdoor Noise Sources
(Threshold of Hearing in Laboratory)	0	—
Library	30	Quiet Rural Nighttime
Refrigerator Humming	40	Quiet Suburban Nighttime
Quiet Office	50	Quiet Urban Daytime
Normal Conversation at 3 feet	60	Normal Conversation at 3 feet
Vacuum Cleaner at 10 feet	70	Gas Lawn Mower at 100 feet
Hair Dryer at 1 foot	80	Freight Train at 50 feet
Food Blender at 3 feet	90	Heavy-duty Truck at 50 feet
Inside Subway Train (New York)	100	Jet Takeoff at 2,000 feet
Smoke Detector Alarm at 3 feet	110	Unmuffled Motorcycle
Rock Band near stage	120	Chainsaw at 3 feet
—	130	Military Jet Takeoff at 50 feet
—	140	(Threshold of Pain)
Source: Compiled by FirstCarbon Solutions (FCS) 2018.		

Noise Descriptors

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and community noise equivalent level (CNEL) or the day-night average level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening

hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source, as well as ground absorption, atmospheric conditions (wind, temperature gradients, and humidity) and refraction, and shielding by natural and manmade features. Sound from point sources, such as an air conditioning condenser, a piece of construction equipment, or an idling truck, radiates uniformly outward as it travels away from the source in a spherical pattern.

The attenuation or sound drop-off rate is dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in noise models: soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA per each doubling of the distance (dBA/DD) is typically observed over soft ground with landscaping, as compared with a 6 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources, such as traffic noise on a roadway, a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3 dBA/DD drop-off rate for hard-site conditions. Table 3.11-2 briefly defines these measurement descriptors and other sound terminology used in this section.

Table 3.11-2: Sound Terminology

Term	Definition
Sound	A vibratory disturbance created by a vibrating object which, when transmitted by pressure waves through a medium such as air, can be detected by a receiving mechanism such as the human ear or a microphone.
Noise	Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
Ambient Noise	The composite of noise from all sources near and far in a given environment.
Decibel (dB)	A unitless measure of sound on a logarithmic scale, which represents the squared ratio of sound-pressure amplitude to a reference sound pressure. The reference pressure is 20 micropascals, representing the threshold of human hearing (0 dB).

Table 3.11-2 (cont.): Sound Terminology

Term	Definition
A-Weighted Decibel (dBA)	An overall frequency-weighted sound level that approximates the frequency response of the human ear.
Equivalent Noise Level (L_{eq})	The average sound energy occurring over a specified time period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period.
Maximum and Minimum Noise Levels (L_{max} and L_{min})	The maximum or minimum instantaneous sound level measured during a measurement period.
Day-Night Level (DNL or L_{dn})	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m. (nighttime).
Community Noise Equivalent Level (CNEL)	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m.
Source: Data compiled by FCS 2018	

Traffic Noise

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the Federal Highway Administration (FHWA) community noise assessment criteria, this change is "barely perceptible." For reference, a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

Stationary Noise

A stationary noise producer is any entity in a fixed location that emits noise. Examples of stationary noise sources include machinery, engines, energy production, and other mechanical or powered equipment and activities such as loading and unloading or public assembly that may occur at commercial, industrial, manufacturing, or institutional facilities. Furthermore, while noise generated by the use of motor vehicles over public roads is preempted from local regulation, although the use of these vehicles is considered a stationary noise source when operated on private property such as

at a construction site, a truck terminal, or warehousing facility. The emitted noise from the producer can be mitigated to acceptable levels either at the source or on the adjacent property through the use of proper planning, setbacks, block walls, acoustic-rated windows, dense landscaping, or by changing the location of the noise producer.

The effects of stationary noise depend on factors such as characteristics of the equipment and operations, distance and pathway between the generator and receptor, and weather. Stationary noise sources may be regulated at the point of manufacture (e.g., equipment or engines), with limitations on the hours of operation, or with provision of intervening structures, barriers or topography.

Construction activities are a common source of stationary noise. Construction-period noise levels are higher than background ambient noise levels but eventually cease once construction is complete. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on each construction site and, therefore, would change the noise levels as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table 3.11-3 shows typical noise levels of construction equipment as measured at a distance of 50 feet from the operating equipment.

Table 3.11-3: Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Impact Device? (Yes/No)	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Impact Pile Driver	Yes	95
Auger Drill Rig	No	85
Vibratory Pile Driver	No	95
Jackhammers	Yes	85
Pneumatic Tools	No	85
Pumps	No	77
Scrapers	No	85
Cranes	No	85
Portable Generators	No	82
Rollers	No	85
Dozers	No	85
Tractors	No	84
Front-End Loaders	No	80
Backhoe	No	80
Excavators	No	85
Graders	No	85
Air Compressors	No	80

Table 3.11-3 (cont.): Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Impact Device? (Yes/No)	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Dump Truck	No	84
Concrete Mixer Truck	No	85
Pickup Truck	No	55
Source: FHWA 2006. Highway Construction Noise Handbook, August.		

Noise from Multiple Sources

Because sound pressure levels in decibels are based on a logarithmic scale, they cannot be added or subtracted in the usual arithmetical way. Therefore, sound pressure levels in decibels are logarithmically added on an energy summation basis. In other words, adding a new noise source to an existing noise source, both producing noise at the same level, will not double the noise level. Instead, if the difference between two noise sources is 10 dBA or more, the louder noise source will dominate and the resultant noise level will be equal to the noise level of the louder source. In general, if the difference between two noise sources is 0–1 dBA, the resultant noise level will be 3 dBA higher than the louder noise source, or both sources if they are equal. If the difference between two noise sources is 2–3 dBA, the resultant noise level will be 2 dBA above the louder noise source. If the difference between two noise sources is 4–10 dBA, the resultant noise level will be 1 dBA higher than the louder noise source.

Characteristics of Vibration

Groundborne vibration consists of rapidly fluctuating motion through a solid medium, specifically the ground, that has an average motion of zero and in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The effects of groundborne vibration typically only causes a nuisance to people, but in extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room, and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (RMS) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels—denoted as LV—and is based on the reference quantity of 1 micro inch per second. To distinguish these vibration levels referenced in decibels from noise levels referenced in decibels, the unit is written as "VdB."

Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. When assessing

annoyance from groundborne vibration, vibration is typically expressed as root mean square (RMS) velocity in units of decibels of 1 micro-inch per second, with the unit written in VdB. Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. Human perception to vibration starts at levels as low as 67 VdB. Annoyance due to vibration in residential settings starts at approximately 70 VdB.

Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration. Construction activities, such as blasting, pile driving and operating heavy earthmoving equipment, are common sources of groundborne vibration. Construction vibration impacts on building structures are generally assessed in terms of PPV. Typical vibration source levels from construction equipment are shown in Table 3.11-4.[1]

Table 3.11-4: Vibration Levels of Construction Equipment

Construction Equipment	PPV at 25 Feet (inches/second)	RMS Velocity in Decibels (VdB) at 25 Feet
Water Trucks	0.001	57
Scraper	0.002	58
Bulldozer—small	0.003	58
Jackhammer	0.035	79
Concrete Mixer	0.046	81
Concrete Pump	0.046	81
Paver	0.046	81
Pickup Truck	0.046	81
Auger Drill Rig	0.051	82
Backhoe	0.051	82
Crane (Mobile)	0.051	82
Excavator	0.051	82
Grader	0.051	82
Loader	0.051	82
Loaded Trucks	0.076	86
Bulldozer—Large	0.089	87
Caisson drilling	0.089	87
Vibratory Roller (small)	0.101	88
Compactor	0.138	90
Clam shovel drop	0.202	94
Vibratory Roller (large)	0.210	94
Pile Driver (impact-typical)	0.644	104

[1] Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook. August.

Table 3.11-4 (cont.): Vibration Levels of Construction Equipment

Construction Equipment	PPV at 25 Feet (inches/second)	RMS Velocity in Decibels (VdB) at 25 Feet
Pile Driver (impact-upper range)	1.518	112
Source: Compilation of scientific and academic literature, generated by the Federal Transit Administration (FTA) and FHWA.		

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth, which may contain significant geological differences. Factors that influence groundborne vibration include:

- **Vibration source:** Type of activity or equipment, such as impact or mobile, and depth of vibration source;
- **Vibration path:** Soil type, rock layers, soil layering, depth to water table, and frost depth; and
- **Vibration receiver:** Foundation type, building construction, and acoustical absorption.

Among these factors that influence groundborne vibration, there are significant differences in the vibration characteristics when the source is underground compared to at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface, and can result in groundborne vibration problems at large distance from the source. Factors such as layering of the soil and depth to the water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil type, but it has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests. The vibration level (calculated below as "PPV") at a distance from a point source can generally be calculated using the vibration reference equation:

$$PPV = PPV_{ref} * (25/D)^n \text{ (in/sec)}$$

Where:

PPV_{ref} = reference measurement at 25 feet from vibration source
D = distance from equipment to the receptor
n = vibration attenuation rate through ground

According to Chapter 12 of the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2006), an "n" value of 1.5 is recommended to calculate vibration propagation through typical soil conditions.[2]

Existing Noise Levels

Ambient Noise

The existing noise environment in the vicinity of the project site was documented through a noise monitoring effort performed at the project site. Noise monitoring locations are shown in Exhibit 3.11-1, and the noise measurement data sheets are contained in Appendix H. A total of three short-term noise measurements (15 minutes each) were taken on Tuesday, January 22, 2019 starting at 2:10 p.m. and ending at 3:15 p.m., during the midday peak noise hour. One long-term ambient noise measurement (48 hours) was also conducted on the project site, starting at 4:00 p.m. on Tuesday, January 22, 2019 and ending at 4:00 p.m. on Thursday, January 24, 2019. These measurements provide a baseline of existing noise conditions.

Short-term Noise Measurements

The short-term noise measurement results are summarized in Table 3.11-5. The noise measurements determined that daytime ambient noise levels range from 56.9 dBA to 61.2 dBA L_{eq} in the vicinity of the project site. The noise measurements indicate that noise within the vicinity of the project site is generally characterized by construction activities (taking place at the apartment building across Del Hombre Lane), vehicle traffic on nearby roadways, and the Bay Area Rapid Transit (BART) light rail train.

Table 3.11-5: Existing Ambient Noise Levels in the Vicinity of the Project Site

Site Location	Location Description	L_{eq} (dBA)	Primary Noise Sources
ST-1	Northeast corner of project site	57.1	Construction noise, vehicular traffic along Roble Road into apartment buildings, BART light rail train
ST-2	Southeast corner of project site	56.9	Construction noise, leaf blower, vehicular traffic on Treat Boulevard and Honey Trail, BART light rail train
ST-3	Southwest corner of project site	61.2	Construction on apartment buildings across Del Hombre Lane, BART light rail train, vehicular traffic on Treat Boulevard, bicyclists, and pedestrians
Source: FCS 2018.			

[2] Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. May.

Long-term Noise Measurement

The long-term noise measurement, shown as LT-1 on Exhibit 3.11-1, was conducted on the northwestern corner of the project site, approximately 75 feet southeast of the raised BART rail line. The resulting measurement determined that ambient noise levels at this location averaged 70 dBA CNEL. As was observed by the technician at the time of the noise measurement, the dominant noise sources in the project vicinity are construction on apartment buildings across Del Hombre Lane and Jones Road, vehicular traffic on Treat Boulevard and Roble Road, and BART light rail trains.

Traffic Noise

In addition to the ambient noise measurements, existing traffic noise on local roadways in the areas surrounding the project site was calculated to quantify existing traffic noise levels, based on the existing traffic volumes included in Appendix I. Existing traffic noise levels along selected roadway segments in the project vicinity were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). Site-specific information is entered, such as roadway traffic volumes, roadway active width, source-to-receiver distances, travel speed, noise source and receiver heights, and the percentages of automobiles, medium trucks, and heavy trucks that the traffic is made up of throughout the day, amongst other variables. The modeled average daily traffic (ADT) volumes were obtained by multiplying the AM peak-hour intersection traffic volumes from the project-specific traffic study by a factor of 8 (Fehr & Peers 2018). The model inputs and outputs, including the 60 dBA, 65 dBA, and 70 dBA L_{dn} traffic noise contour distances, are provided in Appendix H. A summary of the modeling results is shown in Table 3.11-6. The modeling results show that existing traffic noise levels on roadway segments adjacent to the project site range up to 58.0 dBA CNEL as measured at 50 feet from the centerline of the outermost travel lane. Interstate 680 (I-680) is located over 1,700 feet to the west of the project site. At this distance and with the shielding provided by intervening structures, noise from I-680 is not a major contributor to the ambient noise environment on the project site and is therefore not analyzed further.

Table 3.11-6: Existing Traffic Noise Levels in the Vicinity of the Project Site

Roadway Segment	ADT	Centerline to 70 L_{dn}(feet)	Centerline to 65 L_{dn}(feet)	Centerline to 60 L_{dn}(feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane
Las Juntas Way—Iron Horse Lane to Coggins Drive	4,000	< 50	< 50	< 50	56.3
Las Juntas Way—Coggins Drive to Del Hombre Lane	3,600	< 50	< 50	< 50	55.9
Las Juntas Way—Roble Road to Santos Lane	3,100	< 50	< 50	< 50	55.2
Del Hombre Lane—Honey Trail to Roble Road	**200**	**< 50**	**< 50**	**< 50**	**43.3**
Coggins Drive—Las Juntas Way to Jones Road	**5,900**	**< 50**	**< 50**	**< 50**	**58.0**
Jones Road—Coggins Drive to Harvey Drive	7,100	< 50	< 50	< 50	57.3

Note:
ADT = Average Daily Traffic
Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather it assumes a worst case of having a direct line of site on flat terrain.
Bold values indicated roadway segments that are adjacent to the project site.
Source: FCS 2018.

Source: ESRI Aerial Imagery.

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Exhibit 3.11-1
Noise Measurement Location Map

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Existing Stationary Noise Levels

Commercial and residential land uses in the vicinity of the project site generate noise from typical parking lot activities, rooftop mechanical ventilation systems, and landscaping and maintenance equipment activities. These activities are point sources of noise that affect the existing noise environment. Parking lot activities, such as small delivery vehicle loading/unloading and engines starting or doors shutting, typically generate approximately 60 dBA to 70 dBA L_{max} at 50 feet. The existing ambient noise measurements results described above, with documented noise levels ranging from 61 dBA to 67 dBA L_{eq}, are representative of the daytime noise levels experienced from these types of activities in the vicinity of the project site.

Noise-Sensitive Land Uses

Noise-sensitive land uses generally consist of those uses where exposure to noise would result in adverse effects, as well as uses for which quiet is an essential element of their intended purpose. Residential dwellings are of primary concern, because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other typical noise-sensitive land uses include hospitals, convalescent facilities, hotels, religious institutions, libraries, and other uses where low noise levels are essential.

Project Site Vicinity

Noise-sensitive land uses in the vicinity of the project site include multi-family residential buildings located across the raised BART rail line to the northwest of the project site, as well as directly to the north, northeast, east, and south of the project site.

Project Site

The noise-sensitive land uses at the project site include the two existing residences within the project site boundaries.

3.11.3 - Regulatory Framework

Federal

Noise Control Act

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting State and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees.

Among the agencies now regulating noise are the Occupational Safety and Health Administration (OSHA), which limits noise exposure of workers to 90 dB L_{eq} or less for 8 continuous hours or 105 dB L_{eq} or less for 1 continuous hour; the United States Department of Transportation (DOT), which assumed a

significant role in noise control through its various operating agencies; and the Federal Aviation Administration (FAA), which regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the FTA. Transit noise is regulated by the federal Urban Mass Transit Administration, while freeways that are part of the interstate highway system are regulated by the FHWA. Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway, or alternatively, that developments are planned and constructed in such a manner that minimize potential noise impacts.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, local jurisdictions are limited to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

Federal Transit Administration

The project is not subject to the regulation requirements of the FTA; however, the FTA's vibration impact criteria are accepted industry-wide as the best vibration impact guidelines when a local governing agency does not have vibration standards of its own.

The FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment document (FTA 2006). The FTA guidelines include thresholds for construction vibration impacts for various structural categories as shown in Table 3.11-7.

Table 3.11-7: Federal Transit Administration Construction Vibration Impact Criteria

Building Category	PPV (in/sec)	Approximate VdB
I. Reinforced-Concrete, Steel or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non Engineer Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90
Source: FTA 2006. Transit Noise and Vibration Impact Assessment.		

State

California General Plan Guidelines

Established in 1973, the California Department of Health Services Office of Noise Control was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to delineate compatibility of sensitive uses with various incremental levels of noise.[3]

[3] California Department of Health, Office of Noise Control, "Land Use Compatibility for Community Noise Environments Matrix," 1976.

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise/land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable. The project is also subject to review under the State of California Environmental Quality Act (CEQA). Appendix G of the CEQA Guidelines provides impact thresholds for potential noise and vibration impacts.

California Building Standards Code

The State of California has established noise insulation standards for new hotels, motels, apartment houses, and dwellings (other than single-family detached housing). These requirements are provided in the 2016 California Building Standards Code (CBC) (California Code of Regulations [CCR], Title 24).[4] As provided in the CBC, the noise insulation standards set forth an interior standard of 45 dBA CNEL as measured from within the structure's interior. When such structures are located within a 65-dBA CNEL (or greater) exterior noise contour associated with a traffic noise along a roadway, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL threshold. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Local

The project site is located in a pocket of unincorporated Contra Costa County land. The project site is located approximately 100 feet from the nearest limits of the City of Walnut Creek, located north of the project site across the BART rail line, with the closest residential receptor in Walnut Creek located approximately 530 feet north of the project site. The project site is located over 2,300 feet from the limits of the City of Concord (northeast of the site), and over 1,000 feet from the limits of the City of Pleasant Hill (northwest of the site). Therefore, the goals and policies related to noise from both the Contra Costa County General Plan and the City of Walnut Creek General Plan as well as the applicable noise regulations from both the Contra Costa County Ordinance Code and Walnut Creek Municipal Code are presented below.

Contra Costa County General Plan

Noise Element

The Noise Element of the Contra Costa County General Plan[5] establishes the following noise policies that may be applicable to the project. As listed below, exterior noise levels up to 65 dBA L_{dn} are considered *normally acceptable* for new multi-family residential land use developments, *conditionally acceptable* from 65 dBA to 75 dBA L_{dn}, and *unacceptable* above 75 dBA L_{dn}.

- **Policy 11-1:** New projects shall be required to meet acceptable exterior noise level standards as established in the Noise and Land Use Compatibility Guidelines contained in Figure 11-6 [of the Noise Element]. These guidelines, along with the future noise levels shown in the future

[4] California Building Standards Commission. 2017. California Building Standards Code (CCR Title 24), January 1.
[5] Contra Costa County. 2005. Contra Costa County General Plan, Noise Element. January 18.

noise contours maps, should be used by the county as a guide for evaluating the compatibility of "noise sensitive" projects in potentially noisy areas.
  - For multi-family residential uses, Figure 11-6 identifies a noise level of 65 dBA L_{dn} as normally acceptable, and a noise level of 70 dBA L_{dn} as conditionally acceptable
- **Policy 11-2:** The standard for outdoor noise levels in residential areas is an L_{dn} of 60 dB. However, an L_{dn} of 60 dB or less may not be achievable in all residential areas due to economic or aesthetic constraints. One example is small balconies associated with multi-family housing. In this case, second and third story balconies may be difficult to control to the goal. A common outdoor use area that meets the goal can be provided as an alternative.
- **Policy 11-3:** If the primary noise source is train passbys, then the standard for outdoor noise levels in residential areas is an L_{dn} of 70 dB. A higher L_{dn} is allowable since the L_{dn} is controlled by a relatively few number of train passbys that are disruptive outdoors only for short periods. Even though the L_{dn} may be high, during the majority of the time the noise level will be acceptable.
- **Policy 11-4:** Title 24, Part 2, of the California Code of Regulations requires that new multiple family housing projects, hotels, and motels exposed to a L_{dn} of 60 dB or greater have a detailed acoustical analysis describing how the project will provide an interior L_{dn} of 45 dB or less. The County also shall require new single-family housing projects to provide for an interior L_{dn} of 45 dB or less.
- **Policy 11-5:** In developing residential areas exposed to an L_{dn} in excess of 65 dB due to single events such as train operation, indoor noise levels due to these single events shall not exceed a maximum A-weighted noise level of 50 dB in bedrooms and 55 dB in other habitable rooms. Single event indoor residential noise levels from airport related causes will be 45 dB CNEL.
- **Policy 11-8:** Construction activities shall be concentrated during the hours of the day that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods.

According to the County's land use compatibility standards contained in Figure 11-6 of the Noise Element, ambient noise environments are considered *normally acceptable* for new multi-family residential land use development with noise levels ranging up to 60 dBA CNEL/L_{dn}. Environments with noise levels from 55 dBA to70 dBA CNEL/L_{dn} are considered *conditionally acceptable* for new multi-family land use development; and such development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Environments with noise levels from 70 dBA to 75 dBA CNEL/L_{dn} are considered *normally unacceptable* for new multi-family land use development, and *clearly unacceptable* for levels above 75 dBA CNEL/L_{dn}.

City of Walnut Creek General Plan

Safety and Noise Element

The Safety and Noise Element of the Walnut Creek General Plan[6] establishes land use compatibility standards for noise. The land use compatibility standards for noise provide the basis for making

[6] City of Walnut Creek. 2006. Walnut Creek General Plan, Safety and Noise Element. April 4.

decisions on location of land uses in relation to noise sources and for determining noise mitigation requirements. According to the City of Walnut Creek's Land Use/Noise Compatibility standards, exterior noise levels up to 65 dBA L_{dn} are considered *normally acceptable* for new multi-family residential land use developments, *conditionally acceptable* from 65 dBA to 75 dBA L_{dn}, and *unacceptable* above 75 dBA L_{dn}.

The City of Walnut Creek has adopted the following General Plan Safety and Noise Element goals, policies, and actions to reduce potential noise hazards.

- **Goal 8:** Provide compatible noise environments for new development, redevelopment, and condominium conversions.
- **Policy 8.1:** Apply the noise and land use compatibility table and standards to all residential, commercial, and mixed-use proposals, including condominium conversions.
- **Policy 8.2:** Address the issue of residences affected by intermittent urban noise from sources such as heating, ventilating, and air conditioning equipment and by outdoor maintenance activities, such as parking lot sweeping and early morning garbage collection.
- **Action 8.2.2:** For new multifamily residential projects and for the residential component of mixed-use development, use a standard of 65 L_{dn} in outdoor areas, excluding balconies.
- **Action 8.2.3:** Strive for a maximum interior noise levels at 45 L_{dn} in all new residential units.
- **Action 8.2.4:** For new downtown mixed-use development or for new residential development affected by noise from BART or helicopters, ensure that maximum noise levels do not exceed 50 L_{dn} in bedrooms and 55 L_{dn} in other rooms.

Contra Costa County Ordinance Code—Noise Ordinance

It should be noted that the Contra Costa County Ordinance Code does not contain any noise ordinance codes or performance standards that are applicable to the project.

City of Walnut Creek Municipal Code Noise Ordinance[7]

The City of Walnut Creek Noise Ordinance is codified in Chapter 6, Article 2 of the City's Municipal Code. Section 4-6.203f prohibits construction activities other than between the hours of 7:00 a.m. and 6:00 p.m. on non-holiday weekdays, or those precise hours of operation enumerated in individual building and grading permits.

3.11.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 CEQA Guidelines updated Appendix G, to determine whether impacts related to noise and vibration are significant environmental effects, the following questions are analyzed and evaluated.

[7] City of Walnut Creek. 2018. Walnut Creek Municipal Code Noise Ordinance. Website: https://www.codepublishing.com/CA/WalnutCreek/#!/WalnutCreek04/WalnutCreek0406.html Accessed December 20, 2018.

Would the project:

a) Generate 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) Cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?[8]

c) Generate excessive groundborne vibration or groundborne noise levels?

d) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Approach to Analysis

Noise Measurement Methodology

The existing ambient noise levels at the project site were documented through a noise monitoring effort conducted at the project site on January 22, 2019, by noise technicians. The field survey noted that noise in the project vicinity is generally characterized by vehicle traffic on the local roadways as well as transit along the BART railway.

The noise measurements were taken using Larson-Davis Model LxT2 Type 2 precision sound level meters programmed in “slow” mode to record noise levels in “A” weighted form. The sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 150. The accuracy of the calibrator is maintained through a program established through the manufacturer and is traceable to the National Bureau of Standards. All noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4 1983 identified in Chapter 19.68.020.AA).

Traffic Noise Modeling Methodology

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the FHWA community noise assessment criteria, this change is “barely perceptible”; for reference a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

[8] This significance criteria question is from the Land Use and Planning section of the CEQA Guidelines Appendix G checklist questions. However, since the question addresses impacts related to conflicts with land use plans, which would include project-related conflicts related to noise land use compatibility standards of the General Plan Noise Element, it is also included here.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions in the vicinity of the project site. Model input data includes without- and with-project average daily traffic volumes on adjacent roadway segments, day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. The roadway speeds are based on the posted speed limits observed during site visits. Traffic modeling was performed using the data obtained from the project-specific traffic study conducted by Fehr & Peers.[9] This traffic study provides data for existing (year 2018), near-term, and cumulative (year 2040) traffic conditions. The resultant noise levels were weighed and summed over a 24-hour period to determine the CNEL values.

The roadway traffic noise model assumptions and outputs are provided in Appendix H.

The project site lies within Contra Costa County, but the project site is located approximately 100 feet from the nearest boundary of the City of Walnut Creek. Therefore, for purposes of this analysis, noise impacts are compared to the thresholds of Contra Costa County and the City of Walnut Creek, as these jurisdictions contain receptors that could be potentially affected by project construction and operation. For purposes of this analysis, the most restrictive of the noise policies and performance standards of Contra Costa County and the City of Walnut Creek are applied to the analysis for this project.

Vibration Methodology

Contra Costa County does not have adopted criteria for construction groundborne vibration impacts. Therefore, the FTA's vibration impact criteria is utilized to evaluate potential vibration impacts resulting from construction activities. The FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment document,[10] and are summarized in Table 3.11-7 in the regulatory discussion above.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of noise and vibration resulting from implementation of the project.

- A significant impact would occur if the project would generate 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.
  - For temporary construction noise, a significant impact would occur if construction activities would result in a substantial temporary increase in ambient noise levels outside of the County's standard permissible hours for construction (7:30 a.m. to 5:00 p.m., except no construction on weekends or state and federal holidays) that would result in annoyance or sleep disturbance of nearby sensitive receptors.
  - For project-related traffic noise, a significant impact would occur if the project would cause the L_{dn} to increase by 5 dBA or more even if the L_{dn} would remain below normally acceptable

[9] Fehr & Peers. 2019. Transportation Impact Assessment Del Hombre Apartments. January.
[10] Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. May.

levels for a receiving land use (as defined in the land use compatibility standards); or by 3 dBA or more, thereby causing the L_{dn} in the project vicinity to exceed normally acceptable levels and result in noise levels that would be considered conditionally acceptable for a receiving land use; or by 1.5 dBA or more where the L_{dn} currently exceeds conditionally acceptable levels. A doubling of traffic volume generally results in a three dBA increase in noise.

- For project-related stationary noise sources, Contra Costa County and the City of Walnut Creek established a maximum exterior noise performance threshold for receiving residential land uses of 65 dBA L_{dn}. Contra Costa County and the City of Walnut Creek also established a maximum interior noise threshold of 45 dBA L_{dn}; however, if ambient noise levels exceed 65 dBA L_{dn} due to train noise, the maximum interior noise threshold would be 50 dBA L_{dn} in bedrooms and 55 dBA L_{dn} in other habitable rooms. For purposes of this analysis, an increase of more than 3 dBA above the applicable noise performance thresholds would be considered a significant impact.

- A significant impact would occur if the project would conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. For new multi-family residential land use developments, ambient noise levels up to 65 dBA L_{dn} are considered "normally acceptable." A maximum interior noise threshold of 45 dBA L_{dn} has also been established for residential development; however, if ambient noise levels exceed 65 dBA L_{dn} due to train noise, the maximum interior noise threshold would be 50 dBA L_{dn} in bedrooms and 55 dBA L_{dn} in other habitable rooms.

- A significant impact would occur if the project would generate groundborne vibration or groundborne noise levels in excess of applicable standards. Contra Costa County and the City of Walnut Creek have not adopted criteria for construction or operational groundborne vibration impacts. Therefore, for purposes of this analysis, the FTA's construction vibration impact criteria are utilized. The FTA threshold of 0.2 in/sec PPV is the potential damage criteria threshold for buildings of non-engineer timber and masonry construction. For operational impacts, a significant impact will occur if project on-going activities would produce groundborne vibrations that are perceptible without instruments by a reasonable person at the property lines of the site.

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, a significant impact would occur if the project would expose people residing or working in the project area to excessive noise levels.

Impact Evaluation

Substantial Noise Increase in Excess of Standards

Impact NOI-1:	**The project would generate 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.**

As discussed below, operational noise would not result in a significant impact. For construction noise, restricting construction activities to normal business hours, as provided by Mitigation Measure (MM) NOI-1, would reduce potential impacts related to site preparation, grading, and construction to less than significant.

Construction

For purposes of this analysis, a significant impact would occur if construction activities would result in a substantial temporary increase in ambient noise levels outside of the permissible hours for construction (7:30 a.m. to 5:00 p.m., except no construction on weekends or state and federal holidays) that would result in annoyance or sleep disturbance of nearby sensitive receptors. Noise impacts from construction activities associated with the project would be a function of the noise generated by construction traffic, construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. A discussion of the potential impacts associated with each of these types of activities is provided below.

Construction Traffic Noise

One type of noise impact that could occur during project construction would result from the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the project site. The transport of workers and construction equipment and materials to the project site would incrementally increase noise levels on access roads leading to the site. Because project construction workers and construction equipment would use existing routes, noise from passing trucks would be similar to existing vehicle-generated noise on these local roadways. In addition, these trips would not result in a doubling of daily traffic volumes on any of the local roadways in the project vicinity and would thus not result in a perceptible change in existing traffic noise levels. For this reason, intermittent noise from construction trips would be minor when averaged over a longer time-period and would not be expected to result in a perceptible increase in hourly- or daily-average traffic noise levels in the project vicinity. Therefore, construction-related noise impacts associated with the transportation of workers and equipment to the project site would be less than significant.

Construction Equipment Noise

Construction is performed in discrete steps, each of which entails its own mix of equipment, and consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on-site. Thus, the noise levels vary as construction progresses. Despite the variety in the types and sizes of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction noise ranges to be categorized by work phase.

Table 3.11-3 lists the maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 feet between the equipment and a noise receptor.

The site preparation phase, which includes excavation and grading activities, tend to generate the highest noise levels, because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery and compacting equipment, such as bulldozers, draglines, backhoes, front loaders, roller compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. Operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

Construction of the project is expected to require the use of scrapers, bulldozers, water trucks, haul trucks, and pickup trucks. The foundation would involve spread footings, so impact equipment such as pile drivers is not expected to be used during construction of the project. Based on the information provide in Table 3.11-3, the maximum noise level generated by each scraper is assumed to be 85 dBA L_{max} at 50 feet from this equipment. Each bulldozer would generate 85 dBA L_{max} at 50 feet. The maximum noise level generated by graders is approximately 85 dBA L_{max} at 50 feet. Each doubling of sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, a reasonable worst-case combined noise level during this phase of construction would be 90 dBA L_{max} at a distance of 50 feet from the acoustic center of a construction area. This would result in a reasonable worst-case hourly average of 86 dBA L_{eq}. The acoustic center reference is used, because construction equipment must operate at some distance from one another on a project site, and the combined noise level as measured at a point equidistant from the sources would (acoustic center) be the worst-case maximum noise level. The effect on sensitive receptors is evaluated below.

The nearest off-site noise-sensitive receptor to the project site is the multi-family residence located southeast of the project building, which would be located approximately 90 feet from the acoustic center of construction activity where multiple pieces of heavy machinery would operate. Again, the acoustic center refers to a point equidistant from multiple pieces of equipment operating simultaneously which would produce the worst-case maximum noise level. At this distance, construction noise levels at the exterior facade of this nearest residential home would be expected to range up to approximately 85 dBA L_{max}, with a worst-case hourly average of approximately 81 dBA L_{eq}, intermittently, when multiple pieces of heavy construction equipment operate simultaneously at the nearest construction footprint. These noise levels would be intermittent and would be reduce as equipment moves over the project site further from adjacent sensitive receptors. Therefore, restricting construction activities to daytime hours only would ensure that construction noise would not result in a substantial exceedance of the construction noise standards established by Contra Costa County General Plan Policy 11-8.

MM NOI-1 requires adherence to the permissible construction hours and also requires implementation of best management noise reduction techniques and practices that would ensure that construction noise levels would not result in a substantial temporary increase in ambient noise levels that would

result in annoyance or sleep disturbance of nearby sensitive receptors. Therefore, with implementation of MM NOI-1, temporary construction noise impacts would be reduced to less than significant.

Operation

The project will result in an increase in traffic on local roadway segments in the project vicinity. In addition, implementation of the project would introduce new stationary noise sources to the ambient noise environment in the project vicinity, including new mechanical ventilation equipment. The potential for a substantial increase in ambient noise levels resulting from these noise sources is analyzed below.

Traffic Noise

Neither the County nor the City of Walnut Creek define "substantial increase," therefore, for purpose of this analysis, a substantial increase is based on the following criteria. As noted in the characteristics of noise discussion, audible increases in noise levels generally refer to a change of 3 dBA or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. A change of 5 dBA is considered the minimum readily perceptible change to the human ear in outdoor environments. Therefore, for purposes of this analysis, a significant impact would occur if the project would cause the L_{dn} to increase by any of the following:

- 5 dBA or more even if the L_{dn} would remain below normally acceptable levels for a receiving land use.
- 3 dBA or more, thereby causing the L_{dn} in the project vicinity to exceed normally acceptable levels and result in noise levels that would be considered conditionally acceptable for a receiving land use.
- 1.5 dBA or more where the L_{dn} currently exceeds conditionally acceptable levels.

The highest traffic noise level increase with implementation of the project would occur along Del Hombre Lane between Honey Trail and Roble Road under existing plus project conditions. Along this roadway segment, the project would result in traffic noise levels ranging up to approximately 52 dBA L_{dn} as measured at 50 feet from the centerline of the nearest travel lane, representing an increase of 8.8 dBA over existing conditions for this roadway segment. However, as documented by the long-term ambient noise measurement conducted adjacent to this roadway segment, ambient noise levels at this location averaged 70 dBA L_{dn}. This represents the combined noise levels from traffic on all local roadways, as well as noise from BART rail activity and other stationary noise sources in the project vicinity. Therefore, the traffic noise levels that would result from implementation of the project along Del Hombre Lane between Honey Trail and Roble Road would actually not result in any perceptible increase in the ambient noise levels adjacent to this roadway segment.

No other modeled roadway segment would experience an increase of greater than 1 dBA under any of the plus project traffic scenarios. Therefore, project-related traffic noise level would result in less than significant increases in traffic noise levels along modeled roadway segments in the project vicinity. This would be a less than significant impact, and no mitigation would be required.

Stationary Noise

A significant impact would occur if operational noise levels generated by stationary noise sources at the project site would result in a substantial permanent increase in ambient noise levels in excess of any of the noise performance thresholds established in Contra Costa County and the City of Walnut Creek General Plans. Contra Costa County and the City of Walnut Creek both establish a maximum exterior noise performance threshold for receiving residential land uses of 65 dBA L_{dn}. Contra Costa County and the City of Walnut Creek also establish a maximum interior noise threshold of 45 dBA L_{dn}; however, if ambient noise levels exceed 65 dBA L_{dn} due to train noise, the maximum interior noise threshold would be 50 dBA L_{dn} in bedrooms and 55 dBA L_{dn} in other habitable rooms.

As noted in the characteristics of noise discussion, audible increases in noise levels generally refer to a change of 3 dBA or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. A change of 5 dBA is considered the minimum readily perceptible change to the human ear in outdoor environments. Therefore, for purposes of this analysis, an increase of more than 3 dBA above the applicable noise performance thresholds would be considered a substantial permanent increase in ambient noise levels.

Implementation of the project would introduce new stationary noise sources to the ambient noise environment in the project vicinity, including new mechanical ventilation equipment. The project would include installation of new rooftop mechanical ventilation equipment. Proposed parking areas would be enclosed in parking structures, and associated noise would not propagate to nearby sensitive receptors; thus the following analysis is limited to stationary noise associated with proposed mechanical equipment.

Noise levels from typical mechanical ventilation equipment range up to approximately 60 dBA L_{eq} as measured at a distance of 25 feet. The building's proposed rooftop mechanical ventilation units could be located as close as 50 feet from the nearest noise-sensitive receptor, which is the multi-family residential home located southeast of the proposed building. At this distance, noise levels generated by this equipment would attenuate to below 54 dBA L_{eq} at this closest residential receptor. These noise levels would not exceed Contra Costa County's or the City of Walnut Creek's maximum exterior noise threshold for receiving residential land uses of 65 dBA L_{dn}. They would therefore also not exceed the maximum interior noise threshold of 45 dBA L_{dn} as measured inside the nearest residential receptor. Therefore, operational noise levels generated by the proposed mechanical ventilation equipment would not result in a substantial permanent increase in ambient noise levels in excess of any of the noise performance thresholds, and would represent a less than significant impact.

Overall

Implementation of the project would introduce new stationary noise sources to the ambient noise environment in the project vicinity, including new rooftop mechanical ventilation equipment. Noise levels generated by this equipment would attenuate to below 54 dBA L_{eq} at the closest residential receptor. These noise levels would not exceed established standards as measured at the nearest receptor. Therefore, this impact would be less than significant.

Level of Significance Before Mitigation

Potentially Significant (construction noise only)

Mitigation Measures

MM NOI-1 Implement Noise-reduction Measures During Construction

To reduce potential construction noise impacts, the following multi-part mitigation measure shall be implemented for the project:

- The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment.
- The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.
- The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.
- The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.
- Restrict noise-generating construction activities (including construction-related traffic, excluding interior work within the building once the building envelope is complete) at the project site and in areas adjacent to the project site to the hours of 7:30 a.m. to 5:00 p.m., Monday through Friday, unless otherwise approved by CDD, with no construction allowed on weekends, federal and State holidays.

Level of Significance After Mitigation

Less Than Significant with Mitigation

Noise Levels That Would Conflict with Any Land Use Plan, Policy, or Regulation

Impact NOI-2: The project could 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.

Construction

Impacts related to noise land use compatibility consistency are limited to operational impacts. No respective construction impacts would occur.

Operation

A significant impact would occur if the project would result in a conflict with Contra Costa County or the City of Walnut Creek applicable adopted land use compatibility standards. The applicable standards are summarized as follows:

- 65 dBA L_{dn} for the proposed multi-family residential land use development; or

- conditionally acceptable land use compatibility threshold of 70 dBA L_{dn} for the proposed multi-family residential land use development.

Contra Costa County and the City of Walnut Creek also establish a maximum interior noise threshold of 45 dBA L_{dn}; however, for new downtown mixed-use development or for new residential development affected by noise from BART or helicopters, the project must ensure that maximum noise levels do not exceed 50 L_{dn} in bedrooms and 55 L_{dn} in other rooms.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate existing and future project-related traffic noise conditions along modeled roadway segments in the vicinity of the project site. The projected future traffic noise levels on roadways adjacent to the site were analyzed to determine compliance with the applicable noise and land use compatibility standards. Traffic modeling was performed using the data obtained from the project-specific traffic impact study conducted by Fehr & Peers[11] (Appendix I). This traffic impact study provides data for existing (year 2019) and cumulative conditions (year 2040). The resultant noise levels were weighed and summed over a 24-hour period to determine the L_{dn} values. The traffic noise modeling input and output files—including the 60 dBA, 65 dBA, and 70 dBA CNEL noise contour distances—are included in Appendix H. The following tables show a summary of the traffic noise levels for existing (year 2019), near term, and cumulative (year 2040) traffic conditions, with and without the project, as measured at 50 feet from the centerline of the outermost travel lane.

Table 3.11-8 shows a summary of the traffic noise levels for existing (year 2019) scenarios with and without project conditions as measured at 50 feet from the centerline of the outermost travel lane.

Table 3.11-8: Project Traffic Noise Modeling Results Summary

Roadway Segment	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane		
	Existing without Project	Existing with Project	Increase over Existing without Project (dBA)
Las Juntas Way—Iron Horse Lane to Coggins Drive	56.3	56.8	0.5
Las Juntas Way—Coggins Drive to Del Hombre Lane	55.9	56.9	1.0
Las Juntas Way—Roble Road to Santos Lane	55.2	55.6	0.4
Del Hombre Lane—Honey Trail to Roble Road	43.3	52.1	8.8
Coggins Drive—Las Juntas Way to Jones Road	58.0	58.4	0.4
Jones Road—Coggins Drive to Harvey Drive	57.3	57.6	0.3

Note:
Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather it assumes a worst case of having a direct line of site on flat terrain.
Source: FCS 2019.

[11] Fehr & Peers. 2019. Transportation Impact Assessment Del Hombre Apartments. January.

Table 3.11-9 shows a summary of the traffic noise levels for opening year (2022) traffic conditions with and without project conditions as measured at 50 feet from the centerline of the outermost travel lane.

Table 3.11-9: Opening Year Traffic Noise Modeling Results Summary

Roadway Segment	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane		
	Opening Year without Project	Opening Year with Project	Increase over Opening Year without Project (dBA)
Las Juntas Way—Iron Horse Lane to Coggins Drive	57.1	57.6	0.5
Las Juntas Way—Coggins Drive to Del Hombre Lane	57.0	57.9	0.9
Las Juntas Way—Roble Road to Santos Lane	56.8	57.1	0.3
Del Hombre Lane—Honey Trail to Roble Road	48.1	53.1	5.0
Coggins Drive—Las Juntas Way to Jones Road	58.6	58.9	0.3
Jones Road—Coggins Drive to Harvey Drive	57.8	58.1	0.3

Note:
Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather it assumes a worst case of having a direct line of site on flat terrain.
Source: FCS 2019.

Table 3.11-10 shows a summary of the traffic noise levels for cumulative (year 2040) conditions with and without project conditions as measured at 50 feet from the centerline of the outermost travel lane.

Table 3.11-10: Cumulative Traffic Noise Modeling Results Summary

Roadway Segment	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane		
	Cumulative without Project	Cumulative with Project	Increase over without Project (dBA)
Las Juntas Way—Iron Horse Lane to Coggins Drive	57.5	57.9	0.4
Las Juntas Way—Coggins Drive to Del Hombre Lane	57.4	58.2	0.8
Las Juntas Way—Roble Road to Santos Lane	57.0	57.4	0.4
Del Hombre Lane—Honey Trail to Roble Road	48.1	53.1	5.0
Coggins Drive—Las Juntas Way to Jones Road	59.0	59.2	0.2
Jones Road—Coggins Drive to Harvey Drive	58.1	58.4	0.3

Note:
Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather it assumes a worst case of having a direct line of site on flat terrain.
Source: FCS 2019.

The highest traffic noise levels that would be experienced at the project would occur on Del Hombre Lane between Honey Trail and Roble Road under cumulative plus project conditions. These traffic noise levels would range up to approximately 59.2 dBA L_{dn} as measured at 50 feet from the centerline of the nearest travel lane. The nearest proposed façade would be located approximately 35 feet from the centerline of the roadway. At this distance, traffic noise levels would range up to approximately 63 dBA L_{dn}. These traffic noise levels do not exceed the "normally acceptable" standard of 65 dBA L_{dn} for new multi-family residential land use developments and would be considered less than significant.

However, the existing ambient noise environment includes other major noise sources, including noise from BART rail line activity. The ambient noise environment on the project site was documented through the ambient noise monitoring effort described in the existing conditions discussion. A long-term (24-hour) noise measurement was conducted on the northwestern corner of the project site, approximately 75 feet southeast of the raised BART rail line. As was observed by the technician at the time of the noise measurement, the dominant noise sources in the project vicinity include vehicular traffic on Treat Boulevard and Roble Road, and BART rail activity. The resulting measurement showed that ambient noise levels at this location averaged 70 dBA L_{dn}. These ambient noise levels exceed the "normally acceptable" land use compatibility range, but are within the "conditionally acceptable" land use compatibility range of below 75 dBA L_{dn} for new multi-family residential land use development. Therefore, according to County Policy 11-5, if ambient noise levels exceed 65 dBA L_{dn} due to train noise, design measures must be included in the project to maintain the maximum interior noise threshold of 50 dBA L_{dn} in bedrooms and 55 dBA L_{dn} in other habitable rooms.

Based on the United States Environmental Protection Agency (EPA) Protective Noise Levels,[12] a combination of walls, doors, and windows provided in accordance with State building code requirements for the proposed residential development would result in a 25 dBA in exterior-to-interior noise reduction with windows closed and a 15 dBA or more with windows open. With windows open, interior noise levels of the nearest proposed units to the BART rail line would not meet the interior noise standard of 50 dBA L_{dn} (i.e., 70 dBA–15 dBA = 55 dBA). This impact is potentially significant. Therefore, MM NOI-2 shall be implemented, which requires that the project shall include a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods. The inclusion of the proposed air conditioning system would allow windows to remain closed and would be sufficient to reduce traffic and BART noise levels to meet the interior noise level standard of 50 dBA L_{dn} (i.e., 70 dBA–25 dBA = 45 dBA). This mitigation measure would ensure that potentially impacted interior residential units would meet the interior noise level requirement of 45 dBA L_{dn}. Therefore, with implementation of MM NOI-2, future projected traffic and BART noise impacts would be reduced to less than significant.

Thus, traffic noise levels adjacent to the project site would not exceed noise levels that Contra Costa County and the City of Walnut Creek consider acceptable for new residential land uses. As such, traffic noise would result in a less than significant impact for the proposed multi-family residential development.

[12] United States Environmental Protection Agency (EPA) 550/9-79-100, November 1978.

Therefore, the impact related to noise land use compatibility standards consistency would be less than significant.

Level of Significance Before Mitigation

Potentially Significant (operational noise only)

Mitigation Measures

MM NOI-2 Install Mechanical Ventilation System

To reduce potential traffic and BART noise impacts, prior to issuance of building permits, the applicant shall submit evidence to the satisfaction of the Department of Conservation and Development to demonstrate that the project includes a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods.

Level of Significance After Mitigation

Less Than Significant

Groundborne Vibration/Noise Levels

Impact NOI-3: The project would not result in generation of excessive groundborne vibration or groundborne noise levels.

Construction

Contra Costa County and the City of Walnut Creek have not adopted criteria for construction groundborne vibration impacts. Therefore, for purposes of this analysis, the FTA's vibration impact criteria are utilized. The FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in the agency's Transit Noise and Vibration Impact Assessment document.[13] Therefore, for purposes of this analysis, a significant impact would occur if the project would generate groundborne vibration or groundborne noise levels in excess of the FTA impact assessment criteria for construction (0.2 in/sec PPV for non-engineer timber and masonry buildings).

Groundborne noise is generated when vibrating building components radiate sound, or noise generated by groundborne vibration. In general, if groundborne vibration levels are do not exceed levels considered to be perceptible, then groundborne noise levels would not be perceptible in most interior environments. Therefore, this analysis focuses on determining exceedances of groundborne vibration levels.

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of a construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels,

[13] Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. May.

to slight damage at the highest levels. As shown in the Setting section above, Table 3.11-4 provides approximate vibration levels for various construction activities.

Impact equipment, such as pile drivers, are not expected to be used during construction of the project. Therefore, of the variety of equipment used during construction of this component of the project, the small vibratory rollers that would be used in the site preparation phase of construction would produce the greatest groundborne vibration levels. Small vibratory rollers produce groundborne vibration levels ranging up to 0.101 in/sec PPV at 25 feet from the operating equipment.

The nearest off-site receptor to where the heaviest construction equipment would operate are the multi-family residential homes, approximately 40 feet southeast of the nearest construction footprint for the project. As measured at the nearest receptor, operation of a small vibratory roller could result in groundborne vibration levels up to 0.050 in/sec PPV. This is well below the FTA's damage threshold criteria of 0.2 PPV for non-engineer timber and masonry buildings. Therefore, construction-related groundborne vibration impacts to off-site receptors would be less than significant.

Operation

Contra Costa County and the City of Walnut Creek have not adopted criteria for operational groundborne vibration impacts. Therefore, for purposes of this analysis, a significant impact would occur if project on-going activities would produce groundborne vibrations that are perceptible without instruments by a reasonable person at the property lines of a site. Implementation of the project would not include any permanent sources of vibration that would expose persons in the project vicinity to groundborne vibration levels that could be perceptible without instruments at any existing sensitive land use in the vicinity of the project site. Therefore, operational groundborne vibration impacts would be less than significant.

Level of Significance

Less Than Significant

Excessive Noise Levels from Airport Activity

Impact NOI-4:	**The project would not expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.**

Construction

Noise impacts related to a project being located proximate to a private airstrips, public airport, or public use airport are limited to operational impacts. No respective construction impacts would occur.

Operation

A significant impact would occur if the project would expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport.

The project site is not located within the vicinity of a private airstrip. Additionally, there is not a private airstrip located within a 5-mile radius of the project. The closest public airport is the Buchanan Field Airport located 3.5 miles north of the project site. The project site is also not located within a 55 dBA CNEL airport noise contours of any public or public use airport. As such, operation of the project would not expose people residing or working at the project site to excessive noise levels associated with public airport or public use airport noise. Therefore, no impact related to exposure of persons residing or working at the project site to excessive noise levels associated with airport activity would occur.

Level of Significance

No Impact

3.11.5 - Cumulative Impacts

Construction Noise

The geographic scope of the cumulative noise analysis is the project vicinity, including surrounding sensitive receptors. Noise impacts tend to be localized; therefore, the area near the project area (approximately 0.25 mile) would be the area most affected by proposed plan activities. Nearby projects surrounding this site that are currently or soon to be under construction include Las Juntas (estimated completion Fall 2019) and Avalon Block C (estimated completion Summer 2019). The project's current estimated construction schedule is for site preparation work to begin in Summer 2020. Therefore, the project's loudest phase of construction activity (the site preparation phase) would not overlap with any other current or planned development project located within 0.25 mile of the project site. Therefore, the project would result in a less than significant cumulative impact related to construction noise.

Operational Traffic Noise

The significance threshold for a cumulative traffic noise impact would be traffic noise levels that would cause the L_{dn} to increase by 1.5 dBA or more where the L_{dn} currently exceeds conditionally acceptable levels.

None of the modeled roadway segments in the project vicinity would have traffic noise levels that would exceed conditionally acceptable noise levels for any adjacent land uses. In addition, the highest traffic noise level increase under cumulative plus project conditions would occur along Del Hombre Lane between Honey Trail and Roble Road. Along this roadway segment, the project would result in an increase of 5 dBA over conditions that would exist without the project; however, the resulting traffic noise levels along this segment would range up to approximately 53 dBA L_{dn} as measured at 50 feet from the centerline of the nearest travel lane. These cumulative plus project traffic noise levels would not result in any increase in the documented existing ambient noise levels adjacent to this roadway segment. Therefore, project-related traffic noise level would result in less than significant increases in traffic noise levels along modeled roadway segments in the project vicinity. This would be a less than significant impact, and no mitigation would be required.

Given the above information, the project, in conjunction with other existing, planned, and probable future projects, would result in a less than significant cumulative impact related to noise.

Operational Stationary Noise

Implementation of the project would introduce new stationary noise sources to the ambient noise environment in the project vicinity, including new rooftop mechanical ventilation equipment. However, noise levels generated by this equipment would attenuate to below 54 dBA L_{eq} at the closest residential receptor. These noise levels would not exceed existing background ambient noise levels. Therefore, implementation of the project would not result in a cumulatively considerable contribution to existing ambient noise conditions in the project vicinity. This impact would be less than significant.

Noise Land Use Compatibility Consistency

Combined cumulative year traffic and BART activity noise levels at the project site would result in noise levels that Contra Costa County and the City of Walnut Creek consider to be conditionally acceptable for new multi-family residential land uses (with projected noise levels of up to 70 dBA L_{dn} at the nearest proposed façade). This impact is potentially significant. However, as discussed under Impact NOI-2, MM NOI-2 shall be implemented, which requires the project to include a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods. This measure would ensure that potentially impacted interior residential units would meet the interior noise level requirement of 45 dBA L_{dn}. Therefore, implementation of MM NOI-2 would ensure that the project would not result in a cumulatively considerable contribution to consistency with noise land use compatibility standards. Therefore, with implementation of MM NOI-2, the project would result in a less than significant cumulative impact related to land use compatibility consistency.

Construction Vibration

The only cumulatively considerable contribution to vibration conditions in the project vicinity would result from introduction of new permanent sources of groundborne vibration in the project site vicinity. The only major sources of groundborne vibration in the project vicinity is railroad activity along the light rail line. Implementation of the project would not introduce any new permanent sources of groundborne vibration to the project vicinity and would not increase railroad activity. Therefore, implementation of the project would not result in a cumulatively considerable contribution to vibration conditions in the project vicinity. This impact would be less than significant.

Operational Vibration

Implementation of the project would not include any permanent sources of vibration that would expose persons in the project vicinity to groundborne vibration levels that could be perceptible without instruments at any existing sensitive land use in the vicinity of the project site. Therefore, implementation of the project would not result in a cumulatively considerable contribution to vibration conditions in the project vicinity. This impact would be less than significant.

Level of Cumulative Significance Before Mitigation

Potentially Significant (operation noise only)

Mitigation Measures

Implement MM NOI-2

Level of Cumulative Significance After Mitigation

Less Than Significant

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3.12 - Population and Housing

3.12.1 - Introduction

This section describes existing population and housing in the region, County, and project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to population and housing that could result from implementation of the project. Information included in this section is based on databases and reports maintained by the California Department of Finance (CDF), Association of Bay Area Governments (ABAG), and Contra Costa County. No public comments were received during the Environmental Impact Report (EIR) scoping period related to population and housing.

3.12.2 - Existing Conditions

Population

San Francisco Bay Area

The ABAG conducts long-term forecasts of population, households, and employment for the nine-county[1] San Francisco Bay Area (Bay Area) to project growth in the region. The Bay Area has experienced population growth over the past several decades, and that growth is expected to continue. The ABAG 2013 projection estimates that approximately 7,150,700 residents were living in the Bay Area in 2010. The ABAG projects that the Bay Area's population will grow by 9 percent each decade between 2010 and 2040, or approximately 716,120 new residents each decade.[2] Between 2010 and 2040, the ABAG projects that the region will grow 25 percent to a population of 9,522,300.[3]

Contra Costa County

In 2010, Contra Costa County had a population of 1,049,025.[4] The CDF estimates that the total population of unincorporated Contra Costa County was 172,513 as of January 1, 2018.[5] The CDF estimates that the County had an average household size of 2.88 persons per household and a total of 413,923 dwelling units as of January 1, 2018.

The CDF provides population projections for Contra Costa County in 1-year increments. Contra Costa County is projected to have a population of 1,166,670 in 2020 with a consistent growth rate of at least 1.01 percent each of the following years.[6] Table 3.12-1 summarizes the County's historic and projected population growth between 1960 and 2040.

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1 The Bay Area is defined as the nine counties that make up the region: Sonoma, Marin, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco.

2 Association of Bay Area Governments (ABAG). 2013. Forecasts and Projections. Website: http://abag.ca.gov/planning/research/forecasts.html. Accessed February 12, 2019.

3 Association of Bay Area Governments (ABAG). Regional Forecast for Plan Bay Area 2040, at page 2. Website: https://abag.ca.gov/planning/research/memos/Regional_Forecast_for_Plan_Bay_Area_2040_F_030116.pdf. Accessed February 12, 2019.

4 California Department of Finance (CDF). 2018. Report E-5 Population Estimates for Cities, Counties, and the State. May.

5 California Department of Finance (CDF). 2018. Report E-1 Population Estimates for Cities, Counties, and the State. May.

6 California Department of Finance (CDF). 2018. Total Estimated and Projected Population for California and Counties: 2010 to 2060 1-year Increments. January.

Table 3.12-1: Contra Costa County Historic and Project Population Growth

Year	Population	Change From Previous (Percent)*
1960	413,200	—
1970	557,500	1.35
1980	658,500	1.18
1990	803,732	1.22
2000	948,816	1.18
2010	1,049,025	1.11
2020	1,178,639	1.12
2030	1,309,118	1.11
2040	1,420,595	1.09

Note:
* Calculated with available information provided by the California Department of Finance
Source: CDF 2018.

Project Site

The project site contains two existing residences. Using the average household size of 2.88 persons per household, the existing population on the project site is estimated to be 6 persons.

Housing

San Francisco Bay Area

Growth in the Bay Area's housing supply slowed down between 2010 and 2014 compared with previous decades, likely in part because of the effects of the Great Recession. Specifically, the Bay Area added an average of 9,600 units per year between 2010 and 2014, compared with an average of 23,200 units per year between 2000 and 2010. During the 1990s, the Bay Area averaged an additional 18,700 units per year.[7]

The ABAG periodically develops Bay Area regional projections for population, households, and economic activity. These projections span four decades and also include forecasts of 25 years into the future. The ABAG calculates these projections based on a combination of economic relationships, policy development, and other factors. Based on ABAG projections for households from 2010 to 2040, the compound annual growth rate is 4.04 percent. This rate is calculated from the average growth rate of each 5-year period[8] and forecasts the needed development of 822,600 new housing units between 2010 and 2040.[9] The growth in housing construction would provide a total of approximately 3,607,000 housing units by 2040, implying an average rate of increase

[7] Association of Bay Area Governments (ABAG). 2015. Executive Summary—State of the Region 2015: Economy, Population and Housing. Website: http://reports.abag.ca.gov/sotr/2015/executive-summary.php. Accessed November 16, 2018.
[8] Association of Bay Area Governments (ABAG). 2013. Bay Area Regional Projections. Website: https://abag.ca.gov/planning/research/forecasts.html.
[9] Association of Bay Area Governments (ABAG). Regional Forecast for Plan Bay Area 2040, at page 8. Website: https://abag.ca.gov/planning/research/memos/Regional_Forecast_for_Plan_Bay_Area_2040_F_030116.pdf. Accessed February 12, 2019.

between 17,000 and 37,000 units per year. According to the ABAG, the majority of forecasted new housing units would be to fill the needs of projected household growth within the region.

Contra Costa County

The CDF also provides historic housing growth estimates for unincorporated Contra Costa County. The County's housing stock increased by 6 percent in the period between 1990 and 2015, growing at a compound annual growth rate of 0.25 percent. According to the most recent housing estimate for 2018, there are 63,975 dwelling units in unincorporated Contra Costa County.[10] The County's housing growth between 1990 and 2018 is summarized in Table 3.12-2.[11,12]

Table 3.12-2: Contra Costa County Historic Housing Unit Growth

Year	Dwelling Units	Change from Previous (Percent)
1990	58,997	—
1995	63,294	7.3
2000	57,609	-9.0[1]
2005	59,600	3.5
2010	62,401	4.1
2015	63,636	2.6
2018	63,975	0.5
Net Change	4,978	7.8

Note:
[1] The City of Oakley incorporated in 1999 resulting in a decline in housing units in the unincorporated County.
Source: CDF 2018, 2012, 2007.

Project Site

The project site contains two existing dwelling units.

Affordable Housing

Contra Costa County

In July 2013, the ABAG projected regional housing needs in its Regional Housing Needs Plans for the San Francisco Bay Area: 2015-2023. According to the ABAG forecasts, unincorporated Contra Costa County's projected housing need from 2015 to 2023 is 1,367 residential units, consisting of:

- 374 units within the very-low-income level (0–50 percent of area median income);
- 218 units within the low-income level (51–80 percent of area median income);
- 243 units within the moderate-income level (81–120 percent of area median income); and

[10] California Department of Finance (CDF). 2018. Report E-5 Population and Housing Estimates for Cities, Counties, and the State. May.
[11] California Department of Finance (CDF). 2007. Report E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 1990–2000. August.
[12] California Department of Finance (CDF). 2012. Report E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 2000–2010. November.

- 532 units within the above-moderate-income level (more than 120 percent of area median income).[13]

Project Site

The project site does not currently contain affordable housing units.

Employment

San Francisco Bay Area

The Bay Area region has experienced a strong recovery since the 2007–2009 Great Recession, with job growth proceeding at a pace greater than that experienced by the State of California or the United States as a whole. By mid-2013, the Bay Area had regained all of the jobs lost during the Great Recession; however, if 2000 is used as the baseline year, the average rate of growth is much less and closer to zero since the peak of the dot-com boom era.[14]

More recent data indicates that almost half of the projected job growth from 2010 had already occurred as of 2015. The 2010 to 2015 strength reflects a combination of recovery from the depths of the 2007 to 2009 recession and a strong surge in economic activity related to the technology and social media sectors. In this projection, employment growth slightly outpaces the nation, with the Bay Area share of U.S. employment growing from 2.5 percent in 2010 (3,422,800) to 2.69 percent in 2015 (4,025,600) and to 2.76 percent in 2040 (4,698,400).[15]

Contra Costa County

In December 2018, the California Department of Employment Development estimated 561,700 employed persons and 17,200 unemployed persons for an unemployment rate of 3 percent within Contra Costa County.[16] According to the U.S. Bureau of Labor Statistics, in December of 2018, the State of California has an unemployment rate of 4.2 percent.[17]

Project Site

The project site contains two dwelling units. There are no land uses, such as commercial or office space, on the project site that offer employment.

3.12.3 - Regulatory Setting

Federal

No federal plans, policies, regulations, or laws related to population and housing are applicable to the project.

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[13] Association of Bay Area Governments (ABAG). Final Regional Housing Need Allocation, 2015-2023. Website: https://abag.ca.gov/planning/housingneeds/pdfs/2015-2023_RHNA_Allocations.pdf, at page 21. Accessed February 12, 2019.

[14] Association of Bay Area Governments (ABAG). 2015. Executive Summary—State of the Region 2015: Economy, Population and Housing. Website: http://reports.abag.ca.gov/sotr/2015/executive-summary.php. Accessed November 16, 2018.

[15] Association of Bay Area Governments (ABAG). Regional Forecast for Plan Bay Area 2040, Fiscal Year 2016, Table 1. Website: https://abag.ca.gov/planning/research/memos/Regional_Forecast_for_Plan_Bay_Area_2040_F_030116.pdf. Accessed February 12, 2019.

[16] California Department of Employment Development. 2019. Contra Costa County Profile. Website: https://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/localAreaProfileQSResults.asp?selectedarea=Contra+Costa+County&selectedindex=7&menuChoice=localAreaPro&state=true&geogArea=0604000013&countyName=. Accessed February 12, 2019.

[17] United States Bureau of Labor Statistics. 2019. Economy at a Glance. Website: https://www.bls.gov/eag/eag.ca.htm. Accessed February 12, 2019.

State Regulations

California Housing Element Law

The State Housing Element Law (Government Code Chapter 1143, Article 10.6, §§ 65580 and 65589) requires each city and county to adopt a general plan for future growth. This plan must include a housing element that identifies housing needs for all economic segments and provides opportunities for housing development to meet that need. The amount of housing that must be accounted for in a local housing element is determined through a process called the Regional Housing Needs Allocation (RHNA). In the RHNA process, the State gives each region a number representing the amount of housing needed, based on existing need and expected population growth.

At the State level, the California Department of Housing and Community Development (HCD) estimates the relative share of the State's anticipated population growth that would occur in each county in the State, based on CDF population projections and historic growth trends. Where there is a regional council of governments, as in the San Francisco Bay Area (in this case, the ABAG), the HCD provides the regional housing need to the council. The council then assigns a share of the regional housing need to each of its cities and counties. The process of assigning shares provides cities and counties the opportunity to comment on the proposed allocations. The HCD oversees the process to ensure that the council of governments distributes its share of the State's projected housing need.

Each city and county must update its general plan housing element on a regular basis pursuant to the requirements of Government Code Section 65580, et seq. Among other things, the housing element must incorporate policies and identify potential sites that would accommodate a city's share of the regional housing need. Before adopting an update to its housing element, a city or county must submit the draft to the HCD for review. The HCD will advise the local jurisdiction whether its housing element complies with the provisions of California Housing Element Law. The regional councils of governments are required to assign regional housing shares to the cities and counties within their region on a similar schedule. At the beginning of each cycle, the HCD provides population projections to the regional councils of governments, who then allocate shares to their cities and counties. The shares of the regional need are allocated before the end of the cycle so that the cities and counties can amend their housing elements by the deadline.

Regional

Plan Bay Area and ABAG Regional Housing Needs Assessment

The Plan Bay Area, published by the Metropolitan Transportation Commission and the ABAG, is a long-range integrated transportation and land use/housing strategy through 2040 for the Bay Area. The Plan Bay Area functions as the sustainable communities' strategy mandated by Senate Bill 375. In July 2013, the ABAG projected regional housing needs in its Regional Housing Needs Plan for the San Francisco Bay Area: 2014–2022.

Acting in coordination with the HCD, the ABAG determines the Bay Area's regional housing need based on regional trends, projected job growth, and existing needs. Unincorporated Contra Costa County's fair share of the regional housing need allocation for an 8-year period (2015 to 2023) was calculated as 1,367 units, or about 171 units per year. The RHNA determination includes production targets addressing the housing needs of a range of household income categories. A total of about

592 units, or 43 percent of the RHNA target, must be affordable to households making up to 80 percent of the area's median income.[18] The U.S. Department of Housing and Urban Development (HUD) determines the annual area median income for the Oakland-Fremont Metropolitan Statistical Area, which includes Contra Costa County. In 2018, the area's median income for a single-person household was almost $58,100 and $89,600 for a household of four people.[19]

Local

Contra Costa County General Plan

Land Use Element

Applicable policies found in the Contra Costa County General Plan Land Use Element include the following:

- **Policy 3-5:** New development within unincorporated areas of the County may be approved, providing growth management standards and criteria are met or can be assured of being met prior to the issuance of building permits in accordance with the growth management program.
- **Policy 3-6:** Development of all urban uses shall be coordinated with provision of essential community services or facilities including, but not limited to, roads, law enforcement and fire protection services, schools, parks, sanitary facilities, water and flood control.
- **Policy 3-7:** The location, timing and extent of growth shall be guided through capital improvements programming and financing (i.e., a capital improvement program, assessment districts, impact fees, and developer contributions) to prevent infrastructure, facility and service deficiencies.
- **Policy 3-8:** Infilling of already developed areas shall be encouraged. Proposals that would prematurely extend development into areas lacking requisite services, facilities and infrastructure shall be opposed. In accommodating new development, preference shall generally be given to vacant or under-used sites within urbanized areas, which have necessary utilities installed with available remaining capacity, before undeveloped suburban lands are utilized.
- **Policy 3-24:** Housing opportunities shall be improved through encouragement of distinct styles, desirable amenities, attractive design and enhancement of neighborhood identity.
- **Policy 3-25:** Innovation in site planning and design of housing developments shall be encouraged in order to upgrade quality and efficiency of residential living arrangements and to protect the surrounding environment.
- **Policy 3-28:** New residential development shall be accommodated only in areas where it will avoid creating severe unmitigated adverse impacts upon the environment and upon the existing community.

Housing Element

Applicable policies found in the Contra Costa County General Plan Housing Element include the following:

[18] Association of Bay Area Governments (ABAG). 2013. Regional Housing Need Plan, San Francisco Bay Area 2015–2023. About the Regional Housing Needs Allocation. Website: https://abag.ca.gov/planning/housingneeds/pdfs/2015-23_RHNA_Plan.pdf. Accessed November 16, 2018.

[19] United States Department of Housing and Urban Development (HUD). FY 2018 Income Limits Summary. Website: https://www.huduser.gov/portal/datasets/il/il2018/2018summary.odn. Accessed December 3, 2018.

- **Goal 6-1:** Maintain and improve the quality of the existing housing stock and residential neighborhoods in Contra Costa County.
- **Goal 6-3:** Increase the supply of housing with a priority on the development of affordable housing, including housing affordable to extremely low-income households.
- **Policy 6-3.1:** Support the development of additional affordable housing by nonprofit and for-profit developers through financial assistance and/or regulatory incentives such as density bonus or flexible development standards through planned unit development.
- **Policy 6-3.3:** Increase the supply of affordable housing and encourage the development of mixed-income housing through the Inclusionary Housing Ordinance.
- **Goal 6-6:** Provide adequate sites through appropriate land use and zoning designations to accommodate the County's share of regional housing needs.
- **Policy 6-6.1:** Maintain an up-to-date site inventory that details the amount, type, and size of vacant and underutilized parcels, and assist developers in identifying land suitable for residential development.

Contra Costa County Ordinance Code

Inclusionary Housing Ordinance

Chapter 822-4, Inclusionary Housing Ordinance, of the Contra Costa County Ordinance Code facilitates the development and availability of housing affordable to a broad range of households with varying income levels within the County. A residential development consisting of five to 125 for-sale units must develop and sell at least 15 percent of the for-sale units as inclusionary units. However, as an alternative to providing some or all of the inclusionary units required, an in-lieu fee may be paid pursuant to Contra Costa County Ordinance Code Section 822-4.404. The fee paid is established by the County's Department of Conservation and Development fee schedule as adopted by the Board of Supervisors.

3.12.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 California Environmental Quality Act (CEQA) Guidelines Appendix G Environmental Checklist, to determine whether impacts to population and housing are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Approach to Analysis

Impacts related to population, housing, and employment were determined by analyzing existing and projected population, housing, and employment estimates provided by the CDF, ABAG, and the

Contra Costa County General Plan. The project's impacts were evaluated by determining their consistency with these projections, estimates, and the Contra Costa County General Plan.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of population and housing impacts resulting from implementation of the project.

- Inducement of permanent or daytime population or employment growth in the Contra Costa County General Plan planning area that would exceed Contra Costa County or ABAG population projections for Contra Costa County.
- Displacement of existing housing or permanent population.

Impact Evaluation

Population Growth

Impact POP-1:	**The project would not induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).**

Construction

Impacts related to inducement of population growth are limited to operational impacts. No respective construction impacts would occur.

Operation

Direct population growth is a result of developing residential units. The project includes an apartment building consisting of 21 studio apartments, 178 one-bedroom apartments, and 85 two-bedroom apartments, totaling 284 units, with an average unit size of 863 square feet. According to the CDF, unincorporated Contra Costa County has an average of 2.88 persons per household. Using this figure as a multiplier, the project would add 818 persons to the population of Contra Costa County. The CDF estimates that unincorporated Contra Costa County 2018 population to be 172,513 persons. The project's estimated increase in persons would represent an increase of less than 1 percent relative to the 2018 estimate. Thus, implementation of the project would not induce substantial direct population growth within unincorporated Contra Costa County.

Indirect population growth occurs when a project creates substantial employment opportunities, provides new infrastructure that can lead to additional growth, and/or removes barriers to growth. For example, a project could create thousands of jobs and attract a substantial amount people to the area. The project is within a suburban residential area and currently well-served by transportation and utility infrastructure. Once operational, the project is expected to employ five workers on-site daily for the maintenance and operation of the proposed apartment community. These employees would be expected to be drawn from the local labor force. Thus, implementation of the project would not induce substantial indirect population growth within unincorporated Contra Costa County.

Therefore, the project would not result in substantial population, housing, or employment growth in excess of that analyzed for Contra Costa County planning area and anticipated under local and

regional projections for Contra Costa County. This would represent a less-than-significant impact related to induced population growth.

Level of Significance

Less Than Significant

Population/Housing Displacement

Impact POP-2:	**The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.**

Construction

Impacts related to displacement of people or housing necessitating replacement housing are limited to operational impacts. No respective construction impacts would occur.

Operation

The project site currently contains two existing dwelling units and a third ancillary building. As part of the project, these existing structures would be removed, and a total of 284 new residential units (anticipated to house up to 818 new residents) would be added to the project site. Thus, while the project would displace two existing dwelling units, it would not necessitate the construction of replacement housing elsewhere not already anticipated in the Contra Costa County General Plan.

According to the CDF, unincorporated Contra Costa County has an average of 2.88 persons per household. Using this figure as a multiplier, the demolition of two existing residences would displace up to six persons. However, because of the provision of 284 new residential units, the project would not necessitate the construction of replacement housing elsewhere or not already anticipated in the Contra Costa County General Plan

Therefore, the project would not require the construction of replacement housing elsewhere due to the displacement of housing or people. This would represent a less-than-significant impact related to population and housing displacement.

Level of Significance

Less Than Significant

3.12.5 - Cumulative Impacts

Cumulative population and housing effects must be considered in relationship land use, plans, and policy considerations for development facilitated by the Contra Costa County General Plan. The relevant cumulative geographic context is the unincorporated area of Contra Costa County that includes projects identified in Table 3-1: Cumulative Projects (See Chapter 3.0, Environmental Analysis).

Population Growth

Cumulative projects listed in Table 3-1 in conjunction with the project would add population. The CDF estimates unincorporated Contra Costa County 2018 population to be 172,513 persons. The cumulative projects listed in Table 3-1 would total 703 residential units. Based on the CDF average

household size of 2.88 persons, the cumulative projects listed in Table 3-1 would increase persons by 2,025, in addition to the project's estimated increase of 818 persons for a total cumulative increase of 2,843 persons. This would represent a cumulative population increase of 1.6 percent relative to the 2018 estimate. This cumulative population is consistent with the Bay Area region population growth projections of ABAG, which projected a growth in housing construction that would provide a total of approximately 3,607,000 housing units by 2040.[20] ABAG has developed projections for the Bay Area region for four decades and prepares its projections based on a combination of economic relations ships and policy factors.[21] Furthermore, the project would construct affordable units as part of the project, which would contribute toward Contra Costa County's regional housing need allocation. As such, there would not be substantial direct population growth associated with implementation of the identified cumulative projects.

Cumulative projects listed in Table 3-1 in conjunction with the project are expected to generate employment opportunities, such as the office building, hotel, and auto dealership projects, that are expected to draw employees primarily from the local labor force. California Department of Employment Development estimates that Contra Costa County 2018 employment to be 561,700 employed persons. The cumulative projects' estimated increase in jobs would total 180 and would represent an increase of less than 1 percent relative to the 2018 estimate.[22] These cumulative project employees would be expected to be drawn from the local labor force. As such, there would not be substantial indirect population growth associated with implementation of the identified cumulative projects.

Therefore, cumulative impacts related to population growth, both direct and indirect, would be considered less than significant.

Population/Housing Displacement

Cumulative projects listed in Table 3-1 in conjunction with the project would add residential units to the County. None of the listed projects substantially displaces housing units or people within the County. In fact, implementation of the cumulative projects would result in a net increase of housing in the County. The County further requires development that may impact housing to include affordable housing units or pay a related impact fee (see Regulatory Setting). Therefore, cumulative impacts associated with population and housing displacement would be less than significant.

Level of Cumulative Significance

Less Than Significant

[20] Association of Bay Area Governments (ABAG). Regional Forecast for Plan Bay Area 2040. Page 8. Website: https://abag.ca.gov/planning/research/memos/Regional_Forecast_for_Plan_Bay_Area_2040_F_030116.pdf. Accessed February 12, 2019.

[21] *Ibid*.

[22] Institute of Transportation Engineers (ITE) 2017. Trip Generation Manual 10th Edition. Website: https://www.ite.org/tripgeneration/index.asp

3.13 - Public Services

3.13.1 - Introduction

This section describes the existing conditions related to public services in the County and project area, as well as the relevant regulatory framework. This section also evaluates the possible impacts related to public services that could result from project implementation of the project. Information in this section is based on information obtained from the Contra Costa County General Plan, Contra Costa County Fire Protection District (CCCFPD), Contra Costa County Office of the Sheriff, and Walnut Creek School District. No public comments were received during the EIR scoping period related to public services.

3.13.2 - Environmental Setting

Fire Protection and Emergency Medical Services

Northern California

California Department of Forestry and Fire Protection (CAL FIRE) is responsible for fire protection and stewardship of over 31 million acres of California's privately-owned wildlands. CAL FIRE also provides varying levels of emergency services in 36 of the California's 58 counties via contracts with local governments. Because of the Department's size and major incident management experience, it is often asked to assist or take the lead in disasters. CAL FIRE is divided into 21 units throughout California that are designed to address fire suppression.[1]

Contra Costa County

The CCCFPD provides fire protection and emergency medical services to Walnut Creek and the surrounding unincorporated areas of Contra Costa County. The CCCFPD serves the Contra Costa County community with 26 fire stations and maintains mutual aid agreements with Kensington Fire Protection District, Moraga-Orinda Fire Protection District, Rodeo-Hercules Fire Protection District, and San Ramon Valley Fire Protection District.[2]

In October 2017, a series of wildfires occurred in Northern California resulting in extensive property damage. In November 2018, the Camp Fire wildfire occurred in Northern California, resulting in the deadliest wildfire to occur in State history.[3] According to the Contra Costa County General Plan, wildfire hazards are a considerable problem in undeveloped areas and in areas of extensive un-irrigated vegetation. Vegetation and grain areas of the County are extremely flammable during the late summer and fall.[4]

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1 California Department of Forestry and Fire Protection (CAL FIRE). 2018. About CAL FIRE. Website: http://calfire.ca.gov/about/about. Accessed November 12, 2018.
2 Contra Costa County Fire Protection District (CCCFPD). 2019. Email Correspondence with Tracie Dutter, Fire Prevention Captain. January 18, 2019.
3 California Department of Forestry and Fire Protection (CAL FIRE). 2019. Top 20 Deadliest California Wildfire. Website: https://calfire.ca.gov/communications/downloads/fact_sheets/Top20_Deadliest.pdf. Accessed February 13, 2019.
4 Contra Costa County General Plan. 2005. Contra Costa County General Plan.

The CCCFPD is comprised of 22 engine companies, 5 truck companies, and a Shift Training Captain/Safety Officer. All companies are staffed with a Captain, Engineer, and a Firefighter.[5]

Project Site

There are no fire protection and emergency medical facilities on the project site. Two residences with an estimated six occupants reside on the project site, generating associated fire protection and emergency response needs. There are two fire stations located within approximately 2 miles of the project site. Station No. 2, at 2012 Geary Road is 1.6 miles west of the project site, Station No. 5, at 205 Boyd Road, is approximately 1.7 miles northwest of the project site, and Station No. 1, at 1330 Civic Drive, is approximately 2.20 miles south of the project site. With respect to service to the project site, Station No. 2 is designated as the first-responding engine company, Station No. 5 is designated as the second-responding engine company, and Station No. 1 is designated as the first-responding truck company.[6]

Police Protection

Contra Costa County

The Contra Costa County Office of the Sheriff provides law enforcement to unincorporated areas of Contra Costa County and serves over 1 million unincorporated County residents.[7] The Office of the Sheriff maintains four bureaus: Administration Services, Custody Services, Field Operations, and Support Services. A Commander manages each bureau.[8] The Office of the Sheriff employs approximately 1,100 staff members, 650 of which are sworn staff members[9] The sworn staff members provide detention services, court security, and provide patrol services in unincorporated parts of the County. The Office of the Sheriff also provides services to contract cities such as Danville, Lafayette, and Orinda.[10]

In 2018, the Office of the Sheriff had a ratio of 1.02 sworn staff personnel per resident. In addition, the Office of the Sheriff responded to 55,259 calls for service. As shown in Table 3.13-1, calls are broken down into seven category levels and actual response times range from 10 minutes 58 seconds, to 23 minutes 8 seconds. The table represents response times for the Valley Station for 2018. These response times represent the time from when the call was received by the dispatch center to when the Deputy arrived at the location of the call. Because there are many factors in evaluating response times, the Office of the Sheriff does not set a specific goal for emergency call response times. However, General Plan Policy 7-59 indicates that when making staffing and beat configuration decisions, the Sheriff should strive for a maximum response time for Priority 1 or 2 calls of 5 minutes for 90 percent of all emergency responses in central business district, urban, and suburban areas.

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5 Contra Costa County Fire Protection District (CCCFPD). 2019. Email Correspondence with Tracie Dutter, Fire Prevention Captain. January 18, 2019.

6 Contra Costa County Fire Protection District (CCCFPD). 2019. Email Correspondence with Tracie Dutter, Fire Prevention Captain. January 18, 2019.

7 Contra Costa County Office of the Sheriff. No date. Office of the Sheriff Overview. Website: http://www.cocosheriff.org/about/overview.htm. Accessed November 12, 2018.

8 Contra Costa County Office of the Sheriff. Bureaus. Website: http://www.cocosheriff.org/bureaus/default.htm. Accessed November 12, 2018.

9 Contra Costa County Office of the Sheriff. Office of the Sheriff Overview. Website: http://www.cocosheriff.org/about/overview.htm. Accessed November 12, 2018.

10 Contra Costa County Office of the Sheriff. 2019. Email Correspondence with Carlye Slover, Sheriff's Specialist. January 24, 2019.

Table 3.13-1: Sheriff Response Times

Response Category	Response Times (minutes: seconds)
Priority 1 (urgent)	14:10
Priority 1J (urgent in progress)	12:32
Priority 1P (urgent just occurred)	10:58
Priority 2 (routine)	20:40
Priority 2J (routine in progress)	18:34
Priority 2P (routine just occurred)	16:43
Priority 3 (non-serious/low priority)	23:08
Source: Contra Costa County Office of the Sheriff. 2019. Email Correspondence with Carlye Slover, Sheriff's Specialist. January 24, 2019.	

Project Site

No police station exists on the project site. Two residences with an estimated six occupants reside on the project site, generating associated police protection service needs. The closest police station to the project site, that also provides service to the project site, is Valley Station at 150 Alamo Plaza Unit C, located 5.35 miles south of the project. Mutual aid is coordinated between the Law Enforcement Region II, the California Office of Emergency Services, and the agencies within Contra Costa County. The station is comprised of 27 sworn staff members, including a Lieutenant, five Sergeants, 16 beat Deputies, and five special district Deputies.[11]

Schools

Contra Costa County

The Walnut Creek School District (WCSD), which provides K-8 educational services, serves most of the City of Walnut Creek, the eastern portion of the Town of Lafayette, and portions of surrounding unincorporated Contra Costa County. During the 2017/2018 school year, 3,593 students were enrolled in the WCSD.[12]

The Acalanes Union High School District (AUHSD), which provides 9-12 education and adult educational services, serves the communities of Canyon, Moraga, Lafayette, Orinda, and Walnut Creek. During the 2017/2018 school year, 5,662 students were enrolled in AUHSD.[13]

Table 3.13-2 provides enrollment information for the past 4 years for both School Districts that would serve Contra Costa County.

[11] *Ibid*.
[12] California Department of Education. 2018. District Profile: Walnut Creek Elementary. Website: https://www.cde.ca.gov/sdprofile/details.aspx?cds=07618120000000. Accessed November 13, 2018.
[13] California Department of Education. 2018. District Profile: Acalanes Union High School. Website: https://www.cde.ca.gov/sdprofile/details.aspx?cds=07616300000000. Accessed November 13, 2018.

Table 3.13-2: Contra Costa County School Districts Enrollment (2014–2018)

School Year	WCSD Enrollment Total	AUHSD Enrollment Total
2014–2015	3,608	5,402
2015–2016	3,613	5,546
2016–2017	3,589	5,530
2017–2018	3,593	5,662

Notes:
WCSD = Walnut Creek School District
AUHSD = Acalanes Union High School District
Source: California Department of Education 2018.

Table 3.13-3 provides the breakdown of enrollment between elementary schools and intermediate schools in the WCSD.

Table 3.13-3: Walnut Creek School Districts Enrollment Breakdown (2014–2018)

School Type	2014–2015	2015–2016	2016–2017	2017–2018
Elementary Schools	2,389	2,109	2,076	2,097
Intermediate Schools	1,219	1,502	1,513	1,496
Total	3,608	3,613	3,589	3,593

Source: California Department of Education 2018.

Project Site

No school exists on the project site. However, two residences exist on the project site with approximately one school-aged resident with school service needs. The project site is located within both the WCSD (grades K–8) and the AUHSD (grades 1–12). The closest elementary school to the project site is Indian Valley Elementary, located 2.25 miles southeast of the project site. The closest middle school to the project site is Walnut Creek Intermediate, located 1.34 miles south of the project site. The closest high school to the project site is Las Lomas High School, located 2.57 miles south of the project site.

Libraries

Contra Costa County

There are several local libraries that serve Contra Costa County and are under the Contra Costa County Library system. Table 3.13-4 summarizes the library branches, the distance of each library branch from the project site, the hours they are open, and the services they offer.

Table 3.13-4: Contra Costa Library Information

Library Branch and Location	Distance from Project Site	Hours of Operation	Services and Events
Pleasant Hill Library 1750 Oak Park Boulevard Pleasant Hill, CA 94523	0.88 mile	Monday through Saturday Closed Sunday	The Pleasant Hill Library contains a collection of over 140,000 books, audiobooks, videos, DVDs, and CDs. There are 38 computers and WiFi for public use. Learning programs for all ages take place at the library.
Walnut Creek Library 1644 North Broadway Walnut Creek, CA 94596	1.95 miles	Monday through Saturday Closed Sunday	The Walnut Creek Library contains a children's wing and garden, a teen area, a business and career center, a technology center, a conference room, and four group study rooms.
Ygnacio Valley Library 2661 Oak Grove Road Walnut Creek, CA 94598	2.23 miles	Monday through Saturday Closed Sunday	The Ygnacio Valley Library was remodeled in 2004. It is a popular neighborhood meeting location, known especially for its cookbooks, mysteries, and investment corner section.
Source: Contra Costa County Library 2018.			

Project Site

No library exists on the project site. Two residences exist on the project site with approximately six residents with library service needs. The closest library to the project site is the Pleasant Hill Library, located 0.88 mile northwest of the project site.

3.13.3 - Regulatory Framework

Federal

No federal plans, policies, regulations, or laws related to public services are applicable to the project.

State

California Health and Safety Code

California Health and Safety Code, Sections 13100–13135, establish the following policies related to fire protection:

- **Section 13100.1:** The functions of the office of the State Fire Marshall, including CAL FIRE, shall be to foster, promote, and develop strategies to protect life and property against fire and panic.
- **Section 13104.6:** The Fire Marshall has the authority to require fire hazards to be removed in accordance with the law relating to removal or public nuisances on tax-deeded property.

California Senate Bill 50

California Senate Bill 50 (SB 50) (funded by Proposition 1A, approved in 1998) limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development, and provides instead for a standardized developer fee. SB 50 generally provides for a 50/50 State and local school facilities funding match. SB 50 also provides for three levels of statutory impact fees. The application level depends on whether State funding is available, whether the school district is eligible for State funding, and whether the school district meets certain additional criteria involving bonding capacity, year-round school, and the percentage of moveable classrooms in use.

California Government Code, Section 65995(b) and Education Code, Section 17620

SB 50 amended Section 65995 of the California Government Code, which contains limitations on Section 17620 of the Education Code, the statute that authorizes school districts to assess development fees within school district boundaries. Section 65995(b)(3) of the Government Code requires the maximum square footage assessment for development to be increased every 2 years, according to inflation adjustments. On January 22, 2014, the State approved increasing the allowable amount of statutory school facilities fees (Level I School Fees) from $3.20 to $3.36 per square foot of assessable space for residential development of 500 square feet or more, and from $0.51 to $0.54 per square foot of chargeable covered and enclosed space for commercial/industrial development. School districts may levy higher fees if they apply to the State and meet certain conditions.

Local

Contra Costa County General Plan

General Plan Public Facilities/Services Element

The General Plan Public Facilities/Services Element set forth the following applicable goals and policies that are relevant to public facilities/services:

- **Goal 7-A:** To give a high priority to funding quality civic, public, and community facilities which serve a broad range of needs throughout the County.
- **Goal 7-B:** To permit development in unincorporated areas only when financing mechanisms are in place or committed which assure that adopted performance standards in the growth management program will be met.
- **Goal 7-C:** To utilize equitable financing methods which assure that adopted performance standards are achieved.
- **Goal 7-D:** To cooperate with other local jurisdictions to promote the most cost effective methods of providing public facilities necessary for supporting the economic, social, and environmental well-being of the County and its residents.
- **Goal 7-E:** To resolve conflicts with other jurisdictions regarding the location of revenue generating land uses.

- **Policy 7-1:** New development shall be required to pay its fair share of the cost of all existing public facilities it utilizes, based upon the demand for these facilities which can be attributed to new development.
- **Policy 7-2:** New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.
- **Policy 7-4:** The financial impacts of new development or public facilities should generally be determined during the project review process and may be based on the analysis contemplated under the Growth Management Element or otherwise. As part of the project approval, specific findings shall be adopted which relate to the demand for new public facilities and how the demand affects the service standards included in the growth management program.
- **Policy 7-6:** When adopting, amending, and imposing impact fees and developer exactions, the County shall consider the effects of such fees and exactions upon project economics, the County's development goals and housing needs.
- **Policy 7-57:** A sheriff facility standard of 155 square feet of station per 1,000 population shall be maintained within the unincorporated area of the County.
- **Policy 7-58:** Sheriff patrol beats shall be configured to assure minimum response times and efficient use of resources.
- **Policy 7-59:** A maximum response time goal for priority 1 or 2 calls of five minutes for 90 percent of all emergency responses in central business district, urban and suburban areas, shall be strived for by the sheriff when making staffing and beat configuration decisions.
- **Policy 7-60:** Levels of service above the County-wide standard requested by unincorporated communities shall be provided through the creation of a County Service Area or other special government unit.
- **Policy 7-62:** The County shall strive to reach a maximum running time of 3 minutes and/or 1.5 miles from the first-due station, and a minimum of 3 firefighters to be maintained in all central business district (CBD), urban and suburban areas.
- **Policy 7-63:** The County shall strive to achieve a total response time (dispatch plus running and set-up time) of five minutes in CBD, urban, and suburban areas for 90 percent of all emergency responses.
- **Policy 7-64:** New development shall pay its fair share of costs for new fire protection facilities and services.
- **Policy 7-65:** Needed upgrades to fire facilities and equipment shall be identified as part of project environmental review and area planning activities, in order to reduce fire risk and improve emergency response in the County.
- **Policy 7-66:** Sprinkler systems may be required in new residential structures, where necessary to protect health, safety, and welfare.
- **Policy 7-70:** The effectiveness of existing and proposed fire protection facilities shall be maximized by incorporating analysis of optimum fire and emergency service access into circulation system design.
- **Policy 7-71:** A set of special fire protection and prevention requirements shall be developed for inclusion in development standards applied to hillside, open space, and rural area development.

- **Policy 7-72:** Special fire protection measures shall be required in high risk uses (e.g. mid-rise and high-rise buildings, and those developments in which hazardous materials are used and/or stored) as conditions of approval or else be available by the district prior to approval.
- **Policy 7-73:** Fire-fighting equipment access shall be provided to open space areas in accordance with the Fire Protection Code and to all future development in accordance with Fire Access Standards.
- **Policy 7-74:** All new traffic signals shall be equipped with preemptive devices for emergency response services. Existing traffic signals significantly impacted by new development shall be retrofitted with preemptive devices.
- **Policy 7-75:** Fire stations and facilities shall be considered consistent with all land use designations used in the General Plan and all zoning districts.
- **Policy 7-136:** The environmental review process shall be utilized to monitor the ability of area schools to serve development.
- **Policy 7-137:** To the extent possible, new residential development General Plan Amendments or Rezonings shall, in the absence of the Planning Agency's satisfaction that there are overriding considerations (e.g. provision of low or moderate cost housing), be required to adequately mitigate impacts on primary and secondary school facilities.
- **Policy 7-142:** Adequate provision of schools and other public facilities and services shall be assisted by coordinating review of new development with school districts the cities and other service providers through the Growth Management Program (see Chapter IV), the environmental review process, and other means.

3.13.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 California Environmental Quality Act (CEQA) Guidelines Appendix G, to determine whether impacts related to public services are significant environmental effects, the following question is analyzed and evaluated. Would the project:

> Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
> a) Fire protection
> b) Police protection
> c) Schools
> d) Other public facilities

Approach to Analysis

Impacts on fire and police services were determined by evaluating the project's effect on existing fire and police station response times. Projected population provided by the Contra Costa County General Plan were also reviewed. In addition, fire and police (emergency) access at the project site was evaluated. Impacts on schools were determined by evaluating the project's effect on existing

school enrollment. Projected population and school enrollment data provided by the Contra Costa County General Plan, WCSD, AUHSD, and Department of Education were also reviewed. Furthermore, impacts to police, fire, schools, and library facilities were also based on estimates and information received in response to request letters sent to each of these service providers for their input related to possible project impacts.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of public service impacts resulting from implementation of the project.

- Result in additional population or activities requiring fire protection services in a manner that necessitates the need for new or altered fire facilities, the construction of which would result in significant construction-related transportation, air quality, energy, greenhouse gas (GHG) emissions, or noise impacts. Determination of significance of construction-related traffic, air quality, energy, GHG emissions, or noise impacts is based on the respective specific thresholds of significance listed in Section 3.15 (Transportation), Section 3.2 (Air Quality), Section 3.5 (Energy), Section 3.7 (GHG Emissions), and Section 3.11 (Noise).
- Result in additional population or activities requiring police protection services in a manner that necessitates need for new or altered police facilities, the construction of which would result in significant construction-related transportation, air quality, GHG emissions, energy, or noise impacts. Determination of significance of construction-related traffic, air quality, energy, GHG emissions, or noise impacts is based on the respective specific thresholds of significance listed in Section 3.15 (Transportation), Section 3.2 (Air Quality), Section 3.5 (Energy), Section 3.7 (GHG Emissions), and Section 3.11 (Noise).
- Result in additional population or activities requiring school services in a manner that necessitates need for new or altered school facilities, the construction of which would result in significant construction-related transportation, air quality, energy, GHG emissions, or noise impacts. Determination of significance of construction-related traffic, air quality, energy, GHG emissions, or noise impacts is based on the respective specific thresholds of significance listed in Section 3.15 (Transportation), Section 3.2 (Air Quality), Section 3.5 (Energy), Section 3.7 (GHG Emissions), and Section 3.11 (Noise).
- Result in additional population or activities requiring library services in a manner that necessitates need for new or altered library facilities, the construction of which would result in significant construction-related transportation, air quality, energy, GHG emissions, or noise impacts. Determination of significance of construction-related traffic, air quality, energy, GHG emissions, or noise impacts is based on the respective specific thresholds of significance listed in Section 3.15 (Transportation), Section 3.5 (Energy), Section 3.2 (Air Quality), Section 3.7 (GHG Emissions), and Section 3.11 (Noise).

Impact Evaluation

Need for New or Altered Fire Protection Facilities

Impact PUB-1: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection.

Construction

The nearest Fire Station, Station No. 2, at 2012 Geary Road, is approximately 1.6 miles west of the project site. Using an average travel speed of 35 miles per hour, a fire engine would be able to reach construction areas at the project site in 2 minute and 45 seconds, which is under the 5-minute response standard set by the Contra Costa County General Plan.[14] As part of project construction, the project would comply with the California Building Standards Code (CBC), which is adopted by the Contra Costa County Ordinance Code. In compliance with the California Fire Code, Part 9 of the CBC, during construction the project would follow standards for fire safety related to provision of fire apparatus access and acquisition of building permits. Specifically, CBC Section 105.7.17 requires plans be submitted and a permit is required to install, improve, modify, or remove public or private roadways, driveways, and bridges for which Fire District access is required by the Fire Code; this would ensure adequate driveway/entry turning radius, height clearance, and fire hydrant access for fire trucks and engines at the project site during construction. In addition, CBC Section 105.7.18 requires plans be submitted to the fire code official for all land developments or for the construction, alteration, or renovation of a building within the jurisdiction where a building permit is required; this would ensure that construction and alteration would not obstruct CCCFPD from delivering adequate levels of fire protection services.[15] With an adequate fire engine response time to the project site and adherence to the aforementioned CBC Code sections, construction of the project would not create the need for new or altered fire protection facilities. Therefore, construction impacts related to need for new or altered fire protection facilities would be less than significant.

Operation

The operation of new apartments on the project site would result in new residents and employees at the project site and could in turn result in an increase in calls for fire protection and emergency medical services. The nearest Fire Station, Station No. 2, at 2012 Geary Road, is approximately 1.6 miles west of the project site. Using an average travel speed of 35 miles per hour, a fire engine would be able to reach operational areas at the project site in 2 minute and 45 seconds, which is under the 5-minute response standard set by the Contra Costa County General Plan.[16]

As part of project operation, the project would comply with the CBC, which is adopted by the Contra Costa County Ordinance. Specifically, in compliance with the California Fire Code, Part 9 of the CBC, during operation the project would follow standards for fire safety such as fire flow requirements for

[14] Contra Costa County. 2005. Contra Costa County General Plan.
[15] Contra Costa County. 2018. Contra Costa County Ordinance Code. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT7BURE_DIV722FICO. Accessed December 5, 2018.
[16] Contra Costa County. 2005. Contra Costa County General Plan.

buildings, fire hydrant location and distribution criteria, automated sprinkler systems, and fire-resistant building materials. Primary vehicle access to the project site would be from Del Hombre Lane via the ground-floor parking structure. Del Hombre Lane is a public County local street that runs north-south along the project site frontage. Secondary emergency access to the project site would be provided from the back of the parking structure from Roble Road. Roble Road is a two-lane private local street that runs east-west along the northern project site boundary. Thus, during project operation, emergency vehicles would not have issues accessing the project site, as also further discussed under Impact TRANS-3, Emergency Access, in Section 3.15, Transportation. As such, it is not expected that the project would adversely affect response times or increase the use of existing fire protection or emergency medical response facilities such that substantial physical deterioration, alteration, or expansion of these facilities would be required, thereby triggering environmental impacts. Furthermore, the project applicant would be required to pay applicable fees towards fire protection facilities and apparatus, so that the CCCFPD can maintain fire safety standards.

With an adequate fire engine response time to the project site, adherence to the aforementioned CBC Code sections, adequate project site access, and payment of impact fees to the CCCFPD, operation of project would not create a need to construct new or expand existing fire protection or emergency medical services facilities. Therefore, operational impacts related to need for new or altered fire protection facilities would be less than significant.

Level of Significance

Less Than Significant

Need for New or Altered Police Protection Facilities

Impact PUB-2:	**The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection.**

Construction

The Office of the Sheriff would provide law enforcement services to the project site during construction. The nearest police station to the project site is the Valley Station at 150 Alamo Plaza Unit C, located 5.35 miles south of the project; however, response is not likely to originate from this station but rather from Sheriff Deputies who are consistently patrolling the local beat. If response calls originated from the Valley Station, response would be approximately 9 minutes and 29 seconds to the project site. During construction, the project would also implement security measures such as provision of a project-boundary fence to prohibit access to persons other than construction personnel. With an adequate police response time to the project site and provision of adequate security measures, construction of, the project would not create the need for new or altered police protection facilities. Therefore, construction impacts related to need for new or altered police protection facilities would be less than significant.

Operation

The operation of new apartments on the project site would result in new residents and employees at the project site and could in turn result in an increase in calls for police protection services. Primary and secondary access to the project site during operation would be from Del Hombre Lane and from Roble Road, respectively.

The project site is located 5.35 miles from the nearest Valley Station; however, responses to calls are not likely to originate from the station but rather from Sheriff Deputies who are consistently patrolling the local beat. If response calls originated from the Valley Station, response would be approximately 9 minutes and 29 seconds to the project site. Since there are many factors in evaluating response times, the Office of the Sheriff does not set a specific goal for emergency call response times. However, Contra Costa County General Plan Policy 7-59 indicates that when making staffing and beat configuration decisions, the Sheriff should strive for a maximum response time for Priority 1 or 2 calls of 5 minutes for 90 percent of all emergency responses in central business district, urban, and suburban areas. This General Plan Policy indicated response time is a goal, not a requirement.

The Contra Costa County General Plan Policy 7-57 indicates a sheriff facility standard of 155 square feet of sheriff station space per 1,000 persons of population. The square footage of the Valley Station is estimated to be approximately 5,372 square feet. The project would increase the population of unincorporated Contra Costa County by approximately 818 persons. Accordingly, the project would require 126 square feet of sheriff station space. This increased demand for sheriff station space represents approximately 2.4 percent of the Valley Station's existing square footage and, thus, represents a nominal increase in demand. Furthermore, the Office of the Sheriff did not indicate that the project would result in the need for new or expanded Sheriff facilities in order to maintain acceptable service ratios, response times, or other performance objectives.[17]

As such, it is not expected that the project would adversely affect service ratios or response times or increase the use of existing police protection facilities such that substantial physical deterioration, alteration, or expansion of these facilities would be required, thereby triggering environmental impacts. Furthermore, the project applicant would be required to pay applicable fees to the Office of the Sheriff to help provide for the costs associated with a police facilities building and equipment to serve additional demands for police services.

With adequate project site access and payment of impact fees to the Office of the Sheriff, operation of the project would not create a need to construct new or expand existing police protection facilities. Therefore, operational impacts related to need for new or altered police protection facilities impacts would be less than significant.

Level of Significance

Less Than Significant

[17] Contra Costa County Sheriff's Office. 2019. Email Correspondence with Carlye Slover, Sheriff's Specialist. January 24, 2019.

Need for New or Altered School Facilities

Impact PUB-3: **The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for schools.**

Construction

Impacts related to provision of and need for construction of new or expanded school facilities are limited to operational impacts. No respective construction impacts would occur.

Operation

The project site is located within the WCSD (grades K–8) and AUHSD (grades 9–12). Elementary school age residents of the project site would attend Indian Valley Elementary, located 2.25 miles southeast of the project site. Indian Valley Elementary school currently has an enrollment of 393 students and a capacity of 475 students. Using a generation rate of 0.08 elementary school students per multi-family units, the project would generate 24 elementary school students and Indian elementary would be able to accommodate the additional students. Middle school age residents of the project site would attend Walnut Creek Intermediate, located 1.34 miles south of the project site. Walnut Creek Intermediate currently has 1,046 students enrolled with a capacity of 1,038 and is over its capacity even without the project. Using a generation rate of 0.043 middle school students per multi-family unit, the project would generate 13 additional students. Tice Creek School is located 4.80 mile south of the project site. Its current enrollment is 154 with a capacity of 388 students and would be able to accommodate the additional students that could not be accommodated at Walnut Creek Intermediate. High school age residents of the project site would attend Las Lomas High School, located 2.57 miles south of the project site. The school's current enrollment is 1,528 students. FCS sent a letter to Acalanes Union High School District's Aida Glimme on January 11, 2019, that included an inquiry about capacity of Las Lomas High School. To date, FCS has not received a response. Enrollment has held steady at a little over 1,500 for the past 5 years. Should the school not have sufficient capacity, the students would be accommodated within the five other schools within the Acalanes Union High School District.

The project applicant would be required to pay development impact fees to the WCSD and AUHSD, which would assist to expand facilities to address increased demand. Pursuant to Government Code Section 65995, payment of adopted development fees is considered "full and complete mitigation" for impacts to school facilities, and local governments are prohibited from assessing additional fees or exactions for school impacts.[18]

With payment of impact fees to the WCSD and AUHSD, operation of the project would not create a need to construct new or expand existing school facilities. Therefore, operational impacts related to need for new or altered school facilities impacts would be less than significant.

[18] California Legislative Information. 2016. Chapter 4.9. Payment of Fees, Charges, Dedications, or Other Requirements Against a Development Project [65995-65998). Website: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV&sectionNum=65995. Accessed July 29, 2019.

Level of Significance

Less Than Significant

Need for New or Altered Library Facilities

Impact PUB-4:	**The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for other public facilities.**

Construction

Impacts related to provision of and need for construction of new or expanded library facilities are limited to operational impacts. No respective construction impacts would occur.

Operation

The project site is located within the Contra Costa County Library system, which provides public library services to the unincorporated and incorporated areas of the County. Libraries near the project site include the Pleasant Hill Library, located 0.88 mile from the project site, Walnut Creek Library, located 1.95 miles from the project site, and Ygnacio Valley Library, located 2.23 miles from the project site. The Contra Costa County General Plan does not include a standard or goal for the provision of library services; however, for informational purposes, the County currently provides approximately 305 gross square feet of library space per 1,000 residents.[19]

The project's approximately 818 residents is a nominal increase compared with the existing County population of approximately 1.1 million residents served by the Contra Costa County Library system. The project's estimated increase in persons would represent an increase of less than 1 percent relative to the existing residents served by the Contra Costa County Library System. As such, the County's provision of library space per 1,000 residents would not be affected by implementation of the project.

With adequate relevant library system capacity, operation of project would not create a need to construct new or expand existing library facilities. Therefore, operational impacts related to need for new or altered public library facilities would be less than significant.

Level of Significance

Less Than Significant

3.13.5 - Cumulative Impacts

The geographical scope of the cumulative public services analysis is the boundaries of the CCCFPD, the Office of the Sheriff, WCSD, AUHSD, and Contra Costa Library system service areas. Because of differences in the nature of the public service topical areas, they are discussed separately.

[19] Contra Costa County Library. 2006. New Strategic Plan. Website: http://ccclib.org/aboutus/StrategicPlan%20MASTER.pdf. Accessed February 13, 2019.

Fire Protection Facilities

Other cumulative projects listed in Table 3-1 in conjunction with the project would result in residential, commercial, and office development. Cumulative development in the surrounding area would be expected to substantially increase permanent residents and daytime population, which includes employees and visitors/patrons. The cumulative increase in population could in turn result in an increased demand for fire protection facilities.

To help offset the increased demand, the cumulative projects would be required to pay all applicable fees to the CCCFPD. All developments would also adhere to the California Fire Code, Part 9 of the CBC in terms of meeting standards for fire safety such as fire flow requirements for buildings, fire hydrant location and distribution criteria, automated sprinkler systems, and fire-resistant building materials.

With adherence to CBC Code sections and payment of applicable fees, cumulative projects would not result in need for new or altered fire protection or emergency medical facilities. Thus, there would be a less-than-significant cumulative impact with regard to need for new or altered fire protection and emergency medical facilities.

Police Protection Facilities

Other cumulative projects listed in Table 3-1 in conjunction with the project would result in residential, commercial, and office development. Cumulative development in the surrounding area would be expected to substantially increase permanent residents and daytime population, which includes employees and visitors/patrons. The cumulative projects listed in Table 3-1 total 703 residential units; accordingly, based on the California Department of Finance (CDF) average household size of 2.88 persons, the estimated increase in persons would total 2,025 persons and would represent an increase of 1.1 percent relative to the 2018 estimate. The cumulative increase in population could in turn result in an increased demand for police protection facilities.

To help offset the increased demand for police protection facilities, the cumulative projects would be required to pay applicable fees to the Office of the Sheriff. All developments would also be reviewed for impacts on law enforcement services and would be required to address any potential impacts with mitigation. Because demand for law enforcement services is highly dependent on a number of factors that vary substantially by project (clientele, hours of operation, crime prevention measures, etc.), it is unlikely that there would be substantial overlap in demand that would result in a cumulatively significant impact such that new police protection facilities are necessary.

With payment of applicable fees, cumulative projects would not result in need for new or altered police protection facilities. Thus, there would be a less-than-significant cumulative impact with regard to need for new or altered police protection facilities.

School Facilities

Other cumulative projects listed in Table 3-1 in conjunction with the project would result in residential development. Cumulative development would increase the population and demand for educational facilities. The cumulative projects listed in Table 3-1 total 703 residential units; accordingly, based on the CDF average household size of 2.88 persons, the estimated increase in

persons would total 2,025 persons and would represent an increase of 1.1 percent relative to the 2018 estimate. The cumulative increase in population could in turn result in an increased demand for school facilities.

Other cumulative projects do not include any educational facilities. All cumulative developments would be required to pay development impact fees impact fees towards the two applicable school districts. Under State law, this is the exclusive means of mitigating impacts to school facilities due to increased enrollment. As part of the project entitlement process, the cumulative project applicants would be responsible for paying their fair share of these school facility fees.

With payment of impact development fees, cumulative projects would not result in need for new or altered school facilities. Thus, there would be a less-than-significant cumulative impact with regard to need for new or altered school facilities.

Library Facilities

Other cumulative projects listed in Table 3-1 in conjunction with the project would result in residential development. Cumulative development would increase the population and demand for library facilities. The cumulative projects listed in Table 3-1 would total 703 residential units; accordingly. Based on the CDF average household size of 2.88 persons, the cumulative projects listed in Table 3-1 would result in an increase of 2,025 persons, and in addition to the project's estimated increase of 818 persons, would represent a total cumulative increase of 2,843 persons. This would represent a cumulative population increase of 1.6 percent relative to the 2018 estimate. The cumulative increase in population could in turn result in an increased demand for library facilities.

With development of the other cumulative project in conjunction with the project, the County's provision of library space per 1,000 residents would increase from existing conditions to approximately 308 gross square feet of library space per 1,000 persons. The cumulative increase in library space would represent an increase of less than 1 percent of the existing ratio of library space per 1,000 residents. Thus, cumulative projects would not result in need for new or altered library facilities. Thus, there would be a less-than-significant cumulative impact with regard to need for new or altered library facilities.

Level of Significance

Less Than Significant

3.14 - Recreation

3.14.1 - Introduction

This section describes existing parks and recreational facilities in the region and project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to parks and recreational facilities that could result from the implementation of the project. Information in this section is based on information obtained from the Contra Costa County General Plan. No public comments were received during the Environmental Impact Report (EIR) scoping period related to recreation.

3.14.2 - Environmental Setting

Existing Parks and Recreational Facilities

California Department of Parks and Recreation offers State parklands and trails throughout California. The California Department of Parks and Recreation manages and preserves 1,650,779 acres within 280 parks and 4,500 miles of trails.[1] One State park is located within 10 miles of the project site: Mount Diablo State Park.

State Parks

Mount Diablo State Park

The only State Park within 10 miles of the project site is Mount Diablo State Park, located approximately 5 miles southeast of the project site. The approximately 20,000-acre park contains open land for camping, hiking, picnicking, horseback riding, mountain biking, and other recreational opportunities.[2] At the summit of Mount Diablo, park visitors are able to visit the Summit Building and Museum and have views of the surrounding area. Park gates are open year-round from 8:00 a.m. to sunset.[3]

Project Site

There are no existing State parks, recreational facilities, or designated open spaces on the project site.

Regional Parks

The East Bay Regional Park District offers regional parklands and trails in Alameda and Contra Costa counties. The East Bay Regional Park District manages and preserves 121,397 acres within 73 parks and 1,250 miles of trails.[4] Two regional parks are located within 5 miles of the project site: Diablo Foothills Regional Park and Briones Regional Park.

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1 California Department of Parks and Recreation. 2016. California State Park System Statistical Report 2015/16 Fiscal Year. Website: http://www.parks.ca.gov/?page_id=23308. Accessed February 13, 2019.

2 California Department of Parks and Recreation. 2000. Mount Diablo State Park Brochure. Website: https://www.parks.ca.gov/pages/517/files/mtDiabloBrochure.pdf. Accessed November 13, 2018.

3 California Department of Parks and Recreation. 2018. Mount Diablo SP. Website: https://www.parks.ca.gov/?page_id=517. Accessed November 13, 2018.

4 East Bay Regional Park District. 2018. About the District. Website: https://www.ebparks.org/about/default.htm. Accessed November 13, 2018.

Diablo Foothills Regional Park

The Diablo Foothills Regional Park is located approximately 3.89 miles southeast of the project site, in the City of Walnut Creek. The 1,060-acre park contains open land for horseback riding, hiking, bicycling, and nature study. There are no developed facilities in the park. Park visitors have views of Mount Diablo and its surroundings. Although the park is open year-round, some parts may be closed from February to July to protect bird-nesting habitat within the park.[5]

Briones Regional Park

Briones Regional Park is located approximately 3.54 miles west of the project site, in the City of Martinez. The 6,225-acre park contains open land for hiking, running, horseback riding, picnicking, birdwatching, and kite flying. There are no developed facilities in the park. Park visitors have views of Mount Diablo and the Diablo Valley to the east, the Sacramento River and Delta to the north, the East Bay hills and Mount Tamalpais to the west, and Las Trampas Regional Wilderness to the south. The park is open year-round from 8:00 a.m. to sunset.[6]

Project Site

There are no existing regional parks, recreational facilities, or designated open spaces on the project site.

Local Community Parks

The project site is located within unincorporated Contra Costa County and is surrounded to the east, west, and south by the City of Walnut Creek, to the northeast by the City of Concord, and to the northwest by the City of Pleasant Hill. These surrounding cities offer community parks and recreational facilities within their jurisdictions. These respective city park departments manage and preserve their respective community parks and recreational facilities. Four community parks and recreational facilities are located within 3 miles of the project site. The closest community parks to the project site are Len Hester Park, located approximately 0.79 mile north of the project site, and Heather Farm Park, located approximately 0.82 mile southeast of the project site. Table 3.14-1 provides a brief description of the 29 community parks within a 3-mile search radius of the project site, the recreational amenities that they feature, and the jurisdiction and park department where the park is located.

[5] East Bay Regional Park District. 2018. Diablo Foothill Regional Park. Website: https://www.ebparks.org/parks/diablo_foothills/default.htm. Accessed November 13, 2018.

[6] East Bay Regional Park District. 2018. Briones Regional Park. Website: https://www.ebparks.org/parks/briones/default.htm. Accessed November 13, 2018.

Table 3.14-1: Community Parks within 3 Miles of Project Site

Name	Acreage	Distance from Project Site	Jurisdiction and Park Department	Amenities
Heather Farm Park	102	0.82	City of Walnut Creek Walnut Creek Recreation	• Picnic Area • Playgrounds • 5 Baseball/Softball Fields, 1.5 Basketball Courts, 2 Soccer Fields, 10.5 Tennis Courts, and 2 Volleyball Courts • Restrooms • Dog Park • Skate Park • Community Center • Equestrian Center • Swim Center, including 3 Swimming • Pools • Pond and Nature lake • Garden Center • Nature Area
Len Hester Park	4	0.79	City of Concord Parks and Recreation Department	• Picnic Areas • Lawn and trees
Pleasant Oaks Park	11	0.93	City of Pleasant Hill Recreation and Park District	• Baseball Field and Soccer Field • Playground • Picnic Area • Restrooms
Alma Park	2	2.44	City of Walnut Creek Walnut Creek Recreation	• Picnic Area • Lawn and trees
Civic Park	16.7	1.78	City of Walnut Creek Walnut Creek Recreation	• Multiple playgrounds • Community Center • Gazebo • Winter Ice-rink • Picnic Area • Restroom
Howe Homestead Park	0.5	2.06	City of Walnut Creek Walnut Creek Recreation	• Community Gardens • Hiking • Picnicking
Walden Park	4.5	0.58	City of Walnut Creek Walnut Creek Recreation	• Playgrounds • Basketball Court • Picnic Area • Disc Golf Course • Handball Court • Trail Connections • Restroom

Table 3.14-1 (cont.): Community Parks within 3 Miles of Project Site

Name	Acreage	Distance from Project Site	Jurisdiction and Park Department	Amenities
Larkey Park	13	1.24	City of Walnut Creek Walnut Creek Recreation	• Playgrounds • Basketball Court • Horseshoe Pits • Picnic Area • Swim Center • Tennis Court • Trail Connections • Volleyball Court • Restroom
San Miguel Park	4.5	1.4	City of Walnut Creek Walnut Creek Recreation	• Playground • Dog Park • Picnic Area • Trail Connections • Tennis Court
El Divisadero Park	3	1.6	City of Walnut Creek Walnut Creek Recreation	• Soccer Field
Brookwood Park	6.3	2.29	City of Pleasant Hill Recreation and Park District	• Barbecue Area • Basketball Court • Picnic Tables • Playground
Dinosaur Hill Park	13	1.94	City of Pleasant Hill Recreation and Park District	• Hiking Trail
Pleasant Hill Park	16.5	1.5	City of Pleasant Hill Recreation and Park District	• Baseball Fields • Basketball Court • Community Gardens • Picnic Area • Playground
Pinewood Park	3.97	1.97	City of Pleasant Hill Recreation and Park District	• Lawn and Trees
Rodgers-Smith Park	4.5	2.17	City of Pleasant Hill Recreation and Park District	• Barbecue Area • Basketball Court • Baseball Field • Lighted Bocce Courts • Sand Volleyball Court
Shannon Hills Park	2.5	2.92	City of Pleasant Hill Recreation and Park District	• Playground • Lawn and Trees

Table 3.14-1 (cont.): Community Parks within 3 Miles of Project Site

Name	Acreage	Distance from Project Site	Jurisdiction and Park Department	Amenities
Las Juntas Park	7	2.3	City of Pleasant Hill Recreation and Park District	• Open Space • Hiking Trail
Paso Nogal Park	63	2.87	City of Pleasant Hill Recreation and Park District	• Open Space • Hiking Trails • Picnic Area • Dog Park
Chilpancingo Park	2.5	3	City of Pleasant Hill Recreation and Park District	• Lawn and Trees
Ellis Lake Park	10	2.98	City of Concord Parks and Recreation Department	• Lake • Walking Trail • Play Areas • Historic Keller House
Meadow Homes Park	12	2.42	City of Concord Parks and Recreation Department	• Water Play Areas • Multi-use Sports Field • Picnic Area
Cambridge Park	10	1.59	City of Concord Parks and Recreation Department	• Picnic Area • Soccer Field • Playground Areas
Krueger Fields	4	2.97	City of Concord Parks and Recreation Department	• Turfed Athletic Fields
Concord Skate Park	0.32	2.9	City of Concord Parks and Recreation Department	• Skate Park
Ygnacio Valley Park	9.5	1.64	City of Concord Parks and Recreation Department	• Baseball Fields • Jogging Path • Picnic Area • Barbecue • Playground • Lawn
Diablo Shadows Park	2.5	2.42	City of Walnut Creek Walnut Creek Recreation	• Picnic Area • Playground • Trail Connections

Table 3.14-1 (cont.): Community Parks within 3 Miles of Project Site

Name	Acreage	Distance from Project Site	Jurisdiction and Park Department	Amenities
Arbolado Park	26.5	2.77	City of Walnut Creek Walnut Creek Recreation	• Playgrounds • Basketball Court • Picnic Area • Soccer Field • Tennis Court • Trail Connections • Restroom
Northgate Park	3.6	2.68	City of Walnut Creek Walnut Creek Recreation	• Lawn and Trees
Castle Rock Sports Field	6	2.53	City of Walnut Creek Walnut Creek Recreation	• Baseball Fields • Restroom • Soccer Field • Tennis Court

Sources:
City of Walnut Creek. 2018. Parks and Picnic Rentals. Website: http://www.walnut-creek.org/departments/arts-and-recreation/recreation-parks/parks-picnic-rentals. Accessed December 13, 2018.
City of Concord. 2019. Parks. Website: http://www.cityofconcord.org/page.asp?pid=3025. Accessed January 8, 2019.
Pleasant Hill Recreation & Park District. 2019. Facilities. Website: https://www.pleasanthillrec.com/Facilities?clear=True. Accessed January 8, 2019.

The closest designated open spaces to the project site are Shell Ridge Open Space, located approximately 2.39 miles southeast of the project site, and Lime Ridge Open Space, located approximately 2.80 miles east of the project site, both of which are in the City of Walnut Creek.

Project Site

There are no existing local community parks, recreational facilities, or designated open spaces on the project site. Exhibit 3.14-1 displays the parks in the vicinity of the project site.

3.14.3 - Regulatory Framework

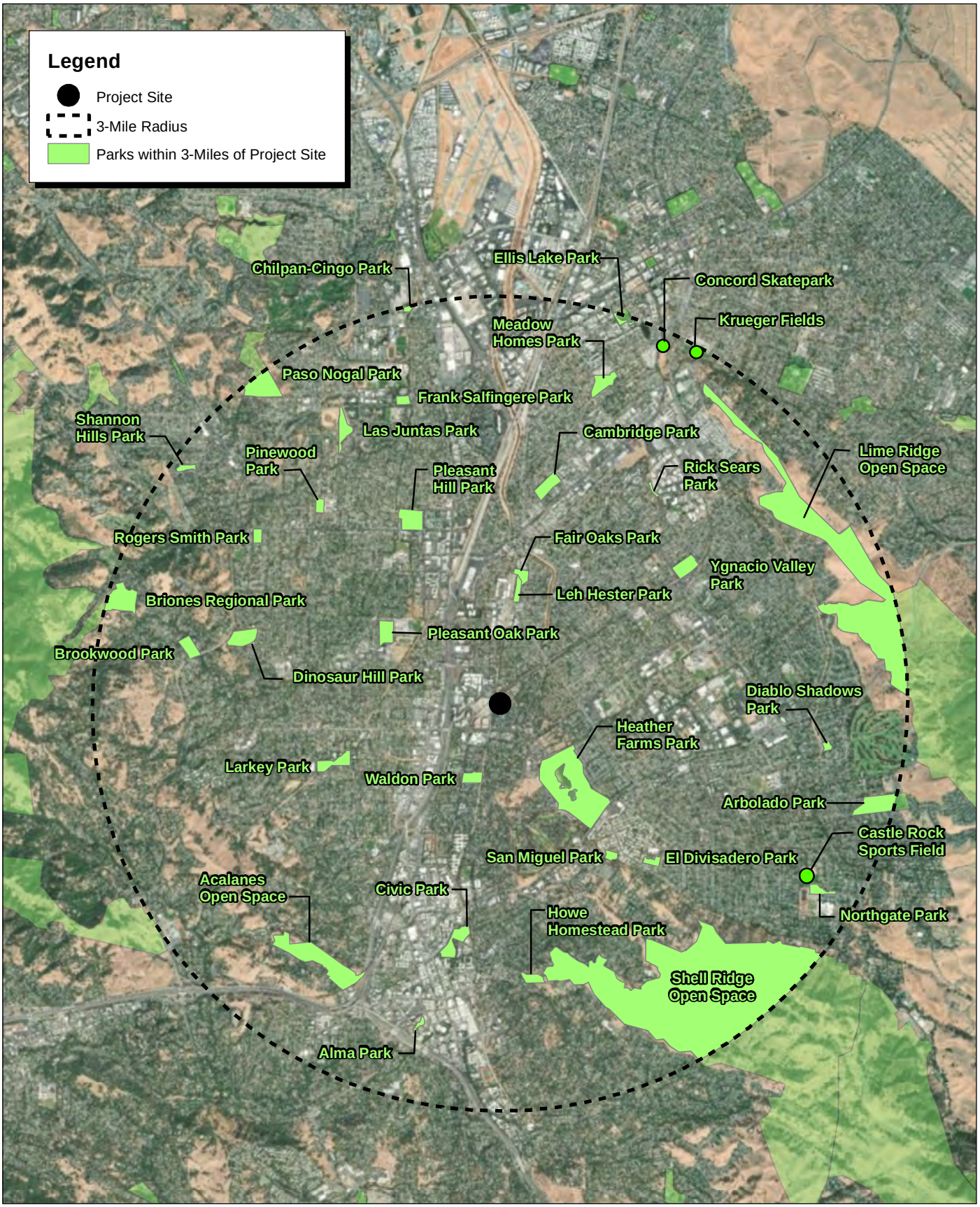
Federal

No federal plans, policies, regulations, or laws related to recreation are applicable to the project.

State

Quimby Act

The Quimby Act (California Government Code § 66477) was established by the California Legislature in 1965 to preserve open space and parkland in rapidly urbanizing areas of the State. The Quimby Act allows cities and counties to establish requirements for new development to dedicate land for parks, pay an in-lieu fee, or provide a combination of the two.



Source: ESRI Aerial Imagery.

FIRSTCARBON SOLUTIONS™

1 0.5 0 1 Miles

Exhibit 3.14-1
Parks in Project Site Vicinity

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The Quimby Act provides two standards for the dedication of land for use as parkland. If the existing area of parkland in a community is greater than 3 acres per 1,000 residents, then the community may require dedication based on a standard of up to 5 acres per 1,000 persons residing in the subdivision based on the current ratio of parkland per 1,000 residents. If the existing amount of parkland in a community is less than 3 acres per 1,000 residents, then the community may require dedication based on a standard of only 3 acres per 1,000 persons residing in the subdivision.

The Quimby Act requires a city or county to adopt standards for recreational facilities in its general plan to adopt a parkland dedication or fee ordinance. The Contra Costa County General Plan includes criteria and standards for County parks,[7] and therefore can require the payment of development fees and/or dedication of land pursuant to Chapter 920-2 of the Contra Costa County Ordinance Code.[8]

It should be noted that the Quimby Act applies only to the acquisition of new parkland; it does not apply to the physical development of new park facilities or associated operations and maintenance costs. Therefore, the Quimby Act effectively preserves open space needed to develop park and recreation facilities, but it does not ensure the development of the land or the provision of park and recreation services to residents. In addition, the Quimby Act applies only to residential subdivisions. Nonresidential projects could contribute to the demand for park and recreation facilities without providing land or funding for such facilities. Quimby Act fees are collected by the local agency (park district, city, or county) in which the new residential development is located.

Local

Contra Costa County General Plan

Open Space Element

Goals and policies as set forth in the Open Space Element that are applicable to the project include the following:

- **Policy 9-1:** Permanent open space shall be provided within the County for a variety of open space uses.
- **Policy 9-7:** Open space shall be utilized for public safety, resource conservation and appropriate recreation activities for all segments of the community.
- **Policy 9-8:** Development project environmental review will consider the effect of the project on the County's open space resources, whenever the project proposes to convert substantial amounts of land from an open space designation to an urban development designation.
- **Goal 9-36**: To develop a sufficient amount of conveniently located, properly designed park and recreational facilities to serve the needs of all residents.
- **Goal 9-H:** To promote active and passive recreational enjoyment of the County's physical amenities for the continued health, safety, and welfare of the citizens of the County.
- **Goal 9-J:** To achieve a level of park facilities of four acres per 1,000 population.

[7] Contra Costa County. 2005. Contra Costa County General Plan, Open Space Element. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30919/Ch9-Open-Space-Element?bidId=. Accessed March 5, 2019.

[8] Contra Costa County. 2019. Contra Costa County Code of Ordinances. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT9SU_DIV920PADE. Accessed February 26, 2019.

- **Policy 9-32:** Major park lands shall be reserved to ensure that the present and future needs of the County's residents will be met and to preserve areas of natural beauty or historical interest for future generations. Apply the parks and recreation performance standards in the Growth Management Element.
- **Policy 9-33:** A well-balanced distribution of local parks, based on character and intensity of present and planned residential development and future recreation needs, shall be preserved.
- **Policy 9-40:** Recreational activity shall be distributed and managed according to an area's carrying capacity with special emphasis on controlling adverse environmental impacts, such as conflict between uses and trespass. At the same time, the regional importance of each area's recreation resources shall be recognized.

Contra Costa County Ordinance Code

Division 920—Park Dedications

As a condition of approval of a subdivision, developers are required to dedicate land, pay a fee in lieu thereof, or do a combination of both, for neighborhood and community park or recreational purposes. The total area required to be dedicated is based on a figure of 3 acres of park per 1,000 persons.

3.14.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 California Environmental Quality Act (CEQA) Guidelines Appendix G, to determine whether impacts related to recreation are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Approach to Analysis

Impacts related to parks and recreational facilities were determined by evaluating the project's effect on existing park and recreational facility usage levels. In addition, the analysis assesses whether project-related population increases could affect achievement of the Contra Costa General Plan Open Space Element parkland standard and, thus, whether there would be need for construction or expansion of parks and recreational facilities in a manner that would result in environmental impacts.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of recreation impacts resulting from implementation of the project.

- Result in additional population using recreational facilities and causing physical deterioration of such facilities.

- Result in additional population creating need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable recreational facilities per capita ratio (specifically 4 acres of park per 1,000 persons).

Impact Evaluation

Effects of Increased Use of Existing Parks

Impact REC-1:	**The project would not 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.**

Construction

Impacts related to increased use of existing parks and recreational facilities are limited to operational impacts. No respective construction impacts would occur.

Operation

The California Department of Parks and Recreation, East Bay Regional Park District, Contra Costa County, and cities in the project vicinity maintain State, regional, and local community parks, trails, and recreational facilities for public use throughout Contra Costa County. County park standards are established in the County's General Plan. Specifically, Goal 9-K of the General Plan Open Space Element, seeks to achieve a level of park facilities equal to 4 acres per 1,000 population or 0.004-acre per person.

The proposed 284 residential units would be expected to result in a permanent population of 818 persons, resulting in the need for 3.272 acres of parkland to assist in the County's parkland goal. The project would provide a courtyard area, which would include outdoor seating, a bocce ball court, private patios connected to the apartment units, a fireplace, and fire pits. A pool would be provided in the center of the southern portion of the project site with outdoor beds and lounges. However, these facilities would be private and not available to the surrounding community. Thus, the project's recreational facilities would not contribute parkland toward the General Plan parkland standard of 0.004-acre per person.

The nearest recreational facility to the project site is the Iron Horse Regional Trail, which runs parallel to and immediately west of Del Hombre Lane. The nearest park to the project site is the Heather Farm Park, located approximately 0.62 mile southeast of the project site. Besides the 29 local community parks located within 3 miles of the project site, Mount Diablo State Park is located 5 miles southeast of the project site, Diablo Foothills Regional Park is located approximately 3.89 miles southeast of the project site, and Briones Regional Park is located approximately 3.54 miles west of the project site. These parks total approximately 6,912 acres in available existing parks. Given the wide range of proposed on-site and existing proximate parks and recreational facilities available to project-related residents, the recreational needs of the project's anticipated 818 new residents would be dispersed across these 6,912 total acres of parkland and, thus, not result in an increased use that would cause substantial physical deterioration of existing neighborhood and regional parks or other recreational facilities.

Additionally, the project is subject to the County's Park Impact Fee. The Park Impact Fees would be collected to fund the acquisition and development of parks in Contra Costa County to serve unincorporated County residents, in lieu of providing the required acreage on the project site.[9]

Therefore, impacts related to potential increased use and physical deterioration of existing parks and recreational facilities would be less than significant.

Level of Significance Before Mitigation

Less Than Significant

Effects from Provision of Parks or Recreational Facilities

Impact REC-2:	**The project would include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment.**

Construction

The project would include a total of 0.22 acre of private recreational facilities on the project site. The project's private recreational facilities would include a swimming pool, bocce and sports courts, gardens, pet parks, and walking paths on-site. The environmental impacts associated with implementation of these amenities is accounted for in the discussion of air quality, energy, greenhouse gas (GHG) emissions, noise, and transportation-related impacts within this EIR, which are explained in more detail as follows:

- **Air Quality:** Less than Significant with Mitigation Incorporated. Impact AIR-3 relates to sensitive receptors. Receptors include residences, schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Mitigation Measure (MM) AIR-2**,** MM AIR-3 would reduce construction impacts to a less than significant level.
- **Energy:** Less Than Significant.
- **GHG Emissions:** Less Than Significant.
- **Noise:** Less Than Significant with Mitigation Incorporated. Impact NOI-1 relates to construction noise and applicable standards and MM NOI-1 reduces impacts during construction to a less than significant level.
- **Transportation:** Less Than Significant with Mitigation Incorporated. Impact TRANS-1 analyzes construction impacts with respect to conflicting with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. MM TRANS-1a would ensure a construction traffic control plan is implemented which would reduce impacts during construction to a less than significant level.

Therefore, the project's construction of parks and recreational facilities on the project site would result in a less than significant impact with mitigation incorporated.

[9] Contra Costa County. 2018. Park Dedication and Park Impact Fees. Website: http://www.cccounty.us/DocumentCenter/View/42080/Park-Fees-Overview?bidId=. Accessed December 7, 2018.

Operation

Impacts related to increased use of existing parks and recreational facilities are limited to construction impacts. No respective operational impacts would occur.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

Implement MM AIR-2, MM AIR-3, MM NOI-1, and MM TRANS-1a.

Level of Significance After Mitigation

Less than Significant with Mitigation

3.14.5 - Cumulative Impacts

The geographic scope of the cumulative parks and recreation analysis consists of the local community, regional, and State parks within the boundaries of Contra Costa County, the City of Pleasant Hill, and the City of Walnut Creek with a focus on the areas of unincorporated Contra Costa County near where the project site is located. These include parks and recreational facilities managed by the California Department of Parks and Recreation, East Bay Regional Park District, City of Walnut Creek, City of Concord, and Pleasant Hill Recreation and Park District.

Increased Park Use

The project in conjunction with the cumulative projects listed in Chapter 3.0, Environmental Impact Analysis, Table 3-1, Cumulative Projects, would result in many residential developments in the project area. Cumulative development in the project area would be expected to increase permanent residents by 2,025, in addition to the project's estimated increase of 818 for a total increase of 2,843. This increase in permanent population would result in an increased cumulative demand for park facilities.

To help offset that demand, Cumulative Project 1 would be subject to the County Park Impact Fee. The Park Impact Fees would be collected to fund the acquisition and development of parks in Contra Costa County to serve unincorporated County residents, in lieu of providing the required acreage on the project site. Other projects listed in Table 3-1 that are within the City of Walnut Creek and City of Pleasant Hill would similarly be required to provide parkland or pay development fees. With payment of park impact fees by the cumulative projects, there would be a less than significant cumulative impact related to potential increased use and physical deterioration of existing parks and recreational facilities.

Recreational Facilities Provision

The Oak Park Properties Specific Plan, listed in Table 3-1, would include a public park and recreation facilities, as well as the relocation of the existing Contra Costa County library. The proposed park facilities would contribute to and enhance recreational facilities generally in the vicinity of the project site. Potential impacts associated with the construction of these facilities are fully addressed by

mitigation measures included in the Draft EIR prepared for that project. Therefore, the overall cumulative recreational facilities provision impact related to construction would be less than significant with mitigation.

Level of Significance

Less Than Significant

3.15 - Transportation

3.15.1 - Introduction

This section describes existing conditions related to transportation in the project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to transportation that could result from implementation of the project. Information in this section is based on the project-specific Transportation Impact Assessment (TIA) (included as Appendix I). The following comments were received during the Environmental Impact Report (EIR) scoping period related to transportation:

- Recommendation to not remove the right-turn-only lane off Interstate 680 (I-680) and onto Treat Boulevard.

3.15.2 - Existing Conditions

The following discusses the existing roadways that provide access to the project site and vicinity. The existing roadway network is shown on Exhibit 3.15-1.

Roadway Facilities

Regional

Interstate 680

The closest regional roadway is I-680. I-680 primarily runs north/south connecting Contra Costa County to regional destinations such as San José to the south and Fairfield to the north. I-680 is located 0.37 mile west of the project site and can be accessed via the Treat Boulevard interchange. In the project site vicinity, this freeway provides five mixed-flow and one high-occupancy vehicle lane in the southbound direction, and five mixed-flow lanes in the northbound direction, in addition to auxiliary lanes between interchanges. In the project site vicinity, approximately 260,000 vehicles per day travel on I-680. Access to/from northbound I-680 in the project site vicinity is provided from Oak Road on the east side of the freeway. Access to/from southbound I-680 is provided from Main Street at Sunnyvale Avenue. Ramps at Buskirk Avenue also provide freeway access to the project site vicinity.

State Route 242

State Route 242 (SR-242) is a short 3-mile connector route that links I-680 north of Pleasant Hill to SR-4 in Concord. It runs north-south and is located 1.86 miles north of the project SR-242 provides three travel lanes in the northbound direction and three travel lanes in the southbound direction with a speed limit of 65 miles per hour.

State Route 24

SR-24 is located 2.5 miles southwest of the project site and runs primarily east-west, from I-680 in Walnut Creek to I-980 in Oakland. The portion of SR-24 nearest the project site provides six travel lanes in the westbound direction and six travel lanes in the eastbound direction with a speed limit of 65 miles per hour.

State Route 4

SR-4 is located 4.92 miles north of the project site and runs primarily east-west and roughly parallels the Sacramento-San Joaquin River Delta, from SR-89 in the Sierra Nevada to I-80 in eastern Contra Costa County. The portion of SR-24 nearest the project site provides three travel lanes in the westbound direction and three travel lanes in the eastbound direction with a speed limit of 65 miles per hour.

Local

Arterials

Treat Boulevard

Treat Boulevard is an east-west arterial that extends west from Main Street to Clayton Road, connecting Walnut Creek to Concord and is located 0.19 mile south of the project site. West of Main Street, Treat Boulevard continues into the City of Pleasant Hill as Geary Road. Within the project site vicinity, Treat Boulevard provides three travel lanes in the westbound direction and four travel lanes in the eastbound direction, with additional turn pockets at intersections. Access to/from I-680 is also provided from Treat Boulevard. On-street parking is not permitted in the project site vicinity, except for the westbound portion from Jones Road to Oak Road. The posted speed limit is 35 miles per hour. Sidewalks are provided throughout the roadway, except for the small eastbound portion between North Main Street and Buskirk Avenue.

Oak Road

Oak Road is a north-south roadway with two lanes in each direction 0.19 mile east of the project site. The roadway provides access from the project site (via Las Juntas Way) to northbound I-680. To the south, it provides access to Downtown Walnut Creek. On-street parking is permitted between Las Juntas Way and Wayne Drive; sidewalks are provided throughout the roadway. The posted speed limit varies between 30 and 35 miles per hour.

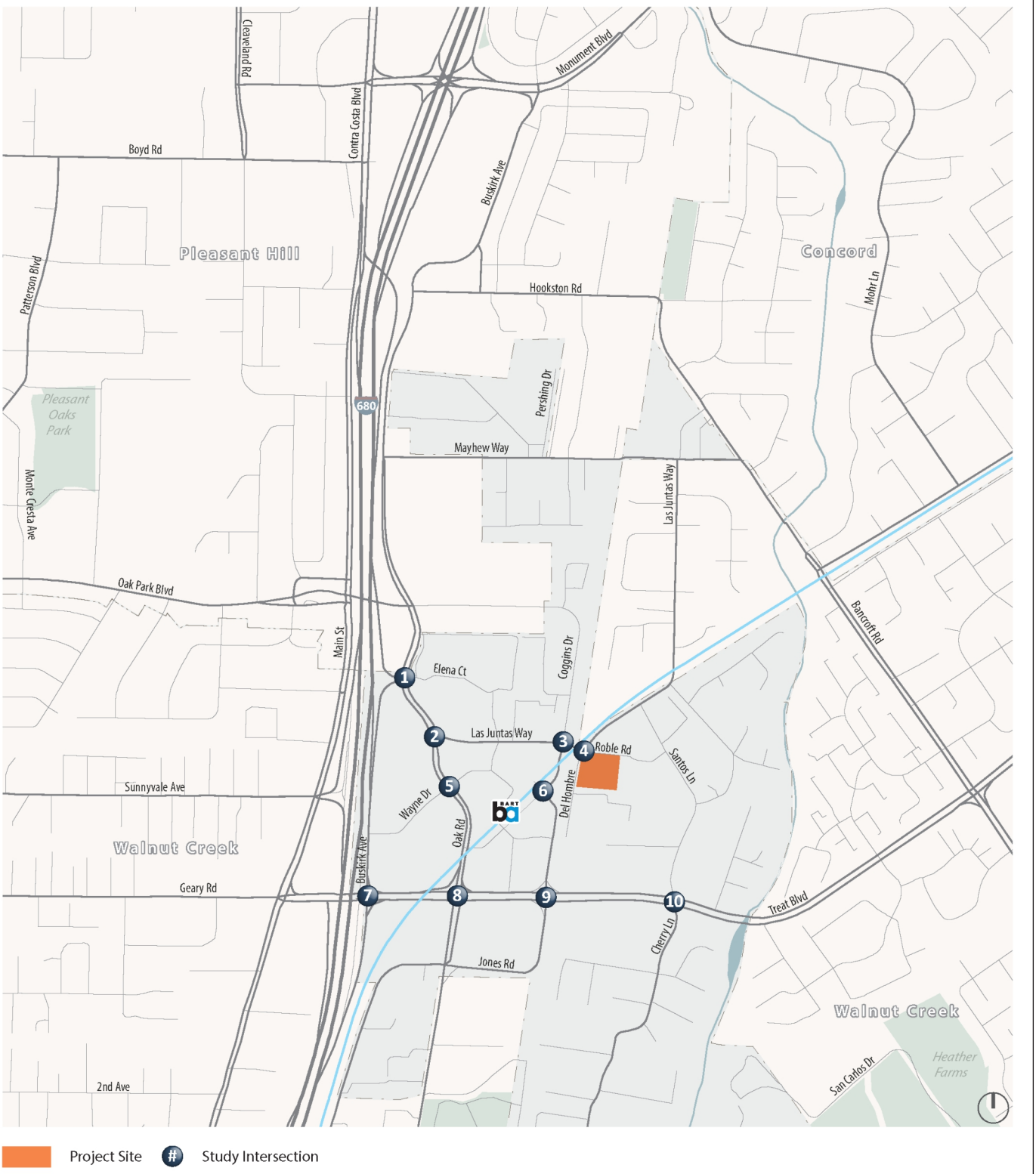
Collectors

Del Hombre Lane

Del Hombre Lane is a north-south local road with one lane in each direction and adjacent to the western boundary of the project site. The road connects the residential developments on Honey Trail and Roble Road to Las Juntas Way. Sidewalks are not provided on the west side of the roadway. On the east side of the roadway, continuous sidewalks are not provided between Honey Trail and Roble Road. On-street parking is generally allowed. The speed limit is 25 miles per hour.

Las Juntas Way

Las Juntas Way is a local east-west roadway that extends west from Oak Road to Del Hombre Lane where it turns into a north-south street and continues north until Mayhew Way. The closest portion of Las Juntas Way is located at the northwest corner of the project site. The road has one travel lane in each direction. Both sides of the street have continuous sidewalks from Oak Road to Cherry Lane, while between Cherry Lane and Mayhew Way the sidewalk on both sides is intermittent. The posted speed limit is 25 miles per hour. On-street parking is allowed on some portions of the roadway.



Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-1
Study Area Intersection Location Map

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Jones Road

Jones Road is a north-south roadway with one to two lanes in each direction and is located 0.02 mile southwest of the project site. Jones Road connects Treat Boulevard to the Bay Area Rapid Transit (BART) Pleasant Hill Station parking structure entrance. Sidewalks are provided on both sides of the street, and no on-street parking is permitted. The posted speed limit is 25 miles per hour.

Cherry Lane

Cherry Lane is a north-south roadway with one lane in each direction and is located 0.18 mile east of the project site. The roadway connects residential neighborhoods north of Treat Boulevard to residential neighborhoods south of Treat Boulevard. Sidewalks are provided along some portions of roadway. Cherry Lane is a commonly used cut-through route from Downtown Walnut Creek to Treat Boulevard. On-street parking is allowed on some portions of the roadway. The posted speed limit is 25 miles per hour.

Study Area

The following provides a description of the existing principal roadways within the study area. The study area includes the main roadways and intersections within about 0.5 mile of the project site. The study intersections were selected in consultation with Contra Cost County Staff, consistent with guidelines from the Contra Costa Transportation Authority (CCTA) Technical Procedures Manual, and were based on a review of the project location and the amount of traffic that could be added to the intersections in the site vicinity. The study intersections consist of the following 10 intersections within the project site vicinity and are shown on Exhibit 3.15-1.

1. Oak Road at I-680 Northbound On Ramps/Buskirk Avenue
2. Oak Road at Las Juntas Way
3. Coggins Drive at Las Juntas Way
4. Del Hombre Lane at Roble Road
5. Oak Road at Wayne Drive
6. Coggins Drive at Jones Road
7. Treat Boulevard at Buskirk Avenue
8. Treat Boulevard at Oak Road
9. Treat Boulevard at Jones Road
10. Treat Boulevard at Cherry Lane

Project Site

The project site is bound by Del Hombre Lane to the west, Roble Road to the north, and Honey Trail to the south. Characteristics of Del Hombre Lane, Roble Road, and Honey Trail and described above.

Vehicle Level of Service

Existing traffic operations within the study area were determined using the term “level of service” (LOS). LOS is a qualitative description of traffic operating conditions whereby a letter grade from A (best or free-flow conditions) to F (worst or over capacity/severe congestion conditions) is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving, such as speed, travel time, delay, and freedom to maneuver.

LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions occur, and operations are designated LOS F. Existing LOS at the study intersections was determined for weekday AM and PM peak-hours.

Contra Costa County does not maintain a database of information related to roadway segment LOS, therefore the following description is limited to intersection LOS data within the study area. To determine the existing operations of both signalized and unsignalized intersections, observed peak-hour factors[1] as well as truck, pedestrian, and bicycle activity were utilized. Study intersections were determined to operate within overall service level standards (LOS A through LOS E) set by Contra Costa County and CCTA during both the weekday morning and weekday evening peak-hours, which was confirmed during field observations. High levels of delay occur at the Treat Boulevard at Cherry Lane intersection during both peak-hours, but the intersection operates within the established benchmark. The Treat Boulevard at Jones Way intersection also operates at LOS E during the PM peak-hour. Different criteria are used to determine LOS of existing signalized and existing unsignalized (stop-controlled) intersections.

Signalized Intersections

Operations of signalized intersections were determined using the method from the 6th Edition of the Transportation Research Board's Highway Capacity Manual (HCM 6th Edition), which uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay experienced by motorists traveling through an intersection. Control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. Table 3.15-1 summarizes the relationship between average delay per vehicle and LOS for signalized intersections. This method treats each intersection in isolation, and the effects of vehicle queue spillback are not considered.

Table 3.15-1: Signalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	< 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity (V/C) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0

[1] The relationship between the peak 15 minute flow rate and the full hourly volume is given by the peak-hour factor (PHF) based on the following equation: PHF=Hourly volume/(4* volume during the peak 15 minutes of flow). The analysis of LOS is based on peak rates of flow occurring within the peak-hour because substantial short-term fluctuations typically occur during an hour.

Table 3.15-1 (cont.): Signalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0
Source: Fehr & Peers 2019.		

Unsignalized Intersections

Operations at unsignalized intersections were determined using the method from the HCM, 6th Edition. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each movement that must yield the right-of-way. At two-way or side street-controlled intersections, the control delay (and LOS) is calculated for each controlled movement, the left-turn movement from the major street, and the entire intersection. For controlled approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The delays for the entire intersection and for the movement or approach with the highest delay are reported. Table 3.15-2 summarizes the relationship between delay and LOS for unsignalized intersections.

Table 3.15-2: Unsignalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Little or no delays	< 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0
Source: Fehr & Peers 2019.		

Study Area

Traffic Counts

Weekday morning (7:00 a.m. to 9:00 a.m.) and weekday evening (4:00 p.m. to 6:00 p.m.) peak period intersection turning movement counts were conducted in January 2019 at the study intersections, in addition to separate counts of pedestrians, bicycles and heavy vehicles. For each of the count periods,

a global peak-hour was identified. The weekday AM and PM peak-hours were identified to be 7:45 a.m. to 8:45 a.m. and 4:30 p.m. to 5:30 p.m., respectively. The existing peak-hour volumes are presented on Exhibit 3.15-2 along with the existing lane configuration and traffic control.

Intersection Levels of Service

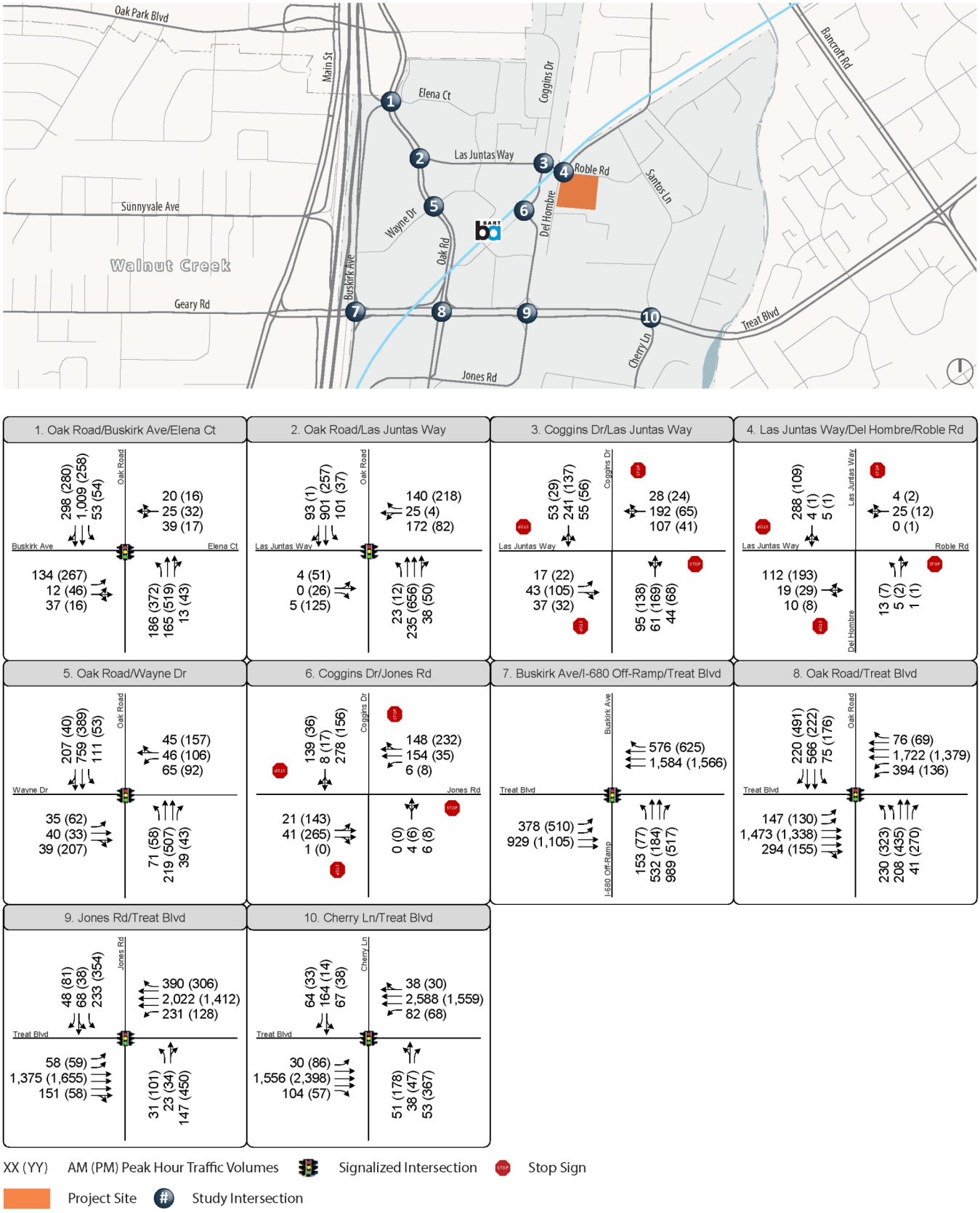
Existing study area intersections operations, including LOS, are summarized in Table 3.15-3 based on the Highway Capacity Manual, 6th Edition method unless otherwise specified. Observed peak-hour factors[2] were used at all intersections, and truck, pedestrian and bicycle activity were factored into the determination. Study intersections generally operate at overall acceptable service levels in accordance with benchmarks set by the Contra Costa County and the CCTA during both the weekday morning and weekday evening peak-hours, which was confirmed during field observations.

Table 3.15-3: Existing Peak-hour Intersection Levels of Service

Intersection	Control[1]	Peak-hour	Existing Conditions	
			Delay[3]	LOS
1. Oak Road at I-680 on/off-ramps	Signalized	AM PM	28 23	C C
2. Oak Road at Las Juntas Way	Signalized	AM PM	8 8	A A
3. Coggins Drive at Las Juntas Way	AWSC	AM PM	18 14	C B
4. Del Hombre Lane at Roble Road	AWSC	AM PM	9 9	A A
5. Oak Road at Wayne Drive	Signalized	AM PM	22 21	C C
6. Coggins Drive at Jones Road	AWSC	AM PM	18 14	C B
7. Treat Boulevard at Buskirk Avenue[2]	Signalized	AM PM	22 18	C B
8. Treat Boulevard at Oak Road[2]	Signalized	AM PM	33 36	C D
9. Treat Boulevard at Jones Road[2]	Signalized	AM PM	47 53	D D
10. Treat Boulevard at Cherry Lane[2]	Signalized	AM PM	98 (0.82) 141 (0.81)	F F

Notes:
Bold indicates operations below the intersection LOS standard for acceptable operations.
Bold Italics indicates potentially significant impact.
[1] AWSC = All-way Stop Controlled; signalized = traffic signal control
[2] Volume-to-Capacity ratio shown in parentheses when LOS value is E or F.
[3] Delay shown in seconds.
Source: Fehr & Peers 2019.

[2] The relationship between the peak 15-minute flow rate and the full hourly volume is given by the PHF based on the following equation: PHF=Hourly volume/(4* volume during the peak 15 minutes of flow). The analysis of LOS is based on peak rates of flow occurring within the peak-hour because substantial short-term fluctuations typically occur during an hour



Source: FEHR + PEERS, January 2019.

Exhibit 3.15-2
Existing Conditions Peak Hour
Traffic Volumes, Lane Configurations and Traffic Controls

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Although the study intersections are shown to operate within acceptable levels of service, significant levels of traffic diversion from I-680 and other regional travel routes can occur through the study area when there is recurring and non-recurring congestion on other routes. Congestion on I-680, SR-242, SR-24, and SR-4 can influence the operations of intersections in the study area—for example, when there are incidents on SR-4 or SR-242, additional traffic from eastern Contra Costa County uses Treat Boulevard and Ygnacio Valley Road to access I-680, SR-24, and other employment centers. This can result in vehicle queue spillback along Treat Boulevard. The data collection effort and subsequent determination is reflective of a day when there was not a major incident that resulted in atypical traffic diversion through the study area.

Project Site

The project site is located at Del Hombre Lane at Roble Road (study area Intersection 4). As shown in Table 3.15-3, this intersection operates at an acceptable level of service (LOS A) for both peak-hours.

Queuing

Vehicle queues were assessed for the signalized intersections for existing conditions.

Study Area

Table 3.15-4 presents the 95th percentile vehicle queues for turning lanes with exclusive lanes at the signalized intersections within the study area under existing conditions.

Table 3.15-4: Existing Intersection Turn-lane Queues

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour	PM Peak-hour
1. Oak Road at I-680 on/off-ramps/Buskirk Avenue	EBL	170	170	**225**
	NBL	150	**300**	**500**
	SBL	130	125	100
2. Oak Road at Las Juntas Way	EBR	170	25	50
	WBR	110	50	75
	NBL	150	75	50
	SBL	170	150	75
5. Oak Road at Wayne Drive	EBL	260	75	100
	WBL	220	100	125
	NBL	240	125	100
	NBR	240	25	25
	SBL	190	150	100
7. I-680 Off-Ramp/Treat Boulevard	EBL	275	250	**375**
	NBL	300	225	125
	NBR	1,200	**1,725**	750

Table 3.15-4 (cont.): Existing Intersection Turn-lane Queues

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour	PM Peak-hour
8. Treat Boulevard at Oak Road	EBL	150	75	100
	WBL	240	**250**	125
	WBR	610	50	50
	NBL	260	175	250
	NBR	240	25	100
	SBL	275	150	**350**
	SBR	120	**175**	**650**
9. Treat Boulevard at Jones Road	EBL	380	50	75
	WBL	200	**425**	200
	WBR	350	300	175
	NBL	370	75	150
	SBL	240	225	**275**
	SBR	370	25	25
10. Treat Boulevard at Cherry Lane	EBL	190	75	**250**
	EBR	275	25	50
	WBL	180	**225**	**200**
	NBR	110	50	**500**
	SBR	70	**75**	25

Notes:
Bold indicates queue potentially extends beyond available storage.
Bold Italics indicates potentially significant impact.
— = intersection was not evaluated for this time period.
[1] An additional 60 to 90 feet of storage is typically provided in the taper area outside of the through lane, which is not reflected in the storage length above.
Source: Fehr & Peers 2019.

As shown in Table 3.15-4, the following lanes currently have 95th percentile queues that exceed the available storage length:

- **Intersection 1:** Oak Road at I-680 on/off-ramps
  - Northbound Left-Turn (AM Peak-hour)
- **Intersection 7:** I-680 Off-Ramp/Treat Boulevard
  - Eastbound Left-Turn (PM Peak-hour)
  - Northbound Right-Turn (AM Peak-hour)

- **Intersection 8:** Treat Boulevard at Oak Road
  - Westbound Left-Turn (AM Peak-hour)
  - Southbound Left-Turn (PM Peak-hour)
  - Southbound Right-Turn (AM and PM Peak-hours)
- **Intersection 9:** Treat Boulevard at Jones Road
  - Westbound Left-Turn (AM Peak-hour)
  - Southbound Left-Turn (PM Peak-hour)
- **Intersection 10:** Treat Boulevard at Cherry Lane
  - Eastbound Left-Turn (PM Peak-hour)
  - Westbound Left-Turn (AM and PM Peak-hours)
  - Northbound Right-Turn (AM Peak-hour)

Project Site

The project site is located at the signalized Del Hombre Lane at Roble Road (study area intersection 4). As shown in Table 3.15-4, this intersection has existing queues that are accommodated by the available storage length.

Existing Public Transit Service and Facilities

Transit bus and rail service in the area is primarily provided by The County Connection and BART, with existing transit routes in the area shown on Exhibit 3.15-3.

Study Area

Bay Area Rapid Transit

BART provides rail transit service within Contra Costa County and also provides regional connections to Alameda, San Francisco, and San Mateo Counties. The Richmond/Daly City—Millbrae Line (Orange line) and the Antioch/San Francisco International Airport—Millbrae line (Yellow line) are the two train lanes that serve the 12 stations within Contra Costa County.

County Connection

The County Connection provides fixed route, express route, school service bus and paratransit transit service within and connecting to central Contra Costa County. The study area is served by numerous routes, including Routes 7, 9, 11, 14, 15, and 18, which connect the BART Pleasant Hill Station to a number of destinations, including Diablo Valley College, Downtown Walnut Creek, Downtown Pleasant Hill, Downtown Concord, Shadelands Business Park, numerous schools, residential areas, and commercial areas along the way. Depending on the route, service is provided on headways ranging from 15 to 45-minutes during peak commute periods and 60 to 90 minutes off-peak. Based on existing levels of ridership, excess capacity on the County Connection network is available to accommodate increased levels of ridership.

Project Site

Bay Area Rapid Transit

The BART Pleasant Hill/Contra Costa Center Station, which is served by the yellow line, serves the project site and is located approximately 0.12 mile west of the project site. BART train frequency

ranges between 6-20 minutes from approximately 5:00 a.m. to 12:00 a.m. Based on 2018 data from BART, approximately 8,000 passengers per day enter/exit the BART system at the Pleasant Hill/Contra Costa Center Station.

AC Transit

Route 702 provides bus service from the project site to San Francisco as follows:

- Route 702 provides non-stop, one-way service from the BART Pleasant Hill/Contra Costa Centre Station stop (Pleasant Hill BART) to the Transbay Terminal in San Francisco. This route operates Monday through Friday from 4:24 a.m. to 5:30 a.m. with approximately 15-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.

County Connection

Local Routes 7, 9, 11, 14, 15, 18, 311, and 316 provides local bus service to the project site as follows:[3,4]

- Route 7 provides service from Shadelands Business Park to the BART Pleasant Hill/Contra Costa Centre Station stop (Pleasant Hill BART) with scheduled stops at Pleasant Hill BART and Mitchell Drive/Park and Ride. This route operates Monday through Friday from 6:22 a.m. to 7:40 p.m. with approximately 15-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.
- Route 9 provides service from Diablo Valley College (DVC) to Walnut Creek BART with scheduled stops at Contra Costa Boulevard/Viking Drive, John F Kennedy University, 80 West Hookston, Oak Park Boulevard/Patterson Boulevard, and Pleasant Hill BART. This route operates Monday through Friday from 5:50 a.m. to 10:43 p.m. with 30-minute headways during peak periods and 60-minute headways off-peak. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.
- Route 11 provides service from Pleasant Hill BART to Concord BART with scheduled stops at Oak Grove Road/Smith Lane, Oak Grove Road/Monument Boulevard, and Fry Way/Clayton Road. This route operates Monday through Friday from 6:00 a.m. to 8:04 p.m. with 45-minute headways during peak periods and 90-minute headways off-peak. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.
- Route 14 provides service from Concord BART to Pleasant Hill BART with scheduled stops at Monument Boulevard/Meadow Lane and Mohr Lane/Del Rio Circle. The route operates Monday through Friday from 5:52 a.m. to 9:31 p.m. with 40-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.
- Route 15 provides service from Walnut Creek BART to Concord BART with scheduled stops at Pleasant Hill BART, Treat Boulevard/Oak Grove Road, Treat Boulevard/Cowell Road, Willow

[3] County Connection. 2018. Weekday System Map. Website: https://countyconnection.com/wp-content/themes/countyconnection/schedules/CCCTA_Weekday.pdf. Accessed November 26, 2018.
[4] County Connection. 2018. Weekend System Map. Website: https://countyconnection.com/wp-content/themes/countyconnection/schedules/CCCTA_Weekend.pdf. Accessed November 26, 2018.

Pass Road/Ashdale Drive, and Parkside Drive/Concord Civic Center. This route operates Monday through Friday from 5:35 a.m. to 8:44 p.m. with 65-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.

- Route 18 provides service from the Martinez Amtrak Station to Pleasant Hill BART with scheduled stops at Morello Avenue/Arnold Drive, Pacheco Boulevard/Center Avenue, DVC, Pleasant Hill Road/Taylor Boulevard, and Crescent Plaza/Crescent Drive. This route operates Monday through Friday from 5:45 a.m. to 9:32 p.m. with 80-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.
- Route 311 provides service from Walnut Creek BART to Concord BART with scheduled stops at Pleasant Hill BART, Oak Grove Road/Smith Lane, Oak Grove Road/Monument Boulevard, and Fry Way/Clayton Road. This route operates Saturday and Sunday from 7:19 a.m. to 7:08 p.m. with 90-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.
- Route 316 provides service from Pleasant Hill BART to Alhambra Avenue/Walnut Avenue with scheduled stops at Crescent Plaza/Crescent Drive, Contra Costa Boulevard/Viking Drive, DVC, Pacheco Boulevard/Center Avenue, Morello Avenue/Arnold Drive, the Martinez Amtrak Station, and Alhambra Avenue/Contra Costa Regional Medical Center. This route operates Saturday and Sunday from 8:20 a.m. to 7:59 p.m. with 80-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.

Solano Express

Routes Y and B provide bus service to the project site as follows:

- Route Y provides service between the Vallejo Transit Center and Walnut Creek BART station with scheduled stops at the Vallejo Ferry Terminal, Curtola Park & Ride in Vallejo, Military at First City Park in Benicia, Contra Costa Boulevard in Pleasant Hill, and Pleasant Hill BART station. This route operates Monday through Friday from 5:27 a.m. to 10:17 p.m. with 30-minute headways during peak periods and 60-minute headways off-peak. The route operates on Saturday from 6:20 a.m. to 9:43 p.m. with approximately 100-minute headways, and on Sunday from 8:00 a.m. to 9:43 p.m. with approximately 100-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.
- Route B provides service between the Sacramento Valley Station and Pleasant Hill BART station with scheduled stops at 9th Street and L Street in Sacramento, The UC Davis Silo, Dixon Park & Ride, Vaca Valley Parkway in Vacaville, The Vacaville Transportation Center, The Fairfield Transportation Center, Suisun Valley Road in Fairfield, and the Benicia Bus Hub. This route operates Monday through Friday from 4:19 a.m. to 8:31 p.m. with approximately 20- to 40-minute headways during peak periods and 60-minute headways off-peak. The route operates on Saturday from 8:00 a.m. to 7:39 p.m. with approximately 60-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.

Wheels Bus

Route 70X provides bus service to the project site as follows:

- Route 70X provides service between the East Dublin BART Station and Pleasant Hill BART station with scheduled stops at Walnut Creek BART station. This route operates Monday through Friday from 5:43 a.m. to 8:51 a.m. with 30-minute headways, and from 4:03 p.m. to 7:13 p.m. with approximately 30-minute headways. The nearest bus stop for this route is adjacent to the Pleasant Hill BART station, located 0.11 mile southwest of the project site.

Bicycle Facilities

The California Department of Transportation (Caltrans) Highway Design Manual and National Association of City Transportation Officials Urban Bikeway Design Guide define four major types of bicycle facilities:[5]

- **Class I: Multi-use Path—**These paths provide a completely separate right-of-way and are designated for the exclusive use of bicycles and pedestrians with vehicle cross-flow minimized.
- **Class II: Bicycle Lane—**These bicycle lanes provide a restricted right-of-way and are designated for the use of bicycles for one-way travel with a striped lane on a street or highway. These bicycle lanes are generally a minimum of 5 feet wide, and vehicle/pedestrian cross-flow is permitted.
- **Class III: Bicycle Route with Sharrows—**These bikeways provide right-of-way designated by signs or pavement markings for shared use with motor vehicles. These bikeways include sharrows or "shared-lane markings" to highlight the presence of bicyclists.
- **Class IV: Buffered Bicycle Lanes—**These bicycle lanes consist of a physically separate lane for increased comfort and protection of bicyclists. These bicycle lanes can be physically separated by a barrier, such as planters or on-street parking, grade-separated from the roadway, or a painted buffer area. These can also be called cycle-tracks, and can allow for one-way or two-way bicycle travel.

Study Area

Exhibit 3.15-4 shows the location of various bicycle facilities in the study area, which includes a Class I multi-use path along the Iron Horse Regional Trail across the street from the project site and Class III bikeways along portions of Coggins Drive, located approximately 300 feet west of the project site.

In addition to the facilities in the immediate study area, a Class I trail is located approximately 0.25-mile south of Treat Boulevard along the canal, a Class II Bicycle Lane runs the length of Bancroft Road (approximately 1.7 miles) from Hookston Road to where it terminates and turns into Walnut Avenue and can be accessed from the project site by taking Coggins Drive to Jones Road to Treat Boulevard and traveling northeast on Treat Boulevard. There is a Class III bike facility on Treat Boulevard starting at the intersection of Sheppard Road and Treat Boulevard, and the facility terminates at the intersection

[5] California Department of Transportation (Caltrans). 2009. Highway Design Manual, Chapter 1000 Bicycle Transportation Design. Website: http://www.dot.ca.gov/hq/oppd/hdm-before-5-7-2012-change/oldhdmtoc.htm. Accessed September 20, 2018.

of Treat Boulevard and Turtle Creek Road (approximately 3.7 miles). A roadside sign at the intersection of Arkell Road and Treat Boulevard is the only place where signage denotes Treat Boulevard as a bike facility.[6] There is also a Class III facility on Jones Road that continues on Jones Road as it turns into Coggins Drive and continues as Oak Park Boulevard. Jones Road does not include any "sharrows"—a road marking that indicates roads are to be shared by cars and bicyclists—but it does include signage indicating that Jones Road is a bike facility. The Class III facility terminates at the intersection of Oak Park Boulevard and Pleasant Hill Road (approximately 1.8 miles).[7,8]

Existing bicycle volumes are shown on Exhibit 3.15-5.

Project Site

The Iron Horse Regional Trail is a Class I multi-use path located approximately 100 feet west of the project site (and immediately west of Del Hombre Lane) that spans a distance of 32 miles and connects East Bay cities including Concord, Walnut Creek, Alamo, Danville, and San Ramon. There is currently no bicycle parking on the project site.

Pedestrian Facilities

Pedestrian facilities include sidewalks, pathways, crosswalks, and pedestrian signals.

Study Area

Sidewalk coverage is not ubiquitous in the study area and there are gaps along sections of Del Hombre Lane, although the Iron Horse Trail is parallel to this street located adjacent to the project site. Most of the residential streets in the area have sidewalks. There are several painted, all-stop intersections in the study area that include trail crossings on Las Juntas Way with Del Hombre Lane and Las Juntas Way with Coggins Drive, although there are not any high-visibility crosswalks with pedestrian actuated warning light systems. Crosswalks are not provided across Del Hombre Lane at Las Juntas Way. Existing pedestrian volumes are shown on Exhibit 3.15-5.

Project Site

Del Hombre Lane (west) has a sidewalk on the east side of the road for the first approximately 125 feet south of the intersection with Las Juntas Way and Roble Road. Honey Trail (south) has a sidewalk on the south side of the road, and Roble Road (north) has a sidewalk on the north side of the road Santos Lane, the street closest to the eastern edge of the project site, has sidewalks on the eastern side of the street that spans the length of the street (approximately 950 feet). Las Juntas Way, just north of the project site, provides sidewalks on the southern side of the street for the approximately 888-foot segment of road between Del Hombre Lane and Cherry Lane. North of Cherry Lane, the sidewalk on Las Juntas Way is intermittent. As mentioned previously, the Iron Horse Regional Trail is a multi-use path located 100 feet west of Del Hombre Lane. There are currently no pedestrian paths on the project site.

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6 FirstCarbon Solutions (FCS). 2019. In-person site visit conducted by Spencer Pignotti.

7 Contra Costa Transportation Authority (prepared by Fehr & Peers and Eisen | Letunic). 2009. 2009 Contra Costa Countywide Bicycle and Pedestrian Plan.

8 City of Walnut Creek. 2013. Walnut Creek Bike Map. Website: http://www.walnut-creek.org/home/showdocument?id=5166. Accessed November 27, 2018.

Vehicle Miles Traveled

Study Area

The existing average trip lengths for the home based trips for unincorporated Contra Costa County, adjacent communities, and the greater Bay Area based on Metropolitan Transit Commission (MTC) data are presented in Table 3.15-5.

Table 3.15-5: Existing Average Trip Length Per Capita (Home Based Trips)

Trip Type	Pleasant Hill	Concord	Walnut Creek	Contra Costa County	Unincorporated Contra Costa County	Bay Area
Home Base VMT	17.5	16.3	17.4	18.0	19.7	15.3
Source: MTC, Fehr & Peers 2019.						

Home-based trips in unincorporated Contra Costa County are higher than the Bay Area average.

Project Site

Existing uses on the site generate minimal levels of vehicle miles of travel.

Roadway Geometry Design

Study Area

Roadways in the study area were designed and built to the design standards in effect at the time of roadway construction.

Project Site

Del Hombre Lane is currently not built to County Standards.

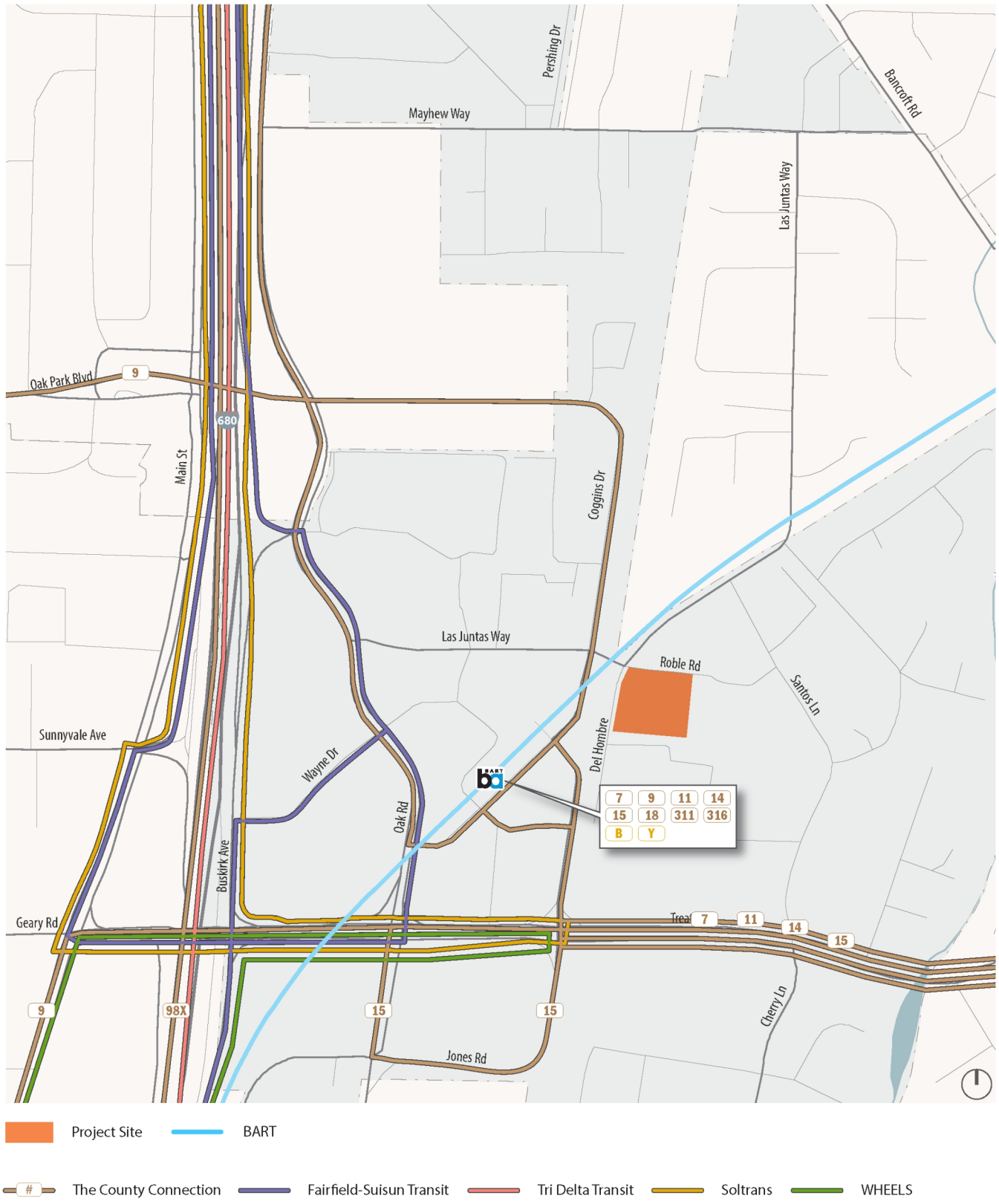
Emergency Access and Routes

Study Area

The main arterial roads into and out of the project vicinity are Treat Boulevard in the east-west direction and Ygnacio Valley Road and I-680 in the north-south direction. These roads would act as the main evacuation routes into and out of the project vicinity.

Project Site

The project site currently has one point of access along Roble Road to the north. The existing residence at 3018 Del Hombre lane is accessed via a gravel driveway that connects to Del Hombre Lane to the east. Emergency access is provided via those two access points.



Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-3
Existing Transit Facilities

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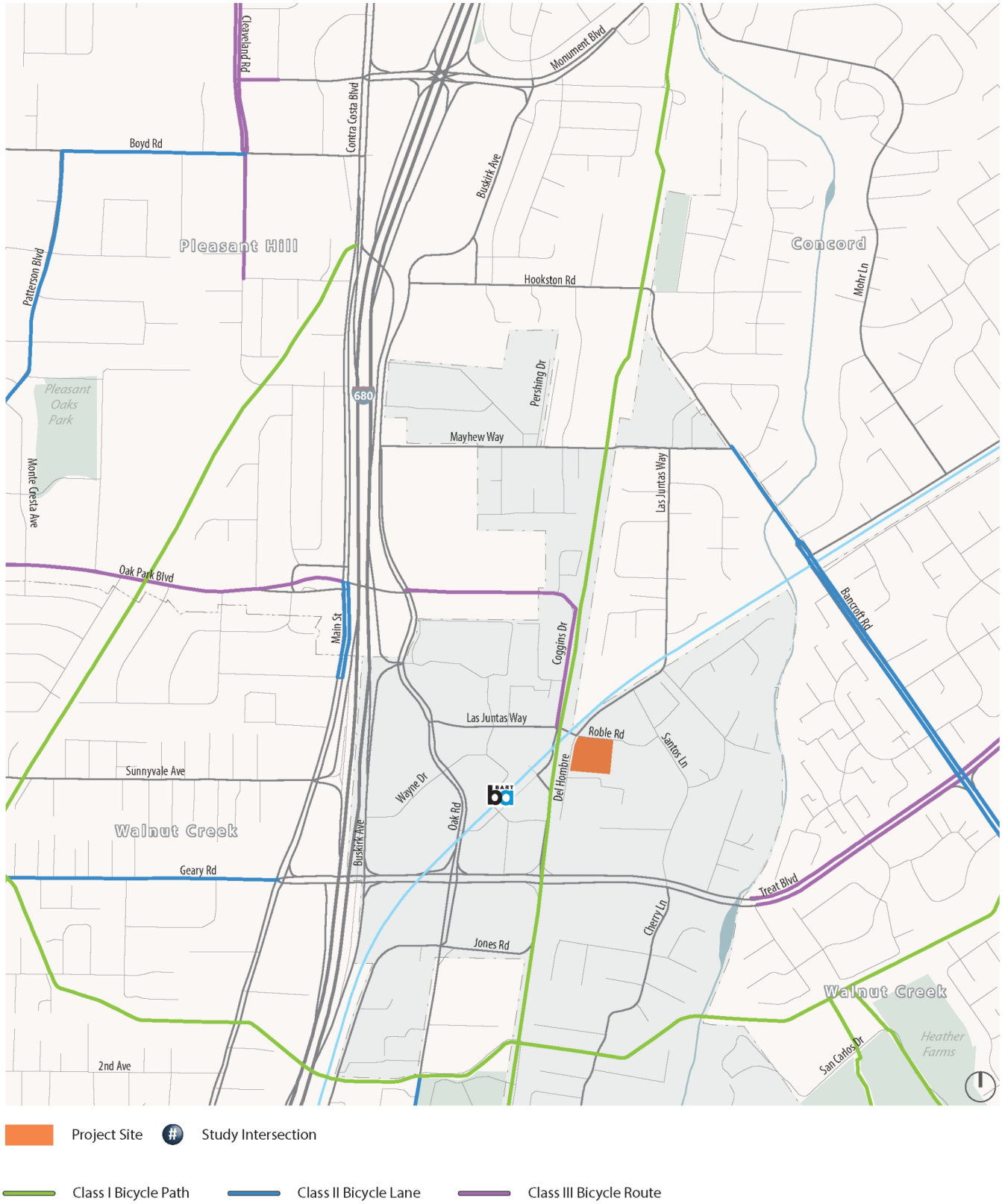

Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-4
Existing Bicycle Facilities

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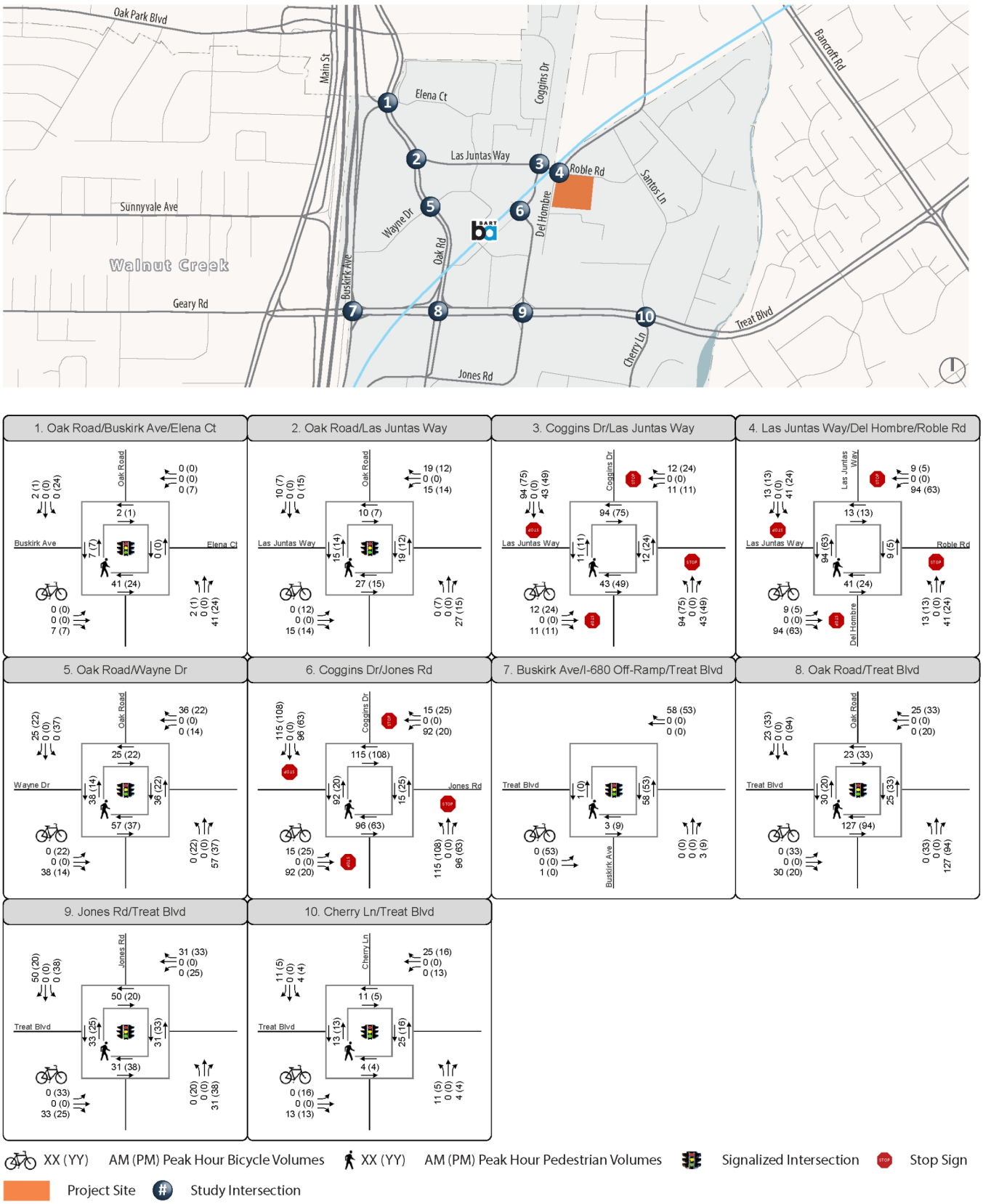

Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-5
Existing Conditions Peak Hour Bicycle and Pedestrian Volumes

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3.15.3 - Regulatory Framework

Federal

No federal plans, policies, regulations, or laws related to transportation and traffic are applicable to the project.

State

California Department of Transportation LOS Goals

Caltrans builds, operates, and maintains the State highway system, including the interstate highway system. Caltrans's mission is to improve mobility Statewide. The department operates under strategic goals to provide a safe transportation system, optimize throughput and ensure reliable travel times, improve the delivery of State highway projects, provide transportation choices, and improve and enhance the State's investments and resources. Caltrans controls the planning of the State highway system and accessibility to the system. Caltrans establishes LOS goals for highways and works with local and regional agencies to assess impacts and develop funding sources for improvements to the State highway system. Caltrans requires encroachment permits from agencies or new development before any construction work may be undertaken within the State's right-of-way. For projects that would impact traffic flow and levels of services on State highways, Caltrans would review measures to mitigate the traffic impacts. However, Caltrans has adopted the 2013 CCTA Congestion Management Plan (CMP) standards, which are the criteria used to identify impacts in the project-specific TIA and this EIR.

Senate Bill 743

In November 2017, the Governor's Office of Planning and Research (OPR) released a technical advisory containing recommendations regarding the assessment of vehicle miles traveled (VMT), proposed thresholds of significance, and potential mitigation measures for lead agencies to use while implementing the required changes contained in Senate Bill (SB) 743. Also in November 2017, OPR released the proposed text for Section 15064.3, "Determining the Significance of Transportation Impacts," which summarized the criteria for analyzing transportation impacts for land use projects and transportation projects and directs lead agencies to "choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure." OPR recommends that for most instances a per service population threshold should be adopted and that a fifteen percent reduction below that of existing development would be a reasonable threshold.

As noted in the OPR Guidelines, agencies are directed to choose metrics that are appropriate for their jurisdiction to evaluate the potential impacts of a project in terms of VMT. The current deadline for adopting policies to implement SB 743 is July 2020; the change to VMT was formally adopted as part of updates to the CEQA guidelines in December 2018. Contra Costa County has not yet established specific local VMT thresholds.

The updated guidelines eliminate the use of automobile delay metrics, such as LOS, from determining significant environmental impacts from vehicle travel. VMT has been identified as the most appropriate metric to evaluate a project's transportation impacts, as projects that result in lower than

average VMT support goals of reducing greenhouse gas emissions, while projects that result in higher than average levels of vehicle travel contribute to an increasing rate of greenhouse gas emissions.

Projects that are within 0.5-mile of an existing major transit stop, which is define as a rail transit station, ferry terminal served by bus or rail transit, or at the intersection of two or more major bus routes with service frequencies of 15-minutes or less during the morning and afternoon peak commute periods, are presumed to be less-than-significant if the project has the following characteristics:

- Has a Floor Area Ratio (FAR) greater than 0.75.
- Does not include more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking).
- Is consistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization).
- Does not replace affordable residential units with a smaller number of moderate or high-income residential units.

If a project meets the screening requirements, it is presumed to have a less-than-significant impact related to VMT.

Since there are no standards in effect on VMT analysis, a preliminary assessment of the VMT generated by the project was prepared for informational and disclosure purposes only. No determination on the significance of VMT impacts is made in this document since none is legally required.

Regional

Contra Costa Transportation Authority Central County Action Plan

CCTA is the Congestion Management Agency for Contra Costa County. CCTA implements the Central County Action Plan, which sets forth performance objectives for Routes of Regional Significance. Treat Boulevard (including the four study intersections on this roadway) is a Route of Regional Significance.

Local

Contra Costa County General Plan

Transportation and Circulation Element

The Transportation and Circulation Element includes fundamental concepts that shape the element and support a "well-planned and integrated multi-modal transportation network."[9] The following are fundamental concepts recognized in developing the Transportation and Circulation Element:

- Improving the quality, safety, and reliability of transit, walking, and bicycle facilities in the County will both allow and encourage greater use of these alternatives.
- Streets should be designed and maintained according to the "Complete Streets" philosophy.

[9] Contra Costa General Plan, Chapter 5: Transportation and Circulation Element. 2005 (reprint 2010), page 5-8. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30915/Ch5-Transportation-and-Circulation-Element?bidId=. Accessed July 16, 2019.

The Contra Costa County General Plan sets forth the following goals and policies that are relevant to transportation:

- **Goal 5-A:** To provide a safe, efficient and integrated multimodal transportation system.
- **Goal 5-C:** To balance transportation and circulation needs with the desired character of the community.
- **Goal 5-D:** To maintain and improve air quality above air quality standards.
- **Goal 5-E:** To permit development only in locations of the County where appropriate traffic level of service standards are ensured.
- **Goal 5-I:** To encourage use of transit.
- **Goal 5-J:** To reduce single-occupant auto commuting and encourage walking and bicycling.
- **Goal 5-K:** To provide basic accessibility to all residents, which includes access to emergency services, public services and utilities, health care, food and clothing, education and employment, mail and package distribution, freight delivery, and a certain amount of social and recreational activities.
- **Goal 5-L:** To reduce greenhouse gas emissions from transportation sources through provision of transit, bicycle, and pedestrian facilities.
- **Policy 5-3:** Transportation facilities serving new urban development shall be linked to and compatible with existing and planned roads, bicycle facilities, pedestrian facilities and pathways of adjoining areas, and such facilities shall use presently available public and semi-public rights of way where feasible.
- **Policy 5-4:** Development shall be allowed only when transportation performance criteria are met and necessary facilities and/or programs are in place or committed to be developed within a specified period of time.
- **Policy 5-12:** The use of local and collector roadways for neighborhood circulation shall be encouraged.
- **Policy 5-13:** The use of pedestrian and bicycle facilities shall be encouraged. Proper facilities shall be designed to accommodate bikes, pedestrians, and transit.
- **Policy 5-14:** Physical conflicts between pedestrians, bicyclists, and vehicular traffic, bicyclists, and pedestrians shall be minimized.
- **Policy 5-15:** Adequate lighting shall be provided for pedestrian, bicyclist, and vehicular, safety, consistent with neighborhood desires.
- **Policy 5-16:** Curbs and sidewalks shall be provided in appropriate areas.
- **Policy 5-17:** Emergency response vehicles shall be accommodated in development project design.
- **Policy 5-18:** The design and the scheduling of improvements to arterials and collectors shall give priority to intermodal safety over other factors including capacity.
- **Policy 5-20:** New development (including redevelopment and rehabilitation projects) shall contribute funds and/or institute programs to reduce parking demand and/or provide adequate parking.
- **Policy 5-21:** New development shall contribute funds and/or institute programs to provide adequate bicycle and pedestrian facilities where feasible.
- **Policy 5-22:** New subdivisions should be designed to permit convenient pedestrian access to bus transit and efficient bus circulation patterns.

- **Policy 5-24:** Use of alternative forms of transportation, such as transit, bike and pedestrian modes, shall be encouraged in order to provide basic accessibility to those without access to a personal automobile and to help minimize automobile congestion and air pollution.
- **Policy 5-32:** Local road dimensions shall complement the scale and appearance of adjoining properties.

Contra Costa Countywide Bicycle and Pedestrian Plan

To support and encourage walking and bicycling in Contra Costa, the CCTA, on July 18, 2018, adopted the 2018 Contra Costa Countywide Bicycle and Pedestrian Plan (CBPP).[10] The CCTA adopted its first CBPP in 2003 and updated it in 2009. The CBPP builds on and expands the goals, policies, and strategies of the CCTA's CTP. Both plans set goals for increasing walking and bicycling and identify actions the Authority and its partners should take to achieve them.

Complete Streets Policy of Contra Costa County

The Complete Streets Policy was adopted by Resolution No. 2016/374 by the Board of Supervisors of Contra Costa County on July 12, 2016.

A. Complete Streets Principles

1. **Complete Streets Serving All Users.** Contra Costa County expresses its commitment to creating and maintaining Complete Streets that provide safe, comfortable, and convenient travel along and across rights-of-way (including streets, roads, highways, bridges, paths, and other portions of the transportation system) through a comprehensive, integrated transportation network that serves all categories of users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, seniors, children, youth, students and families.
2. **Context Sensitivity.** In planning and implementing street projects, departments and agencies of Contra Costa County shall maintain sensitivity to local conditions in both residential and business districts as well as urban, suburban, and rural areas, and shall work with residents, merchants, school representatives, and other stakeholders to ensure that a strong sense of place ensues. Improvements that will be considered include sidewalks, shared use paths, separated bikeways/cycle tracks, bicycle lanes, bicycle routes, paved shoulders, street trees and landscaping, planting strips, accessible curb ramps, crosswalks, refuge islands, pedestrian signals, signs, street furniture, bicycle parking facilities, public transportation stops and facilities, transit priority signalization, traffic calming circles, transit bulb outs, road diets and other features assisting in the provision of safe travel for all users and those features and concepts identified in the Contra Costa County Complete Streets General Plan Amendment of April 2008.
3. **Complete Streets Routinely Addressed by All Departments.** All departments and agencies of Contra Costa County shall work towards making Complete Streets practices a routine part of everyday operations, approach every

[10] Contra Costa Transportation Authority (CCTA). 2019. Countywide Bicycle and Pedestrian Plan. Website: http://keepcontracostamoving.net/. Accessed: February 28, 2019.

relevant project, program, and practice as an opportunity to improve streets and the transportation network for all categories of users/modes, and work in coordination with other departments, agencies, and jurisdictions to maximize opportunities for Complete Streets, connectivity, and cooperation. Example activities include, but are not necessarily limited to the following: pavement resurfacing, restriping, accessing above and underground utilities, signalization operations or modifications, maintenance of landscaping/related features, and shall exclude minor (catch basin cleaning, sign replacement, pothole repair, etc.) maintenance and emergency repairs.

4. **All Projects and Phases.** Complete Streets infrastructure sufficient to enable reasonably safe travel along and across the right-of-way for each category of users shall be incorporated into all planning, funding, design, approval, and implementation processes for any construction, reconstruction, retrofit, maintenance, operations, alteration, or repair of streets (including streets, roads, highways, bridges, and other portions of the transportation system), except that specific infrastructure for a given category of users may be excluded if an exemption is approved via the process set forth in Section C.1 of this policy.

B. Implementation

1. **Plan Consultation and Consistency.** Maintenance, planning, and design of projects affecting the transportation system shall be consistent with the Contra Costa County General Plan, as well as other applicable bicycle, pedestrian, transit, multimodal, best practices, and other relevant documents. Where such consistency cannot be achieved without negative consequences, consistency shall not be required if the head of the relevant departments, or designees, provides written approval explaining the basis of such deviation.
2. **Street Network/Connectivity.** As feasible, and as opportunities arise, Contra Costa County shall incorporate Complete Streets infrastructure into existing streets to improve the safety and convenience of users, with the particular goal of creating a connected network of facilities accommodating each category of users, increasing connectivity across jurisdictional boundaries, and for accommodating existing and anticipated future areas of travel origination or destination. A well-connected network should include non-motorized connectivity to schools, parks, commercial areas, civic destinations and regional non-motorized networks on both publically owned roads/land and private developments (or redevelopment areas).
3. **Countywide Bicycle Advisory Committee (CBAC) Consultation.** The CBAC may review the design principles used by staff to accommodate motor vehicle, bicycle, pedestrian, and transit modes of travel when reviewing projects. The CBAC will be engaged early in the planning and design stage to provide an opportunity for comments and recommendations regarding Complete Street features of major public transportation projects.
4. **Evaluation.** The County will establish a means to collect data and evaluate the implementation of complete streets policies. For example, tracking the number of miles of paths, bike lanes and sidewalks, numbers of street crossings, signage etc.

C. **Exceptions**

1. **Required Findings and Leadership Approval for Exemptions.** Plans or projects that seek exemptions from incorporating Complete Streets design principles must provide a written explanation of why accommodations for all modes were not included in the project. An exemption may be granted by the Director of Public Works or Director of Conservation and Development upon finding that inclusion of Complete Streets design principles are not possible or appropriate under one or more of the following circumstances: 1) bicycles or pedestrians are not permitted on the subject transportation facility pursuant to state or local laws; 2) inclusion of Complete Streets design principles would result in a disproportionate cost to the project; 3) there is a documented absence of current and future need and demand for Complete Streets design elements on the subject roadway; and, 4) one or more significant adverse effects would outweigh the positive effects of implementing Complete Streets design elements. Plans or projects that are granted exceptions must be made available for public review.

Contra Costa County Ordinance Code

Chapter 82-16.412 of the Contra Costa County Ordinance Code sets forth the amounts of long-term and short-term bicycle parking that a project must provide. The Contra Costa County Ordinance Code requires a multiple-family dwelling to provide space for 15 percent of the number of bedrooms for long-term parking, or two spaces (whichever is greater) and space for 5 percent of the number of bedrooms for short-term parking, or two spaces (whichever is greater).[11]

3.15.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 California Environmental Quality Act (CEQA) Guidelines Appendix G, to determine whether transportation and traffic impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

b) 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?

[11] Contra Costa County Ordinance Code. 2018. Chapter 82-16.412—Bicycle Parking. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV82GERE_CH82-16OREPA_82-16.412BIPA. Accessed November 26, 2018.

Approach to Analysis

Analysis in this section is based on the project-specific transportation impact analysis that is provided in Appendix I. The following is a summary of the analysis methodology.

Trip Generation

Trip generation was estimated using rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition), trip generation studies conducted for apartment complexes in the area, including the Park Regency Apartments and AvalonBay Community, as well as journey to work data for census tracts in the study area. Additionally, a study conducted to document Transportation Network Company (TNC) use, such as Lyft and Uber, at a wide variety of land use types was also reviewed to determine if a portion of project trips could be ride-sharing trips.

Trip generation refers to the process of estimating the amount of vehicular traffic a project might add to the local roadway network. In addition to estimates of daily traffic, estimates are also created for the peak one-hour periods during the weekday morning (AM) and evening (PM) commute hours, when traffic volumes on adjacent streets are typically at their highest. Given the projects proximity to a BART station and other connecting transit services, as well as its proximity to a Class I bicycle and pedestrian path that provides non-motorized connections to the north and south, a higher percentage of trips to and from the site are expected to be transit, walk and bicycle trips as compared to a more traditional suburban development.

Review of the data indicates that ITE trip generation rates alone could over-estimate vehicle trip generation as compared to projects surveyed in the project vicinity, as the ITE rates are based on surveys on apartment uses in suburban settings, not well served by transit. Additionally, the local survey data was collected before the use of TNCs, which could account for approximately 5 percent of trips to a residential complex such as the project. Review of census data indicates the people who live in the project area take transit, walk or bike to work at a much higher rate than residents elsewhere in the county (approximately 25 percent take transit to work and 5 percent walk or bike to work in the project area, as compared to less than 10 percent transit mode and less than 2 percent walk/bike mode for the county as an average).

To estimate the vehicle trip generation for this project, ITE rates were used as a starting point. They were then reduced by 20 percent to account for additional transit, walk, and bicycle trips as compared to a typical apartment building given the projects location adjacent to BART, and the proximity to a number of employment centers. Vehicle trip generation was also increased by 5 percent to account for TNC use, with the resulting trip generation estimates presented in Table 3.15-6. TNC use results in a vehicle trip generation increase as each TNC trip counts for two trips—one inbound and one outbound. The TNC factor was based on observations conducted by Fehr & Peers staff at similar land uses in urban and suburban contexts.

Table 3.15-6: Project Trip Generation

Use	Size	Weekday Daily	Weekday AM Peak-hour			Weekday PM Peak-hour		
			In	Out	Total	In	Out	Total
Apartments	284 Dwelling Units	2,110	30	99	129	91	59	150
Additional Transit, Walk, Bike	20 percent reduction	-420	-6	-20	-26	-18	-12	-30
TNC Factor	5 percent increase	110	3	3	6	4	4	8
Net New Trips		***1,800***	***27***	***82***	***109***	***77***	***51***	***128***

Note:
ITE land use category 220—Multi-Family Housing (Adj. Streets, 7-9A, 4-6P) based on suburban locations not served by transit:
Weekday Daily: T = 7.56 (X) -40.86
Weekday AM Peak-hour: Ln(T) = 0.95 Ln(X) -0.51; Enter = 23%; Exit = 77%
Weekday PM Peak-hour: Ln(T) = 0.89 Ln(X) -0.02; Enter = 63%; Exit = 37%
Source: ITE Trip Generation Manual (10th Edition), Fehr & Peers.

As shown in Table 3.15-6, the project is expected to generate approximately 1,800 net new vehicle trips on a daily basis, including 109 morning peak-hour trips and 128 evening peak-hour trips. The net new daily trips added in TNC trips to the project site, but subtracted out transit, bicycle, and pedestrian trips as shown in Table 3.15-6. Since existing trips to the project site are limited to two residences, those trips were not included in the trip generation calculations.

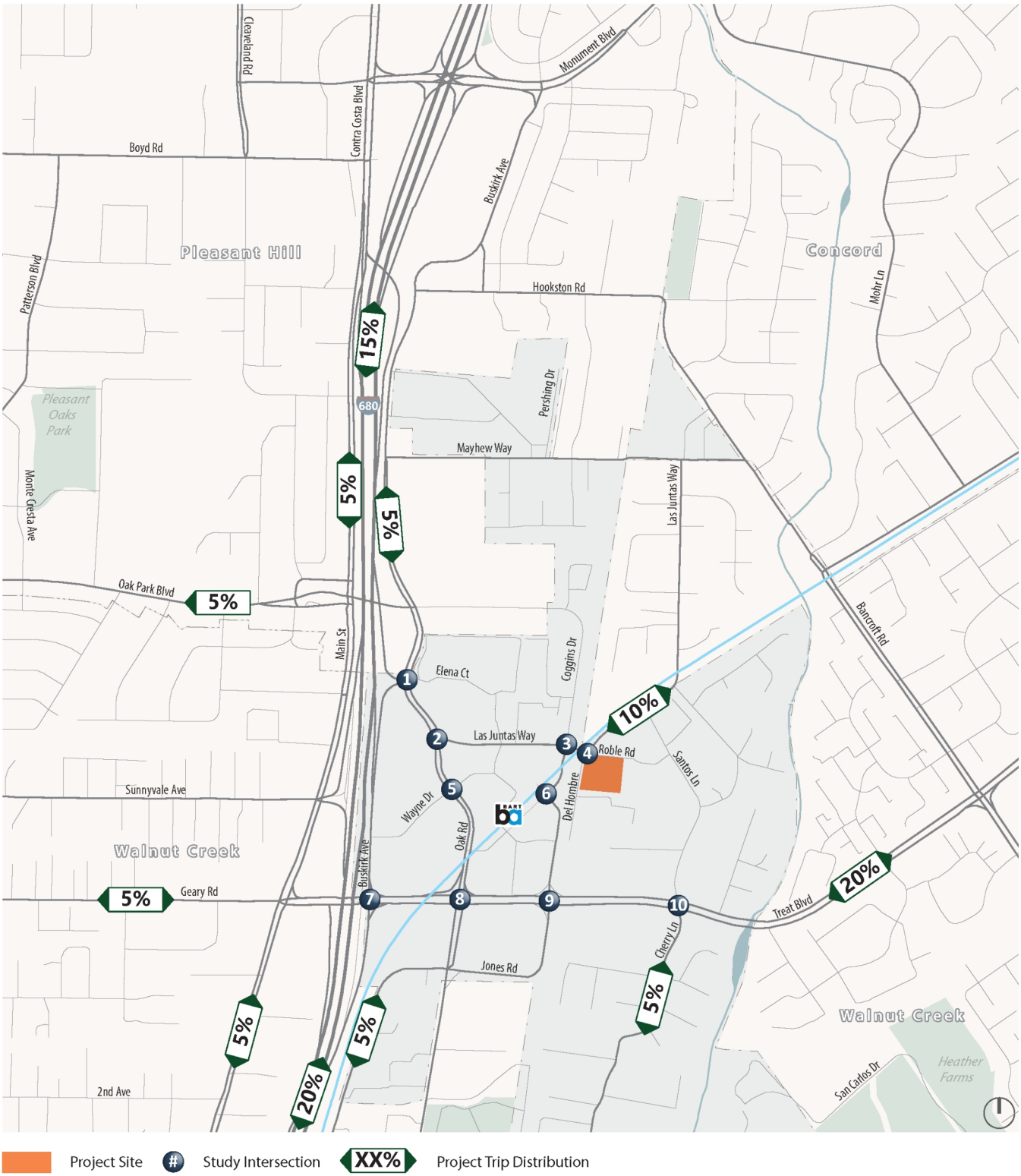
The resulting vehicle trip generation rate per unit was then calculated and compared to observed data from area apartments. This comparison shows that the resulting trip generation estimates are within the range of other apartments in the area on a per-unit basis.

Trip Distribution

Project trip distribution refers to the directions of approach and departure that vehicles would take to access and leave the site. Estimates of project trip distribution were developed based on existing travel patterns in the area, a select zone analysis using the CCTA travel demand model, the location of complementary land uses, and existing travel patterns in the area. Project trips were distributed on the roadway network based on the general directions of approach and departure as shown on Exhibit 3.15-6.

Trip Assignment

Based on the project trip distribution and trip generation volumes, AM and PM project trips were assigned through the study intersections. The project trip assignment at the study intersections is shown on Exhibit 3.15-7.



Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-6
Project Trip Distribution

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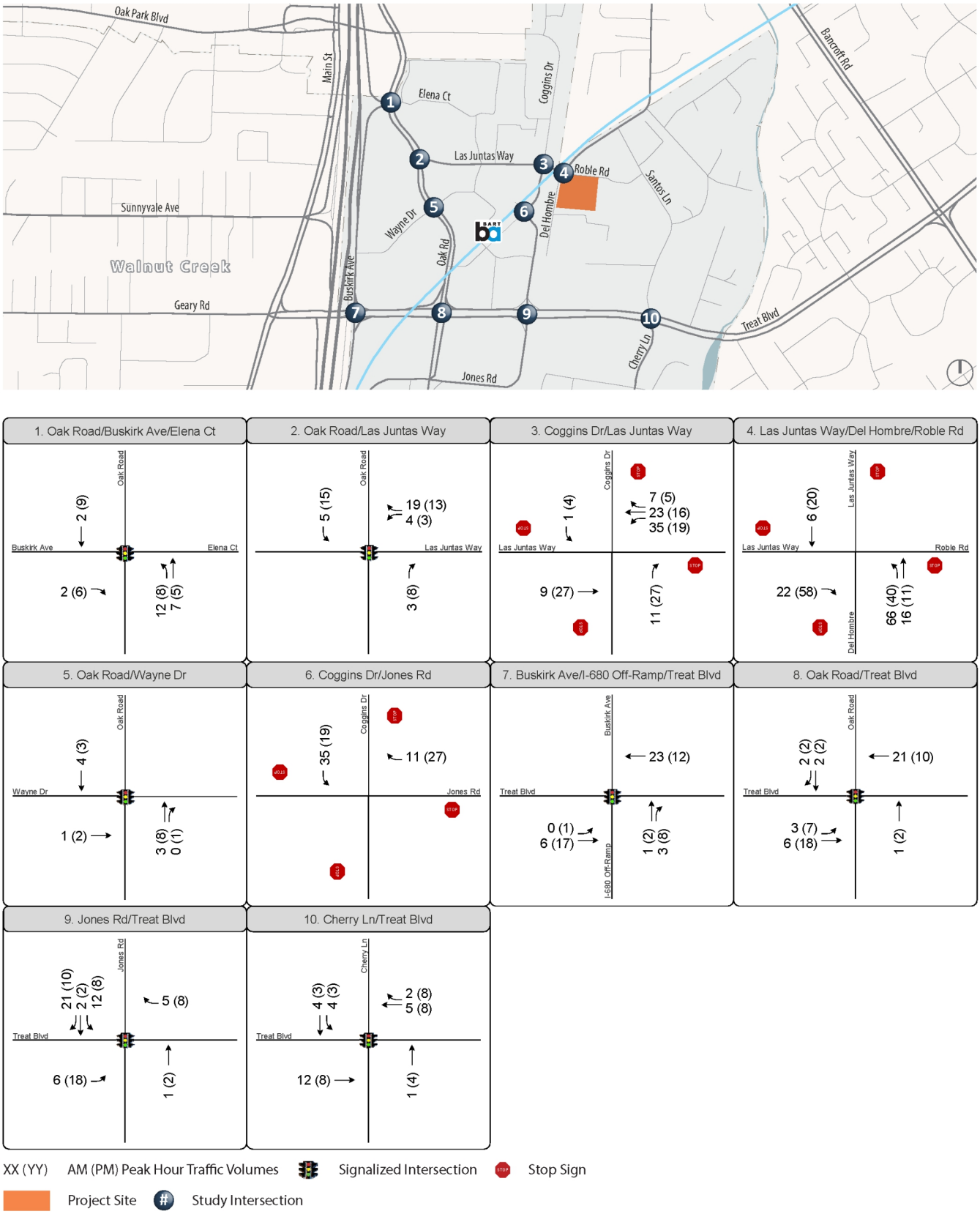

Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-7
Project Trip Assignment

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Peak-hour Signal Warrants

Peak-hour traffic signal warrants were reviewed at the unsignalized study intersections. Peak-hour warrants[12] are not met at any of the unsignalized study intersection based on existing traffic volumes.

Vehicle Miles Traveled

A select zone analysis was conducted using the CCTA model whereby all the trips generated by the residential portion of the project were tracked through the transportation system. Based on this analysis, the project is estimated to generate approximately 11.4 vehicle miles of travel per day per capita. This includes all trips generated by each household that either start or end at home. This level of vehicle travel is lower than the Bay Area average and significantly lower than any of the surrounding jurisdictions.

Roadway Segments

The Contra Costa County General Plan does not provide thresholds for the evaluation of a project's impact on roadway segments. Project-level impacts are determined based on peak-hour traffic volumes analyses. Therefore, no roadway segments were evaluated. Rather, LOS analysis in this EIR focuses on intersection LOS, and the 10 study area intersections were analyzed in terms of LOS

Queuing Analysis

Queuing analysis was conducted for each left and right turn pocket at the signalized intersections in the study area. An estimated 95th percentile queue was estimated for peak-hour traffic for all analysis scenarios.

Analysis Scenarios

Operation of the transportation network was evaluated under the following scenarios:

- **Existing Conditions (2019) (see Table 3.15.-3 [LOS] and Table 3.15-4 [queuing])—**this scenario provides an evaluation of current operation based on existing traffic volumes during the weekday AM and PM peak periods, which capture traffic conditions during peak morning and evening commute hours. This condition does not include project generated traffic volumes.
- **Existing with Project Conditions (2019) (see Table 3.15-7 [LOS] and Table 3.15-9 [queuing])—**this scenario represents the Existing Conditions scenario described above plus the addition of project-generated traffic volumes.
- **Opening Year (2022) Traffic Conditions (see Table 3.15-8 [LOS] and Table 3.15-10 [queuing])—**this scenario represents traffic conditions of the street network assumed to be in place at the project's opening day. This includes all approved but not yet built projects within

[12] Unsignalized intersection warrant analysis is intended to examine the general correlation between existing conditions and the need to install new traffic signals. Existing peak-hour volumes are compared against a subset of the standard traffic signal warrants recommended in the Manual on Uniform Traffic Control Devices and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions. The responsible State or local agency should undertake regular monitoring of actual traffic conditions and accident data and conduct a timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

the area. It is assumed that these projects would be built and operational by opening year.[13] The traffic volumes described are during the weekday AM and PM peak periods, which capture traffic conditions during peak morning and evening commute hours.

- **Opening Year (2022) with Project Conditions (see Table 3.15-8 [LOS] and Table 3.15-10 [queuing])—**this scenario represents the opening year scenario described above plus the addition of project-generated traffic volumes.
- **Cumulative Year (2040) Conditions (see Table 3.15-12 [LOS] and Table 3.15-13 [queuing])—**this scenario provides an evaluation of traffic associated with the traffic conditions of the street network assumed to be in place under Cumulative Year Conditions using the traffic growth trends as described in the Contra Costa County General Plan and documented in the CCTA Countywide Travel Demand Model, as well as considering approved and potential projects in the immediate study area. The traffic volumes described are during the weekday AM and PM peak periods, which capture traffic conditions during peak morning and evening commute hours.
- **Cumulative Year (2040) with Project Conditions (see Table 3.15-12 [LOS] and Table 3.15-13 [queuing])—**this scenario represents the Cumulative Conditions scenario described above plus the addition of project-generated traffic volumes.

Specific Thresholds of Significance

Contra Costa County has established standards in the form of County guidance contained in the Contra Costa County General Plan and the CCTA Central County Action Plan regarding traffic circulation, bicycle and pedestrian circulation, and transit service. For purposes of this analysis, the following thresholds are used to evaluate the significance of transportation and traffic impacts resulting from implementation of the project.

Roadway Facilities

Level of Service

- Deterioration of a signalized intersection not on a route of regional significance from LOS D (or better) to LOS E or LOS F
- At an intersection not on a route of regional significance projected to operate at LOS E or F prior to the addition of project traffic, the project increases delay by more than 5-seconds
- Deterioration of peak-hour operations of an all-way at a controlled intersection from LOS D or better to LOS E or F, or at intersections where the LOS is E or F, one of the following:
  1. Project traffic results in satisfaction at the peak-hour volume traffic signal warrant;
  2. Project traffic average delay by more than 5 seconds;[14] or

[13] Loomis, Mychal. Transportation Engineer, Kimley-Horn and Associates. Personal communication: phone call. October 1. 2018.

[14] A 5-second increase in delay is not an adopted threshold by Contra Costa County. The CCTA Countywide Transportation Plan EIR (2017) applied a 5 percent change of a particular measure as the basis for an appreciable change, consistent with the approach used in the Plan Bay Area EIR. A 5-second increase in delay is also a common threshold for delay based metrics, which have been used by other agencies within Central Costa County, including Pleasant Hill, Concord, and Walnut Creek. This allows for a slight increase in vehicle traffic at an intersection already operating at deficient levels prior to the identification of a significant project-level impact. Projects would still be required to pay all applicable local and regional transportation impact fees to fund regional transportation improvements to the overall system.

3. Where the peak-hour volume signal warrant is met without project traffic and delay cannot be measured, project increases traffic by 10 or more vehicles per lane on the controlled approach.

- At a signalized intersection on a Route of Regional Significance (Treat Boulevard, intersections 7-10) result in the volume-to-capacity ratio to exceed 1.5 (LOS F). For intersection where the volume-to-capacity ratio exceeds 1.5 without the project, increase the volume-to-capacity ratio by 0.05.[15]

Queuing

The addition of project traffic at a study intersection would result in the 95th percentile vehicle queue exceeding the available storage or would increase 95th percentile queue by more than two vehicles where the queue already exceeds the available storage space (for example, vehicle queues extending beyond the available turn pocket length, impeding travel in the adjacent lanes)

The goal of Contra Costa County is to maintain LOS D during the peak-hours, however signalized intersections located along the CCTA CMP network may operate at LOS F (i.e. intersections 7, 8, 9 and 10) with a volume-to-capacity ratio standard of 1.5 or less.

Transit Facilities

Generally, a project causes a significant impact to transit facilities and services if an element of it conflicts with existing or planned transit services. The evaluation of transit facilities shall consider if:

- A project creates demand for public transit services above the capacity which is provided, or planned;
- A project or project-related mitigation disrupts existing transit services or facilities;
- A project or project-related mitigation conflicts with an existing or planned transit facility; or
- A project or project-related mitigation conflicts with transit policies adopted by Contra Costa County, CCTA, or County Connection for their respective facilities in the study area.

Bicycle and Pedestrian Facilities

The CCTA CBPP, July 2018, describes related policies necessary to ensure that pedestrian and bicycle facilities are safe and effective for County residents. Using this plan as a guide, significant impacts to these facilities would occur when a project or an element of the project:

- Creates a hazardous condition that currently does not exist for pedestrians and bicyclists, or otherwise interferes with pedestrian accessibility to the site and adjoining areas; or
- Conflicts with an existing or planned pedestrian or bicycle facility; or
- Conflicts with policies related to bicycle and pedestrian activity adopted by CCTA and Contra Costa County.

[15] See Footnote 12.

Vehicle Miles of Travel

According to the Updated to CEQA Thresholds of Significance and Transportation Impact Study Guidelines dated December 28, 2018, VMT impacts could have a significant effect on the environment if the project would:

- Cause additional VMT per capita, per service population, or other appropriate efficiency measure; or
- Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network.
- Conflict with a plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle lanes, and pedestrian paths (except for automobile LOS or other measures of vehicle delay).

However, new CEQA guidelines section 15064.3 states that the amendments do not take effect until July 1, 2020 unless the lead agency adopts them earlier. Neither the City of Pleasant Hill, Contra Costa County nor the CCTA have adopted VMT thresholds. Accordingly, this analysis has been prepared for informational purposes only.

Design Feature Hazards

A significant impact would occur if the project violates roadway design policies set forth in the Contra Costa County General Plan or the Contra Costa County Ordinance Code.

Emergency Access

The Contra Costa General Plan Transportation Element and Safety Element do not provide significance thresholds for emergency. Contra Costa County Ordinance number 2016-23 adopts the 2016 California Fire Code and amends the code to address local conditions. Therefore, this EIR will evaluate the project using the significance threshold provided by the 2016 California Fire Code as follows:

- Multiple Family Residential Projects having more than 100 dwelling units should provide two separated and approved fire apparatus access roads.
- Emergency apparatus access must be provided with a driving surface of not less than 20 feet unobstructed with within 150 feet of travel distance to all portion of all exterior walls of the proposed building.
- Buildings exceeding 30 feet require approved aerial apparatus access. An aerial apparatus roadway with a minimum unobstructed width of 26 feet shall be provided. This unobstructed 26-foot wide roadway shall parallel one entire side of the building and must be no closer than 15 feet and no further than 30 feet from the building.

Impact Evaluation

Affect to Circulation System

Impact TRANS-1: The project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Construction

Roadway Facilities

The assessment of construction activity considers construction vehicles (including vehicles removing or delivering fill material, bulldozers, and other heavy machinery, as well as building materials delivery) and construction worker activity.

Based on the preliminary construction schedule, export of approximately 29,000 cubic yards of material is expected over an approximately 50-day period. With a capacity of approximately 14 cubic yards per dump truck, this would equate to approximately 84-truck trips per day (42 inbound and 42 outbound) during the site preparation phase. Truck traffic would follow designated truck routes. After site grading is complete, other construction vehicles would be used, but it is expected that equipment would be staged on the site prior to beginning work and would be removed at project completion. Since construction-related details were not available at the time this EIR was prepared, there could be construction related impact, which represents a potentially significant impact.

However, Mitigation Measure (MM) TRANS-1a would require the preparation and implementation of a construction traffic control plan, which would reduce the potential for construction vehicle conflicts with other roadway users. Therefore, construction impacts related to circulation system performance in terms of roadway facilities would be less than significant with mitigation.

Transit Facilities

Construction of the project would not interfere with pedestrian connections to the County Connection bus stops or the BART station. Therefore, construction impacts related to circulation system performance in terms of transit facilities would be less than significant.

Bicycle Facilities

Construction of the project would not result in the temporary closure of bicycle facilities during construction. Therefore, construction impacts related to circulation system performance in terms of bicycle facilities would be less than significant.

Pedestrian Facilities

While construction of the project could result in temporary closures of the sidewalks along Del Hombre Lane, Roble Road, or Honey Trail, pedestrians could utilize alternate sidewalks, such as the eastern sidewalk on Santos Lane to the northeast of the project site or the Iron Horse Regional Trail. In addition, these closures would only be temporary. Therefore, construction impacts related to circulation system performance in terms of pedestrian facilities would be less than significant.

Operation

Roadway Facilities

Intersection Levels of Service

Existing with Project

Project-only traffic volumes Exhibit 3.15-7 were added to the existing peak-hour traffic volumes (Exhibit 3.15-2) to estimate Existing with Project peak-hour intersection turning movement volumes, as shown on Exhibit 3.15-8.

Traffic signal timings, peak-hour factors, heavy vehicle percentages, and pedestrian and bicycle activity at the study intersections were left unchanged from existing conditions. No intersection improvements were considered in the evaluation of Existing Plus Project conditions.

Existing with Project conditions were evaluated using the same methods described in "Trip Generation," above. The analysis results are presented in Table 3.15-7, based on the traffic volumes and lane configurations presented in Exhibit 3.15-8. Table 3.15-7 also includes the operations results for the Existing without Project conditions for comparison purposes.

Table 3.15-7: Existing with Project Conditions—Peak-hour Intersection Levels of Service

	Intersection	Control[1]	Peak-hour	Existing Conditions		Existing with Project Conditions			
				Delay[3]	LOS	Delay[3]	LOS	Signal Warrant Met?	Impact?
1	Oak Road at I-680 on/off-ramps/Buskirk Avenue	Signalized	AM PM	28 23	C C	29 23	C C	N/A N/A	No No
2	Oak Road at Las Juntas Way	Signalized	AM PM	8 8	A A	9 9	A A	N/A N/A	No No
3	Coggins Drive at Las Juntas Way	AWSC	AM PM	18 14	C B	24 17	C C	No No	No No
4	Del Hombre Lane at Roble Road	AWSC	AM PM	9 9	A A	10 10	A A	No No	No No
5	Oak Road at Wayne Drive	Signalized	AM PM	22 21	C C	22 21	C C	N/A N/A	No No
6	Coggins Drive at Jones Road	AWSC	AM PM	18 14	C B	22 15	C B	No No	No No
7	Treat Boulevard at Buskirk Avenue[2]	Signalized	AM PM	22 18	C B	22 18	C B	N/A N/A	No No
8	Treat Boulevard at Oak Road[2]	Signalized	AM PM	33 36	C D	33 36	C D	N/A N/A	No No
9	Treat Boulevard at Jones Road[2]	Signalized	AM PM	47 53	D D	47 54	D D	N/A N/A	No No
10	Treat Boulevard at Cherry Lane[2]	Signalized	AM PM	98 (0.82) 141 (0.81)	F F	109 (0.83) 146 (0.81)	F F	N/A N/A	No No

Table 3.15-7 (cont.): Existing with Project Conditions—Peak-hour Intersection Levels of Service

Intersection	Control[1]	Peak-hour	Existing Conditions		Existing with Project Conditions			
			Delay[3]	LOS	Delay[3]	LOS	Signal Warrant Met?	Impact?

Notes:
Bold indicates operations below the intersection LOS standard for acceptable operations.
Bold Italics indicates potentially significant impact.
[1] AWSC = All-way Stop Controlled; signalized = traffic signal control
[2] Volume-to-Capacity ratio shown in parentheses when LOS value is E or F.
[3] Delay shown in seconds.
Source: Fehr & Peers 2019.

The addition of project traffic would not degrade the operation of any study intersection from an overall acceptable service level to an unacceptable service level. For intersections on Treat Boulevard that experience LOS F conditions (Intersection No. 8 and Intersection No. 9) from a delay perspective operate within the established volume-to-capacity ratio standard and, while the addition of project traffic would increase the volume-to-capacity ratio, this increase would not be considered significant based on the specific thresholds of significance as described above. Therefore, operational impacts related to circulation system performance in terms of roadway facilities (specifically intersection LOS) would be less than significant.

Opening Year with Project

Opening Year with Project vehicle trip generation was estimated using trip generation rates and equations for the proposed land uses from ITE's Trip Generation Manual (10th Edition). Traffic generated by approved and pending developments was added to the existing traffic volumes to provide the basis for the Opening Year without Project analysis, as presented in Exhibit 3.15-9. The existing traffic counts were also increased by 2.5 percent to account for traffic growth from projects outside the immediate study area that could add through traffic to the area, based on projections from the CCTA model. Project traffic volumes from Exhibit 3.15-7 were added to the Opening Year without Project forecasts to estimate Opening Year with Project volumes at the study intersections, as presented on Exhibit 3.15-10.

Construction of bicycle lanes is planned along the Treat Boulevard corridor to improve overall bicycle connectivity in the area. To accommodate this change, elimination of one eastbound through lane is proposed from the I-680 northbound off-ramp to Jones Road.

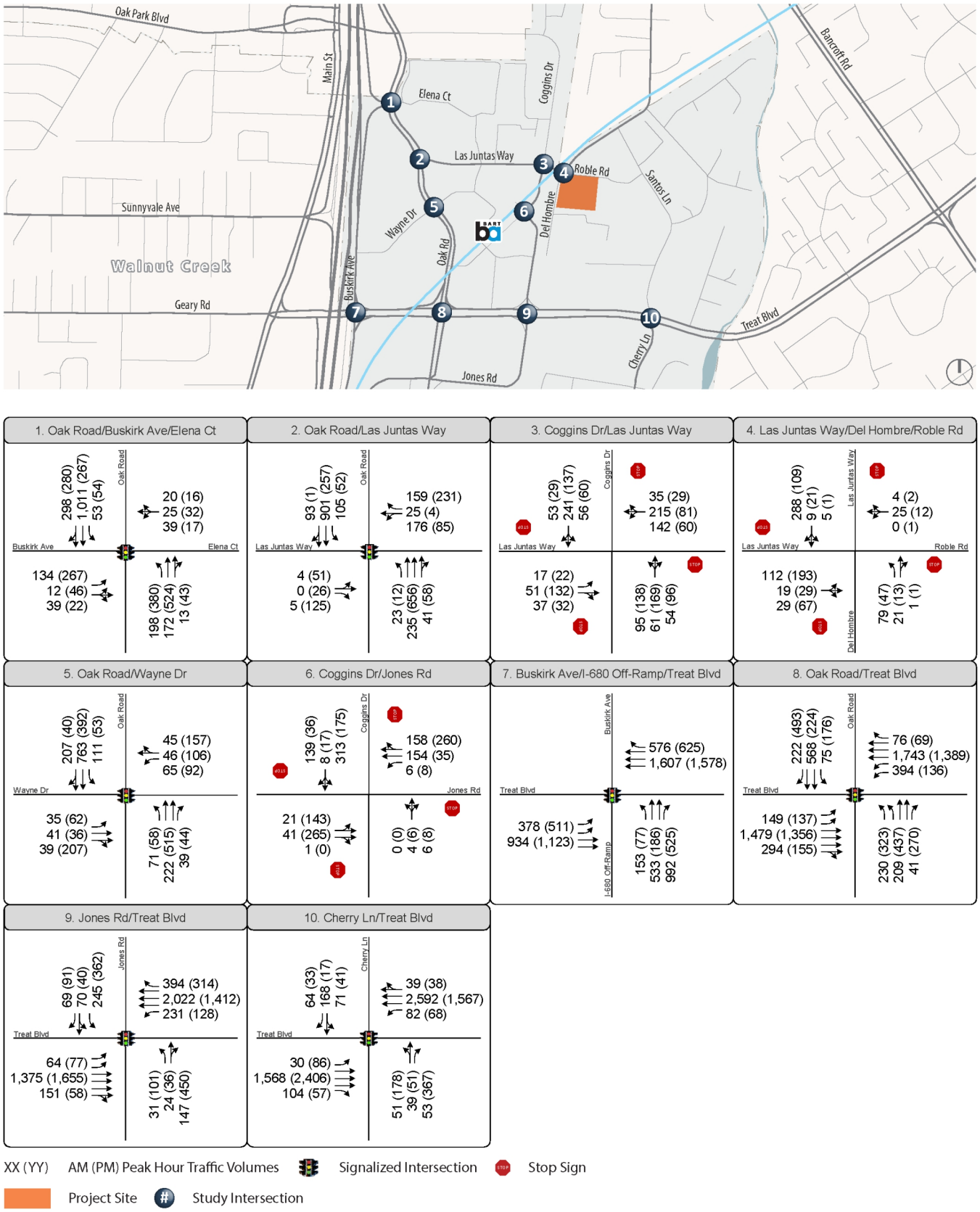
Opening Year without and with Project conditions are presented in Table 3.15-8, based on the traffic volumes and lane configurations presented in Exhibit 3.15-9 and Exhibit 3.15-10.

Table 3.15-8: Opening Year without and with Project—Peak-hour Intersection Levels of Service

	Intersection	Control[1]	Peak-hour	Opening Year without Project Condition		Opening Year with Project Condition			
				Delay[3]	LOS	Delay[3]	LOS	Signal Warrant Met?	Impact?
1	Oak Road at I-680 on/off-ramps/Buskirk Avenue	Signalized	AM PM	36 28	D C	37 29	D C	N/A N/A	No No
2	Oak Road at Las Juntas Way	Signalized	AM PM	9 9	A A	9 9	A A	N/A N/A	No No
3	Coggins Drive at Las Juntas Way	AWSC	AM PM	**40** 22	**E** C	***60*** 34	***F*** D	***Yes*** No	***Yes*** No
4	Del Hombre Lane at Roble Road	AWSC	AM PM	11 10	B A	11 11	B B	No No	No No
5	Oak Road at Wayne Drive	Signalized	AM PM	27 23	C C	27 24	C C	N/A N/A	No No
6	Coggins Drive at Jones Road	AWSC	AM PM	25 16	C C	32 18	D C	No No	No No
7	Treat Boulevard at Buskirk Avenue[2]	Signalized	AM PM	34 25	C C	34 25	C C	N/A N/A	No No
8	Treat Boulevard at Oak Road[2]	Signalized	AM PM	51 57 (0.91)	D D	51 57 (0.92)	D E	N/A N/A	No No
9	Treat Boulevard at Jones Road[2]	Signalized	AM PM	50 70 (0.94)	D E	52 72 (0.95)	D E	N/A N/A	No No
10	Treat Boulevard at Cherry Lane[2]	Signalized	AM PM	114 (0.89) 151 (0.86)	F F	126 (0.90) 156 (0.86)	F F	N/A N/A	No No

Notes:
Bold indicates operations below the intersection LOS standard for acceptable operations.
Bold Italics indicates potentially significant impact.
[1] AWSC = All-way Stop Controlled; signalized = traffic signal control
[2] Volume-to-Capacity ratio shown in parentheses when LOS value is E or F.
[3] Delay shown in seconds.
Source: Fehr & Peers 2019.

The Coggins Drive at Las Juntas Way intersection (Intersection No. 3) is projected to degrade to LOS F in the morning peak-hour, which is an overall unacceptable service level. The addition of project traffic would worsen operations and result in the satisfaction of peak-hour signal warrants to be satisfied. Based on the significance criteria, this is a significant impact.



Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-8
Existing with Project Peak Hour
Traffic Volumes, Lane Configurations and Traffic Controls

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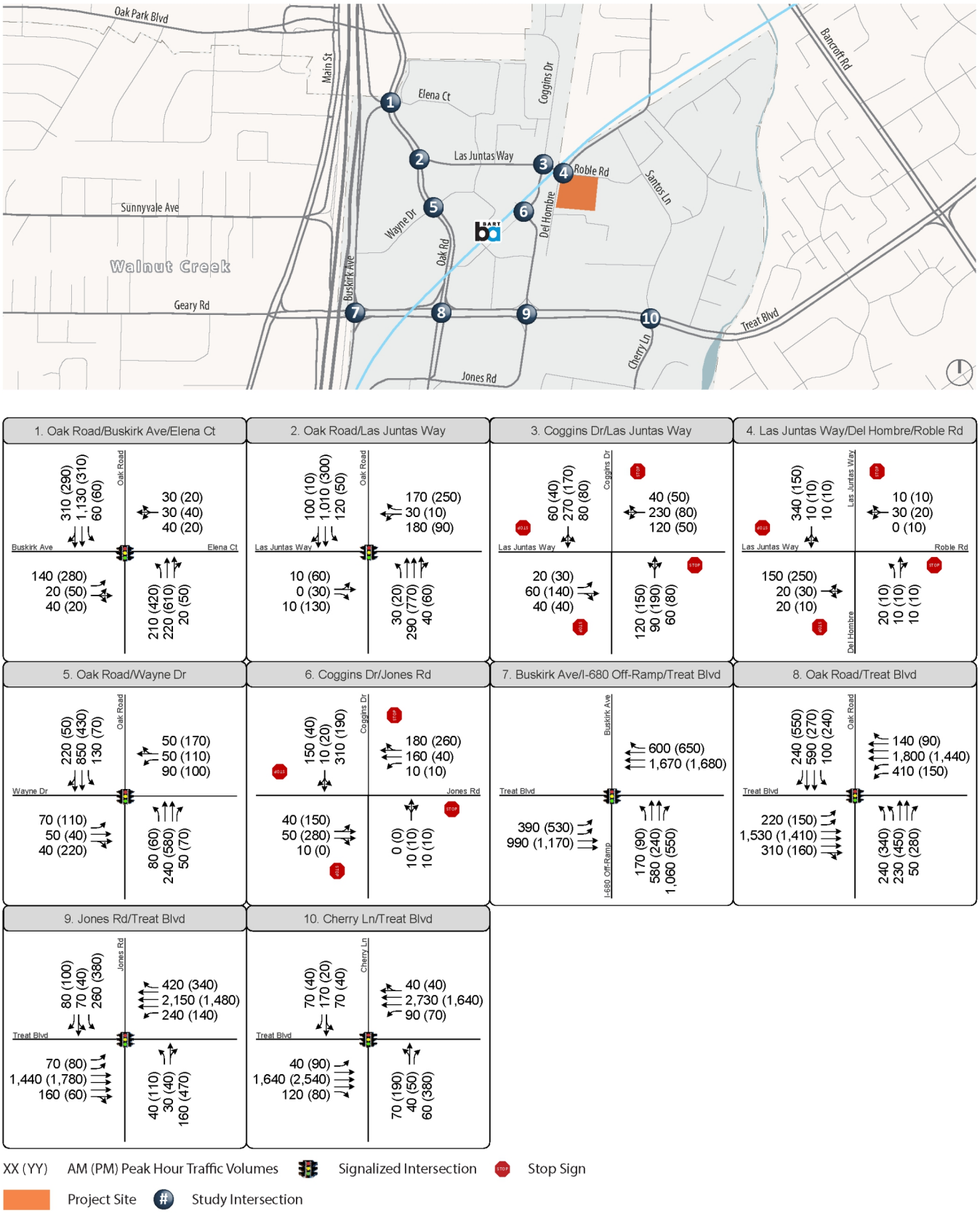

Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-9
Opening Year without Project Peak Hour Traffic Volumes, Lane Configurations and Traffic Controls

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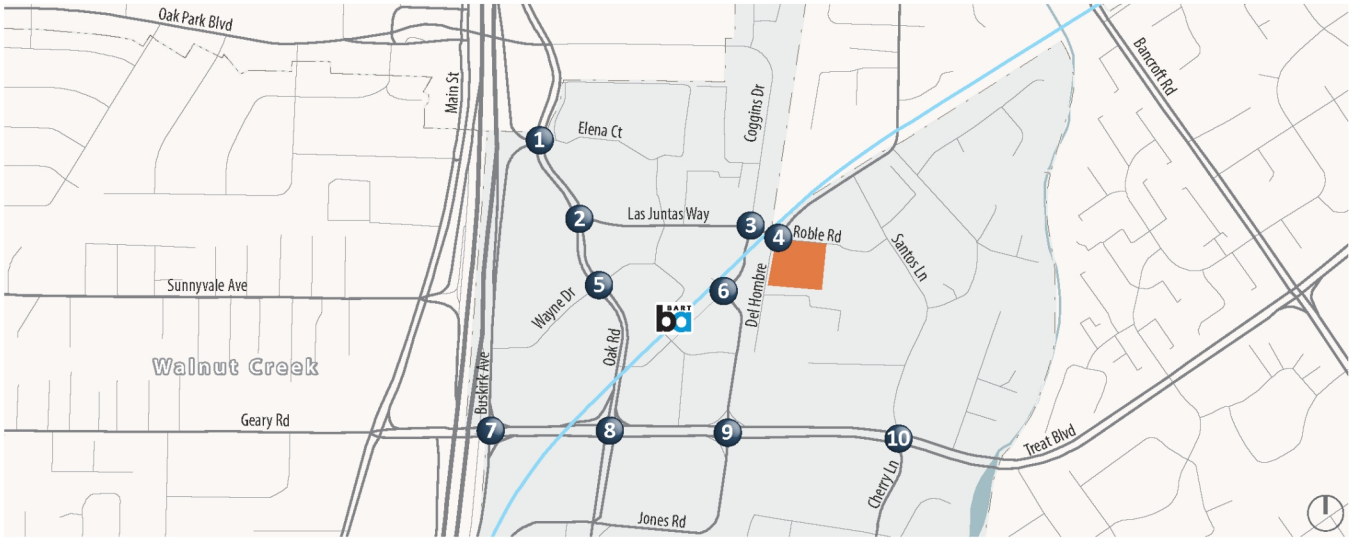

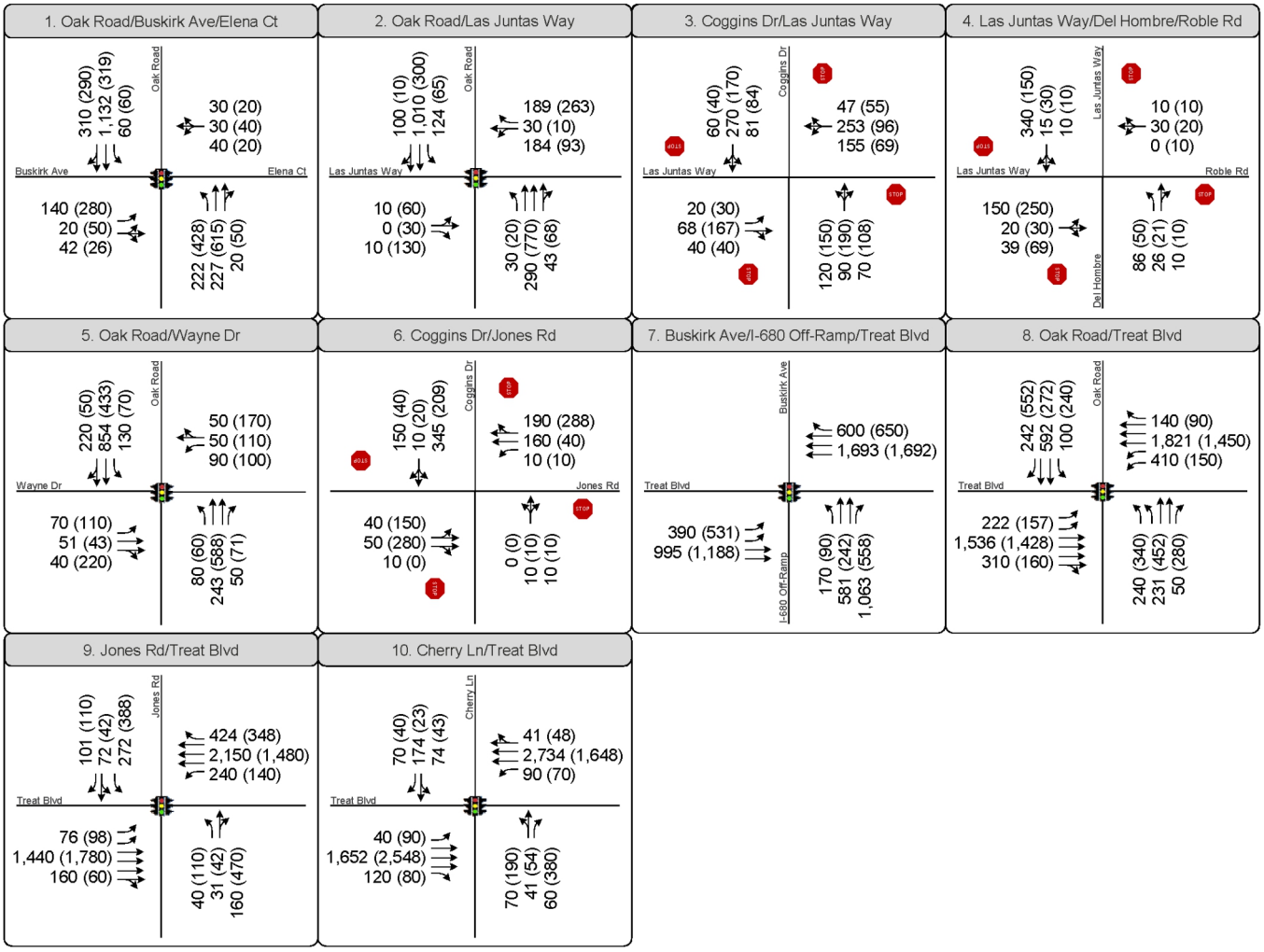

Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-10
Opening Year with Project Peak Hour Traffic Volumes, Lane Configurations and Traffic Controls

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Restricting parking on the north side of Las Juntas Way between Coggins Drive and Del Hombre Lane could allow restriping within the existing right-of-way to provide a left-turn pocket and a through-right shared lane. This improvement would result in LOS D operations (31 seconds) for vehicles, reducing the vehicle impact to a less-than-significant level. However, the Iron Horse Trail crosses this intersection and there are high levels of pedestrian and bicycle activity; therefore, this improvement could increase vehicle/bicycle/pedestrian conflicts, which would be a secondary impact of restriping to provide an additional vehicle lane. Including this left-turn pocket would conflict with numerous policies (e.g., Complete Streets, Pleasant Hill BART Specific Plan) as well as general best practices in transit-oriented development planning, but specifically would conflict with General Plan Policy 5-18, which directs the County to prioritize intermodal safety over capacity. Therefore, this left-turn pocket would not be included as part of the project and this intersection would continue to operate at an unacceptable level of service for vehicles in the morning peak-hour under Opening Year with Project Conditions. Therefore, LOS impacts with respect to Opening Year with Project at Coggins Drive at Las Juntas Way intersection (Intersection No. 3) would be significant and unavoidable.

All other study intersection would operate at acceptable service levels prior to the addition of project traffic, and would continue to operate at acceptable levels with the addition of project traffic.

The TIA includes several recommendations that would increase pedestrian safety on Las Juntas Way between Coggins Drive and Del Hombre Lane. These recommendations are reflected in MM TRANS-1b.

Vehicle Queues

Existing with Project

Vehicle queues were assessed for the signalized intersections for the Existing with Project condition as shown in Table 3.15-9. Table 3.15-9 also includes the operation results for the Existing without Project conditions for comparison purposes.

Table 3.15-9: Existing without and with Project—95th Percentile Queue Summary

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour		PM Peak-hour	
			Without Project	With Project	Without Project	With Project
1. Oak Road at I-680 on/off-ramps/Buskirk Avenue	EBL	170	170	**175**	**225**	**225**
	NBL	150	**300**	**300**	**500**	**525**
	SBL	130	125	125	100	100
2. Oak Road at Las Juntas Way	EBR	170	25	25	50	50
	WBR	110	50	75	75	75
	NBL	150	75	75	50	50
	SBL	170	150	155	75	100
5. Oak Road at Wayne Drive	EBL	260	75	75	100	100
	WBL	220	100	100	125	125
	NBL	240	125	125	100	100

Table 3.15-9 (cont.): Existing without and with Project—95th Percentile Queue Summary

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour		PM Peak-hour	
			Without Project	With Project	Without Project	With Project
	NBR	240	25	25	25	25
	SBL	190	150	150	100	100
7. I-680 Off-Ramp/Treat Boulevard	EBL	275	250	250	**375**	**375**
	NBL	300	225	225	125	125
	NBR	1,200	**1,725**	**1,725**	750	775
8. Treat Boulevard at Oak Road	EBL	150	75	75	100	100
	WBL	240	**250**	250	125	125
	WBR	610	50	50	50	50
	NBL	260	175	175	250	250
	NBR	240	25	25	100	100
	SBL	275	150	150	**350**	**350**
	SBR	120	**175**	**175**	**650**	**650**
9. Treat Boulevard at Jones Road	EBL	380	50	50	75	75
	WBL	200	**425**	**425**	200	200
	WBR	350	300	300	175	175
	NBL	370	75	75	150	150
	SBL	240	225	225	**275**	**300**
	SBR	370	25	25	25	50
10. Treat Boulevard at Cherry Lane	EBL	190	75	75	**250**	**250**
	EBR	275	25	25	50	50
	WBL	180	**225**	**225**	**200**	**200**
	NBR	110	50	50	**500**	**500**
	SBR	70	**75**	**75**	25	25

Notes:
Bold indicates queue potentially extends beyond available storage.
Bold Italics indicates potentially significant impact.
— = intersection was not evaluated for this time period.
[1] An additional 60 to 90 feet of storage is typically provided in the taper area outside of the through lane, which is not reflected in the storage length above.
Source: Fehr & Peers 2019.

The addition of project traffic is not expected to cause vehicle queues to increase by more than 50-feet (or two car-lengths) for movements where the 95th percentile queue already exceeds the available storage or result in vehicle queues that exceed the available storage, as presented in Table

3.15-9. Therefore, operational impacts related to circulation system performance in terms of roadway facilities (specifically vehicle queues) would be less than significant.

Opening Year with Project

Vehicle queues were assessed for the signalized intersections in the Opening Year with Project condition as shown in Table 3.15-10. Table 3.15-10 also includes the operation results for the Existing without Project conditions for comparison purposes.

Table 3.15-10: Opening Year without and with Project—95th Percentile Queue Summary

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour		PM Peak-hour	
			Without Project	With Project	Without Project	With Project
1. Oak Road at I-680 on/off-ramps/Buskirk Avenue	EBL	170	**200**	**200**	**250**	**250**
	NBL	150	**325**	**350**	**675**	**700**
	SBL	130	125	125	125	125
2. Oak Road at Las Juntas Way	EBR	170	25	25	50	50
	WBR	110	75	75	75	75
	NBL	150	75	75	50	50
	SBL	170	**175**	**200**	100	125
5. Oak Road at Wayne Drive	EBL	260	100	100	150	150
	WBL	220	125	125	125	125
	NBL	240	125	125	100	100
	NBR	240	25	25	50	50
	SBL	190	175	175	100	100
7. I-680 Off-Ramp/Treat Boulevard	EBL	275	275	275	**400**	**400**
	NBL	300	250	250	150	150
	NBR	1,200	850	875	300	325
8. Treat Boulevard at Oak Road	EBL	150	125	125	125	125
	WBL	240	225	225	125	125
	WBR	320	75	75	50	50
	NBL	260	175	175	**275**	**275**
	NBR	240	25	25	100	100
	SBL	275	175	175	**500**	**500**
	SBR	120	**175**	**175**	**775**	**775**
9. Treat Boulevard at Jones Road	EBL	380	50	50	75	75
	WBL	200	**450**	**450**	**225**	225
	WBR	350	350	350	200	200

Table 3.15-10 (cont.): Opening Year without and with Project—95th Percentile Queue Summary

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour		PM Peak-hour	
			Without Project	With Project	Without Project	With Project
	NBL	370	75	75	175	175
	SBL	240	230	240	**300**	**325**
	SBR	370	25	50	50	75
10. Treat Boulevard at Cherry Lane	EBL	190	100	100	**250**	**250**
	EBR	275	50	50	50	50
	WBL	180	**250**	**250**	**200**	**200**
	NBR	110	50	50	**550**	**550**
	SBR	70	**75**	**75**	50	50

Notes:
Bold indicates queue potentially extends beyond available storage.
Bold Italics indicates potentially significant impact.
— = intersection was not evaluated for this time period.
[1] An additional 60 to 90 feet of storage is typically provided in the taper area outside of the through lane, which is not reflected in the storage length above.
Source: Fehr & Peers 2019.

The addition of project traffic is not expected to result in vehicle queues to increase by more than 50-feet (or two car-lengths) for movements where the 95th percentile queue is already exceeded, as presented in Table 3.15-10 and impacts with respect to vehicle queues for the Opening Year with Project conditions would be less than significant.

Signal Warrants

Existing Plus Project

Signal warrants were evaluated for the unsignalized intersections where the side-street movement operates at LOS E. As shown in Table 3.15-7, signalization of the unsignalized study intersections is not warranted with the addition of project traffic in the existing condition.

Opening Year with Project

Signal warrants were evaluated for the unsignalized intersections and as shown in Table 3.15-9, the intersection of Coggins Drive at Las Juntas Way (Intersection No. 3) is projected to meet the peak-hour signal warrant with the addition of project traffic during the morning peak-hour. Signalization of the intersection would worsen the LOS for vehicles because the intersection configuration would require split phasing.[16] Therefore, signalization would not be a viable option at this intersection.

Transit Facilities

The project site is located within 500 feet of a BART station, which also serves as a bus transit hub. With construction of the pedestrian improvements noted above, there is a direct pedestrian

[16] Split phasing is a signal design that gives a green phase for all vehicle movements of one direction (e.g., northbound through, right, and left) followed by a phase for all movements of the opposite direction (e.g., southbound through, right, and left).

connection from the project site to the BART station. According to January 2019 average ridership numbers, the Pleasant Hill BART Station had 7,705 entries during the weekday and 1,694 entries during the weekend, which was typical between February 2018 and February 2019.[17] The Pleasant Hill Station Comprehensive Plan projected over 8,000 daily entries for the station by 2010.[18] Therefore, the current number of entries is below the projection and the station has capacity for additional transit riders. Furthermore, the project would comply with General Plan Goal 5-I, Goal 5-L, Policy 5-3, and Policy 5-24 that encourage the use of transit and promote transit connections to new urban developments. Therefore, operational impacts related to circulation system performance in terms of transit facilities would be less than significant.

Bicycle Facilities

The nearest bicycle facility to the project site is the multi-use Iron Horse Regional Trail located 100 feet west of the project site and would connect to the trail via an existing bike path off of Honey Trail. The project would not restrict bicycle access to the Iron Horse Regional Trail or remove existing bicycle infrastructure. As such, the project would comply with General Plan Policy Goal 5-L, Policy 5-3, and Policy 5-24 that encourage biking and promote connecting bicycle facilities to new urban developments. In addition, it would provide 75 bicycle parking spaces and comply with Policy 5-13 that encourages the development of proper facilities to accommodate bikes.

Chapter 82-16.412 of the Contra Costa County Code sets forth the amounts of long-term and short-term bicycle parking that a project must provide. The County Code requires a multiple-family dwelling to provide space for 15 percent of the number of bedrooms for long-term parking, or two spaces (whichever is greater) and space for 5 percent of the number of bedrooms for short-term parking, or two spaces (whichever is greater).[19] As such, the project would be required to and would provide 56 long-term and 19 short-term spaces, totaling 75 bicycle parking spaces. The project would provide this required bicycle parking. Therefore, the project would provide adequate bicycle parking spaces.

Overall, the project would not conflict with adopted policies, plans, or programs regarding bicycle facilities, or otherwise decrease the performance or safety of such facilities. Therefore, operational impacts related to circulation system performance in terms of bicycle facilities would be less than significant.

Pedestrian Facilities

The project would include pedestrian facilities along both sides of the project frontage on Del Hombre Lane, Roble Road, and along Honey Trail. The sidewalk on Del Hombre Lane is proposed to be 10.7 feet, and the sidewalk on Roble Road is proposed to be 8-feet. A new crosswalk is also proposed on the south leg of Del Hombre Road at Las Juntas Way/Roble Road in addition to reconstructed curb ramps on the southeast corner of the intersection. On the southern end of the project site, a new curb ramp would be constructed on Del Hombre Lane off set from the existing curb ramp on the west side of the street connecting to the existing Iron Horse Trail across Del Hombre Lane from the project site. The

[17] Bay Area Rapid Transit (BART). 2019. Ridership 2019. Website: http://64.111.127.166/ridership/. Accessed February 28, 2019.
[18] Bay Area Rapid Transit (BART). 2002. Pleasant Hill Station Comprehensive Plan. July.
[19] Contra Costa County Ordinance Code. 2018. Chapter 82-16.412—Bicycle Parking. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV82GERE_CH82-16OREPA_82-16.412BIPA. Accessed November 26, 2018.

proposed crosswalk design does not align with the existing curb ramp to Del Hombre Lane and Iron Horse Trail. This represents a potentially significant impact.

However, MM TRANS-1c and TRANS-1d would require that the crosswalk design be updated to align with existing roadway and trail facilities and that the pedestrian path include a lighting plan. Therefore, operational impacts related to circulation system performance in terms of pedestrian facilities would be less than significant with mitigation.

Level of Significance Before Mitigation

Potentially Significant

Mitigation Measures

MM TRANS-1a Prepare and Implement Construction Traffic Control Plan

Prior to issuance of building permits, the applicant shall prepare and submit a Construction Traffic Control Plan. The plan shall include the following items. The approved plan shall be implemented during construction.

- Project staging plan to maximize on-site storage of materials and equipment
- Permitted construction hours
- Location of construction staging
- Identification of parking areas for construction employees, site visitors, and inspectors, including on-site locations
- Provisions for street sweeping to remove construction related debris on public streets
- A set of comprehensive traffic control measures including preparation of traffic control plans, as needed; scheduling of major truck trips and deliveries to avoid peak-hours; lane closure proceedings; signs, cones, and other warning devices for drivers; and designation of construction haul routes.
- Survey of the pavement condition on roadways to be used as part of haul route prior to the commencement of any work on site. The survey shall include a video tape of the roadways. The applicant shall complete any remedial work prior to initiation of use and provide a bond assuring completion of the remediation work, the amount which shall be deemed sufficient by the Public Works Department.
- The applicant shall provide a pavement analysis for those roads along the proposed haul routes or any alternate route(s) that are proposed to be utilized by hauling operation. This study shall analyze the existing pavement conditions and determine what impact the hauling operation will have over the construction period of the project. The study shall provide recommendations to mitigate identified impacts.

MM TRANS-1b Implement Las Juntas Way Improvements Prior to Final Inspection

Prior to requesting a final inspection, the following improvements shall be installed on Las Juntas Way between Coggins Drive and Del Hombre Lane:

- The Iron Horse Trail crossing of Las Juntas Way shall be enhanced with one or more of the following measures, as approved by the Public Works Department:
  - Advance stop bars

- Narrowed travel lanes
- Curb extensions
- Improved crosswalk lighting
- A pedestrian/bicyclist actuated trail crossing warning device,
- Other similar measures as approved by the Public Works Department.

MM TRANS-1c Relocate and Align Del Hombre Lane Crosswalk Prior to Construction

Prior to requesting a final inspection, the project applicant shall install a crosswalk across Del Hombre Lane, with curb ramps on either end. The crosswalk's eastern curb ramp shall be located south of the parking garage entry for the project and north of the corner of Del Hombre Lane and Honey Trail Lane. The applicant will work with the Public Works Department on the optimal location to serve pedestrians while minimizing impacts to existing trees on the west side of Del Hombre Lane.

MM TRANS-1d Prepare Pedestrian Path Design and Lighting Plan Prior to Construction

Prior to issuance of building permits, the applicant shall prepare and submit plans to the Contra Costa County Public Works Department depicting street lighting along the project frontages to provide a lit pedestrian path of travel along the project frontage, connecting to the Iron Horse Trail. The approved plans shall be incorporated into the project.

Level of Significance After Mitigation

Significant and Unavoidable (intersection LOS)

Less Than Significant with Mitigation (transit, roadway, bicycle, and pedestrian facilities)

Vehicle Miles Traveled

Impact TRANS-2:	**Project consistency with CEQA Guidelines Section 15064.3 subdivision (b) cannot be determined given that the County has not established a threshold with regard to VMT impact significance.**

Construction

No construction impact determination is made with regard to VMT, given that the County has not established a threshold with regard to construction-related VMT impact significance.

Operation

The project would generate VMT on a per-capita basis less than 15 percent below the local and regional average. Therefore, the project is consistent with the intent of SB 743 to promote development that reduces vehicle travel. However, as the County has not established a threshold with regard to operation-related VMT impact significance, no finding is required, and this analysis has been provided for informational purposes.

Level of Significance

No finding is required.

Roadway Safety Hazards

Impact TRANS-3: The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Construction

The County has designated truck routes that route construction trucks to I-680. The trucks would then access the project site from Del Hombre Lane via Treat Boulevard.[20] Construction truck routes follow main arterials and would avoid adding additional heavy-duty truck traffic on feeders streets and minor arterials. Furthermore, these construction truck routes are specifically designated to avoid impacts to pedestrian and bicyclists. Thus, because the construction trucks would travel along the designated construction truck routes, there would not be a conflict with the automobile vehicle, bicycle, and pedestrian design and activity along roadways near the project site. Therefore, construction impacts related to roadway safety hazards would be less than significant.

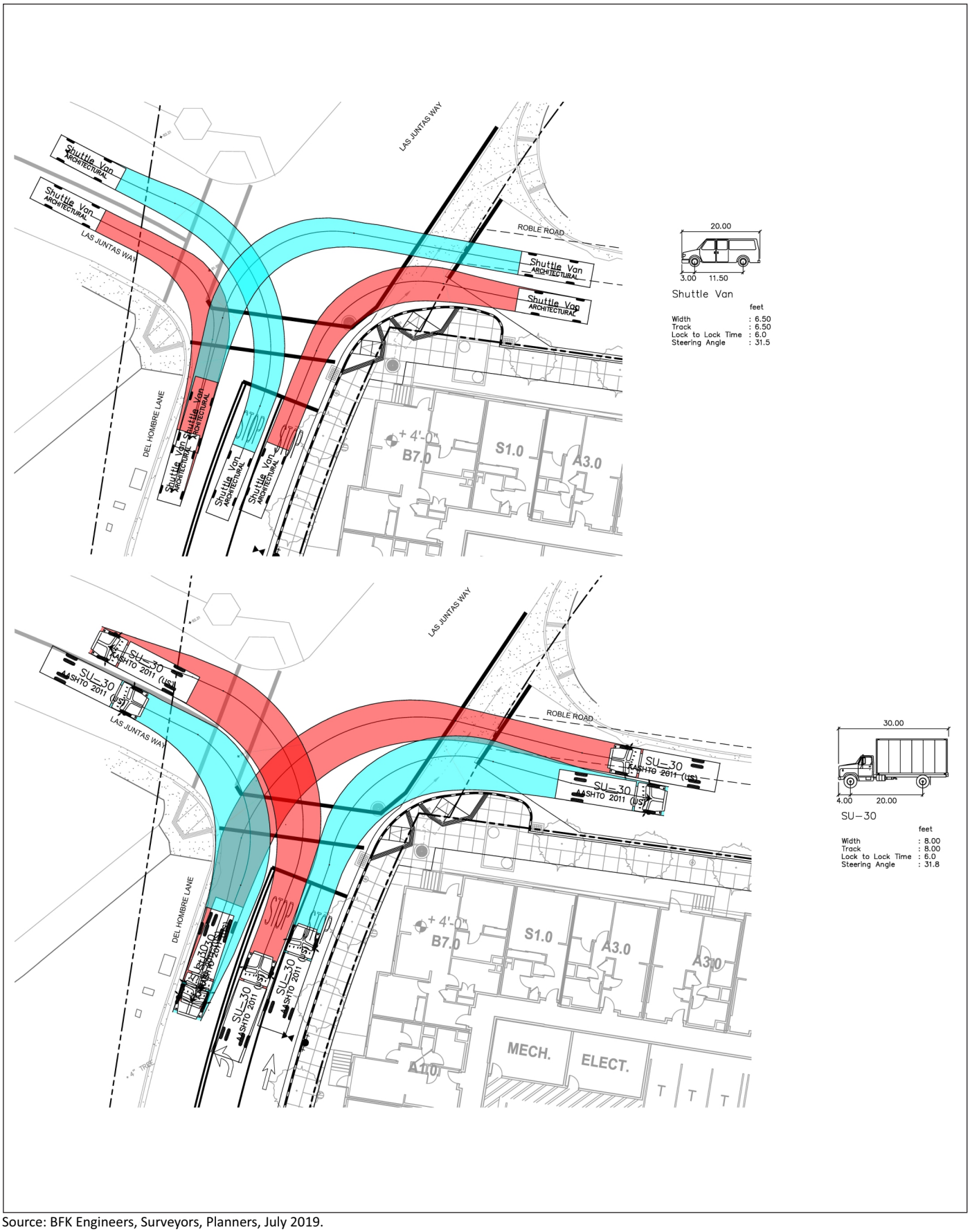
Operation

Vehicular access to the project site would be provided by a new driveway on Del Hombre Lane that would provide access to the proposed parking garage. Based on the existing traffic volumes on Del Hombre Lane and the projected project volumes, this roadway is projected to operate with minimal delay for vehicles.

With respect to delivery trucks, Del Hombre Lane would be widened in order to allow turning to be easily and reasonably made at the intersection of Del Hombre Lane and Las Juntas Way as shown in Exhibit 3.15-11.

A loading area at the northeast corner of the site with access to the trash room is proposed along Roble Road (Exhibit 2-7). The applicant has access rights to Roble Road in order to service the trash pickup. Management would take the trash bins to and from Roble Road for collection via the loading dock. A trash vestibule is located on each level of the development and residents would access the vestibule from their units via the corridors. On Floors 2-6, residents would dispose of refuse though chutes in the vestibule. On Floor 1, residents would dispose of refuse through a hopper and will not physically enter the trash termination room. A Property Manager or staff member would be on-site at all times to handle trash pick-up operations promptly. This loading dock would also be utilized for resident move-in/move-out, and Property Management would coordinate and schedule these move-in/move-outs to ensure there is no conflict with trash collection. This loading dock would not be used for general deliveries to the site (such as United Parcel Services deliveries); those deliveries would occur at a white curb passenger loading/unloading zone located along the west of Del Hombre Lane, in front of the amenity area in the southwest corner of the site (Exhibit 2-7).

[20] Contra Costa County. 2005. Contra Costa County General Plan, Chapter 5: Transportation and Circulation Element. Website: http://www.co.contra-costa.ca.us/4732/General-Plan. Accessed: March 5, 2019.



Source: BFK Engineers, Surveyors, Planners, July 2019.

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Exhibit 3.15-11
Intersection Turning Movements-Trucks

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It is expected that some vehicle trips to the site may be made through the use of transportation network companies such as Uber or Lyft. Passenger pick up for these companies would also occur at the white curb passenger loading/unloading zone located along the west of Del Hombre Lane, thus reducing the potential for vehicle travel through the neighboring private streets. As such, there would not be a conflict with roadway geometric design and use compatibility and impacts would be less than significant.

Level of Significance

Less Than Significant

Emergency Access

Impact TRANS-4: The project would not result in inadequate emergency access.

Construction

Emergency conditions related to a project resulting in inadequate vehicle emergency access are limited to operational impacts. No respective construction impacts would occur.

Operation

Several factors determine whether a project has sufficient access for emergency vehicles, including:

1. Location of closest fire stations
2. Number of access points (both public and emergency access only)
3. Width, height, and turning radius of access points
4. Width, height, and turning radius of internal roadways

Each of these factors is discussed in further detail.

The fire station closest to the site is located on 2012 Geary Road (Fire Station No. 2) approximately 1.5-miles from the project site via Treat Boulevard. Primary fire protection access to the project site would occur from existing roadways that would not be changed as part of the project.

Based on the 2016 California Fire Code as amended by Contra Costa County Ordinance 2016-23, the minimum number of access roads serving residential development(s) shall be based upon the number of dwelling units served as follows:

- Multiple Family Residential Projects having more than 100 dwelling units should be provided with two separated and approved fire apparatus access roads (D106.1)

Access to the residential project would be provided from a roadway connection to Del Hombre Lane. An additional secondary fire-only access connection would be provided from Roble Road, providing two points of emergency access to the project site from the surrounding street network.

Del Hombre Lane would be widened to a minimum of 20 feet and would be able to accommodate a 34-foot aerial fire apparatus. In addition, a 25-foot turning radius would be provided at the intersection of Del Hombre Lane and Las Juntas Way. Roble Road would be widened to a minimum

of 20 feet, would provide space for a 26-foot aerial fire apparatus and a 150-foot fire access lane would be provided along the eastern boundary of the project site with a 25-foot turning radius off of Roble Road. These fire access points would be provided within 150 feet of travel distance to all portions of all exterior walls of the proposed building as shown in Exhibit 3.15-12. Therefore, fire access provided by the project would comply with the 2016 Fire Code regarding width, height, and turning radius of access points. The project does not include internal roadways, so no discussion of emergency access as it relates to internal roadways is required.

Therefore, impacts related to adequate emergency access would be less than significant.

Level of Significance

Less Than Significant

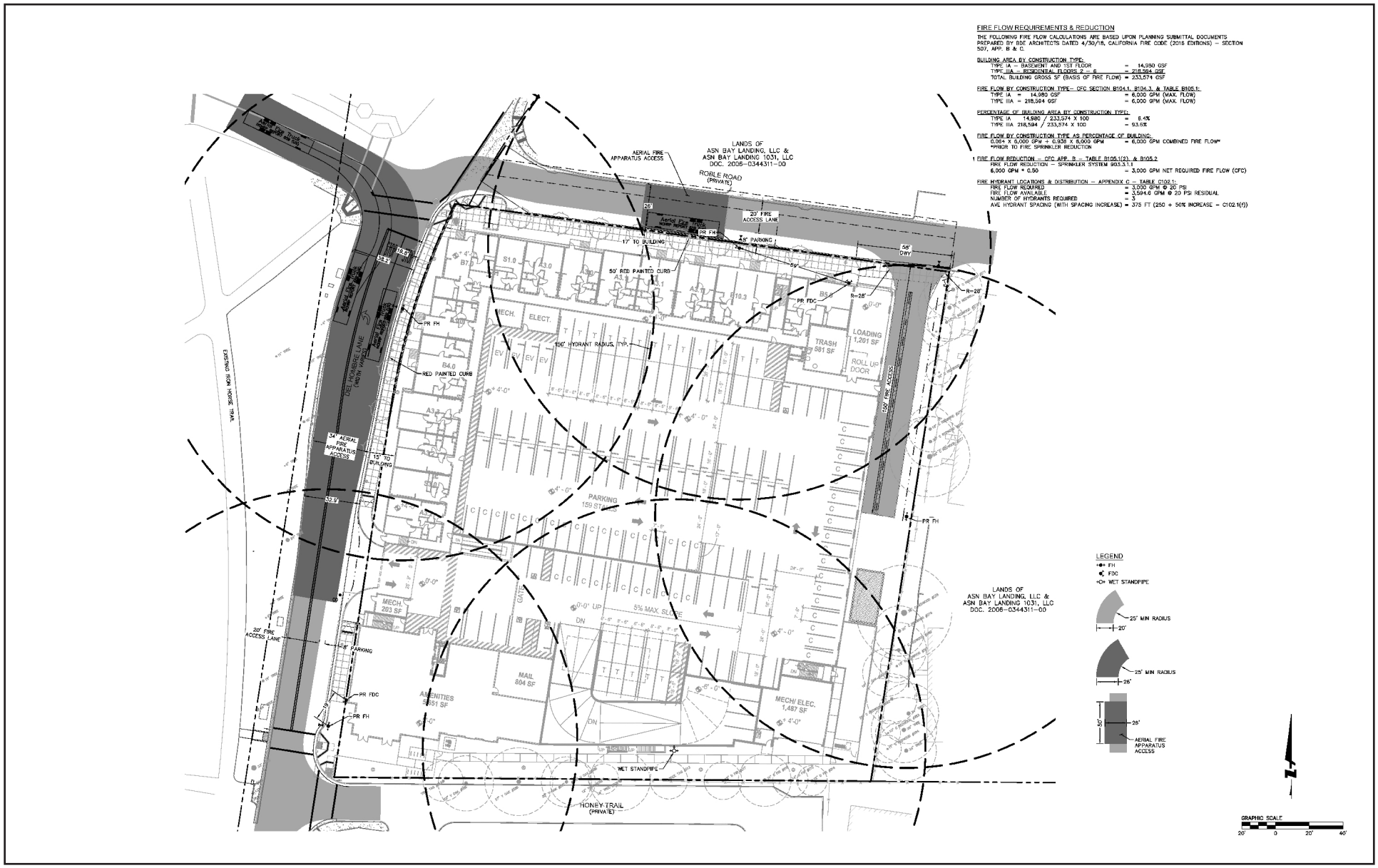
3.15.5 - Cumulative Impacts

Information related to approved and pending projects in the study area in Contra Costa County, City of Pleasant Hill, City of Walnut Creek, and City of Concord was reviewed based on published information (City of Walnut Creek and City of Concord) and conversations with agency staff (City of Pleasant Hill and Contra Costa County) (See Appendix E of the TIA for more information regarding approved and pending projects).[21] Other cumulative projects, in addition to the project, that could generate additional traffic through the study area are summarized in Table 3.15-11 and their locations shown on Exhibit 3.15-13.

Table 3.15-11: Projects Summary

Map Location	Project Information
1	Cambria Hotel at the intersection Oak Park Boulevard at Main Street (155 Guest Rooms) (Pleasant Hill)
2	Day Care center at the intersection of Boyd Road at Kahrs Avenue (72 Students) (Pleasant Hill)
3	Fountainhead Day Care Center on Oak Park Boulevard (72 Students) (Pleasant Hill)
4	Development of Housing Element Opportunity sites on Beatrice Road and Cleaveland Road (200 multi-family housing units) (Pleasant Hill)
5	Monticello Specific Plan on Oak Park Boulevard at Monticello Avenue (library relocation, 34 single-family homes, 7 accessory units, 2 athletic fields) (Pleasant Hill)
6	85 Cleaveland 221 Multi-family housing units (Pleasant Hill)
7	200 residential units and 2,315 square feet of retail are under construction on block bound by Coggins Drive, Jones Road, Harvey Drive and Sunne Lane (Contra Costa County)
8	290,000-square-foot office building on block bound by Wayne Drive, Oak Road and BART tracks (Contra Costa County)
9	50 multi-family units at 1250 Las Juntas (Walnut Creek)
10	29,000-square-foot auto dealership and 1,360 carwash/detail building at 2791 North Main Street (Walnut Creek)
Source: Fehr & Peers 2019.	

[21] Jennifer Cruz, Senior Planner, Contra Costa County Department of Conservation and Development. Personal communication, phone call. January 16, 2019.



Source: BFK Engineers, Surveyors, Planners, July 2019.

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Exhibit 3.15-12
Proposed Fire Truck Access

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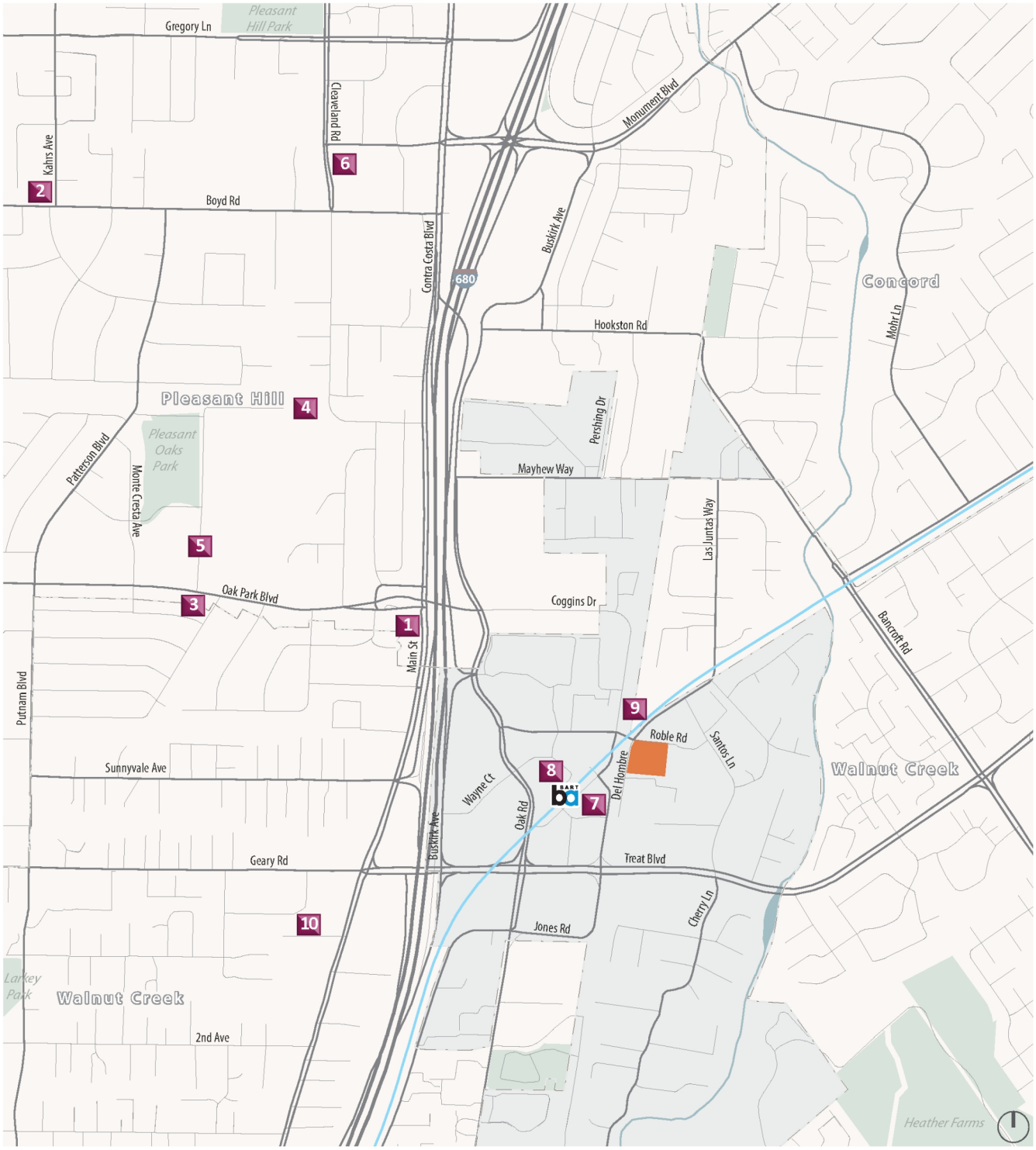

Project Site # Approved Project Location

Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-13
Approved and Pending Project Locations

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Vehicle Level of Service

Cumulative forecasts were developed using traffic growth trends as described in the Contra Costa County General Plan and surrounding jurisdictions as documented in the CCTA Countywide Travel Demand Model, as well as considering approved and potential projects in the immediate study area.

Based on growth trends projected by the CCTA model, existing traffic volumes were increased by 11 percent and combined with the vehicle traffic expected to be generated by the approved and pending projects detailed in Table 3.15-11.

The resulting intersection turning movement forecasts are presented on Exhibit 3.15-14 for the cumulative without project scenario. Project only traffic volumes (Exhibit 3.15-7) were added to the cumulative without project peak-hour traffic volumes (Exhibit 3.15-13) to estimate Cumulative with Project peak-hour intersection turning movement volumes, presented in Exhibit 3.15-15. The resulting cumulative forecast are an estimate of conditions in 2040.

The forecasting described above does not take into consideration some foreseeable travel changes, including increased use of transportation network companies, such as Uber and Lyft, nor the potential for autonomous vehicles. Although the technology for autonomous vehicles is expected to be available over the planning horizon, the Federal and State legal and policy frameworks are uncertain. Initial modeling of an autonomous future indicates that with automated and connected vehicles, the capacity of the existing transportation system would increase as vehicles can travel closer together; however, these efficiencies are only realized when a high percentage of vehicles on the roadway are automated and connected. There is also the potential for vehicle travel to increase with zero-occupant vehicles on the roadway, offsetting any potential capacity benefits. Although the future baseline is uncertain, the projects incremental effect on that future baseline is expected to be similar to the analysis results presented below.

No roadway improvements were assumed at any of the study intersections. However, there are a number of projects in the area that could affect regional travel routes, such as the I-680 Northbound and Southbound High Occupancy Lane Gap Closure Project, improvements to the I-680/SR-4 interchange, improvements to SR-242, and improvements to the SR-4 corridor. While these improvements are not expected to appreciably change travel patterns in the area, they are expected to allow more vehicles to stay on the regional roadway system, moderating the pressure on Treat Boulevard and other parallel routes to serve increased levels of regional through traffic.

Intersection Level of Service

Existing peak-hour factors, heavy vehicle percentages, and pedestrian and bicycle activity at the study intersections remain unchanged from the existing condition for the assessment of Cumulative conditions.

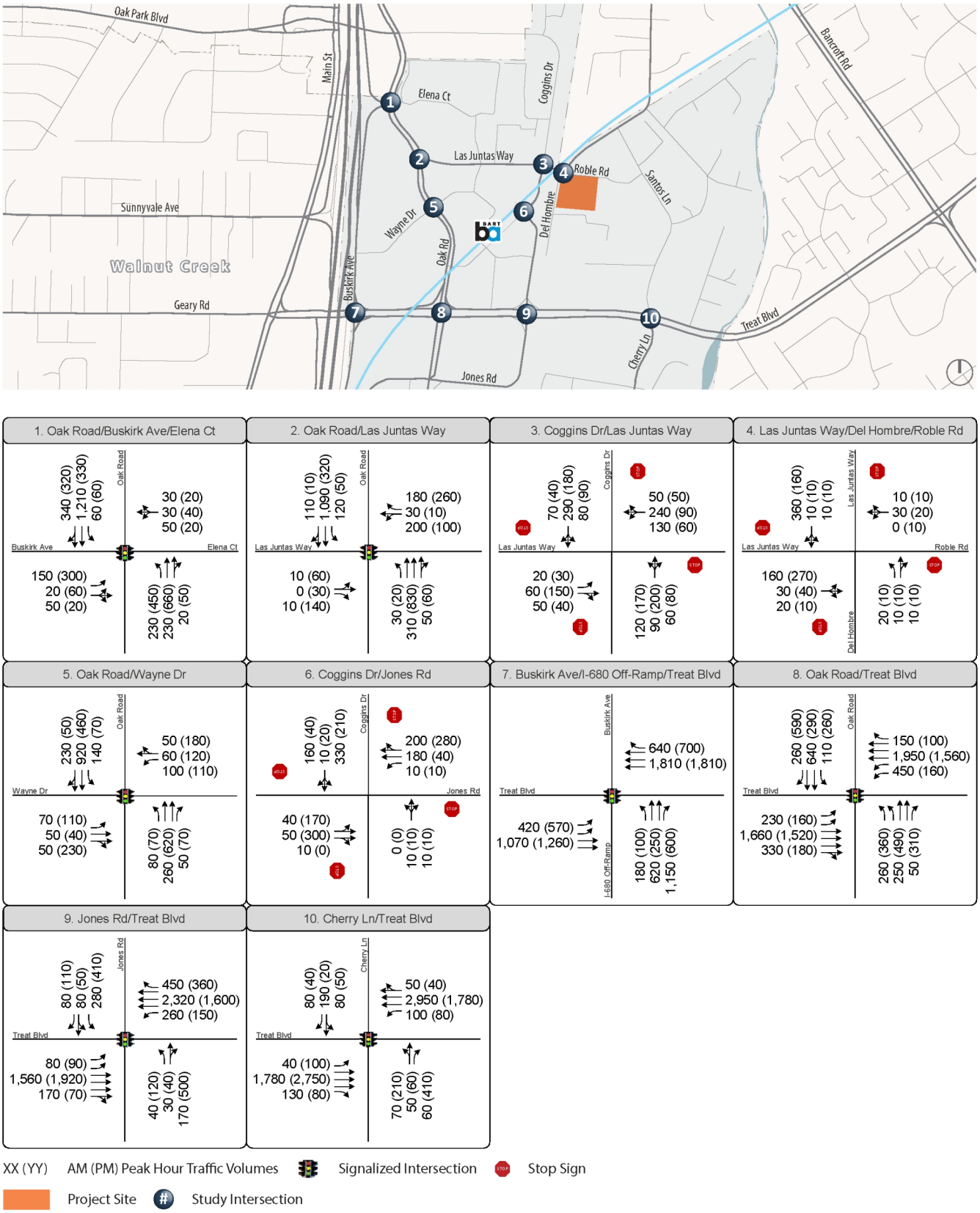
Traffic signal timings were optimized at intersections where the initial analysis indicated LOS E or F operations, reflecting that as part of Contra Costa County's continuing maintenance of traffic signals, signal timing for intersections near capacity are regularly updated to better accommodate actual travel demand. Table 3.15-12 presents the Cumulative without and with Project intersection LOS results.

Table 3.15-12: Cumulative Year—Peak-hour Intersection Levels of Service

	Intersection	Control[1]	Peak-hour	Cumulative Conditions		Cumulative Plus Project Conditions			
				Delay[3]	LOS	Delay[3]	LOS	Signal Warrant Met?	Impact?
1	Oak Road at I-680 on/off-ramps/Buskirk Avenue	Signalized	AM PM	49 33	D C	51 34	D C	N/A N/A	No No
2	Oak Road at Las Juntas Way	Signalized	AM PM	9 8	A A	10 9	A A	N/A N/A	No No
3	Coggins Drive at Las Juntas Way	AWSC	AM PM	**56** 32	**F** D	***78*** **50**	***F*** **E**	***Yes*** No	***Yes*** No
4	Del Hombre Lane at Roble Road	AWSC	AM PM	11 11	B B	12 12	B B	No No	No No
5	Oak Road at Wayne Drive	Signalized	AM PM	30 25	C C	30 25	C C	N/A N/A	No No
6	Coggins Drive at Jones Road	AWSC	AM PM	32 19	D C	**43** 21	**E** C	No No	No No
7	Treat Boulevard at Buskirk Avenue[2]	Signalized	AM PM	45 38	D D	45 38	D D	N/A N/A	No No
8	Treat Boulevard at Oak Road[2]	Signalized	AM PM	56 (0.93) 62 (1.03)	E E	56 (0.93) 64 (1.04)	E E	N/A N/A	No No
9	Treat Boulevard at Jones Road[2]	Signalized	AM PM	32 83 (1.09)	C F	33 84 (1.10)	C F	N/A N/A	No No
10	Treat Boulevard at Cherry Lane[2]	Signalized	AM PM	126 (0.94) 155(0.93)	F F	138 (0.94) 159 (0.93)	F F	N/A N/A	No No

Notes:
Bold indicates operations below the intersection LOS standard for acceptable operations.
Bold Italics indicates potentially significant impact.
[1] AWSC = All-way Stop Controlled; signalized = traffic signal control
[2] Volume-to-Capacity ratio shown in parentheses when LOS value is E or F.
[3] Delay shown in seconds.
Source: Fehr & Peers 2019.

In the cumulative condition, the Coggins Drive at Las Juntas Way intersection (Intersection No. 3) is projected to degrade to LOS F in the morning peak-hour. The addition of project traffic would worsen operations in the AM peak-hour and result in LOS E conditions in the PM peak-hour. Peak-hour signal warrants would be satisfied in the morning peak-hour prior with the addition of project traffic; peak-hour signal warrants would not be met in the PM peak-hour. The signal warrants analysis is provided below under "Signal Warrants."



Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-14
Cumulative without Project Peak Hour
Traffic Volumes, Lane Configurations and Traffic Controls

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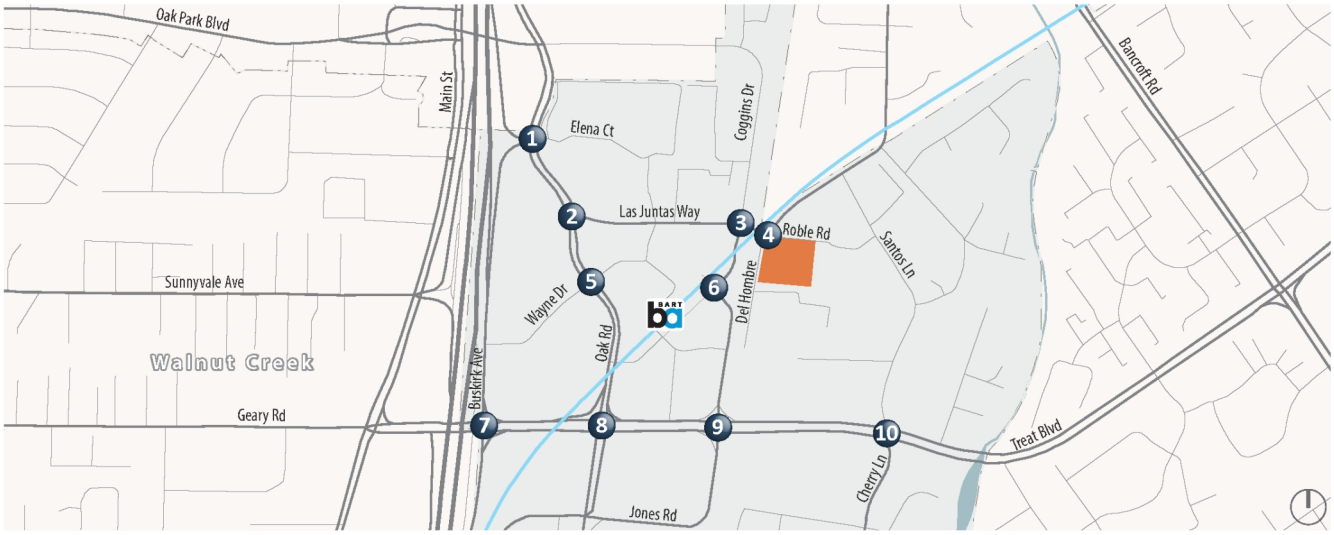

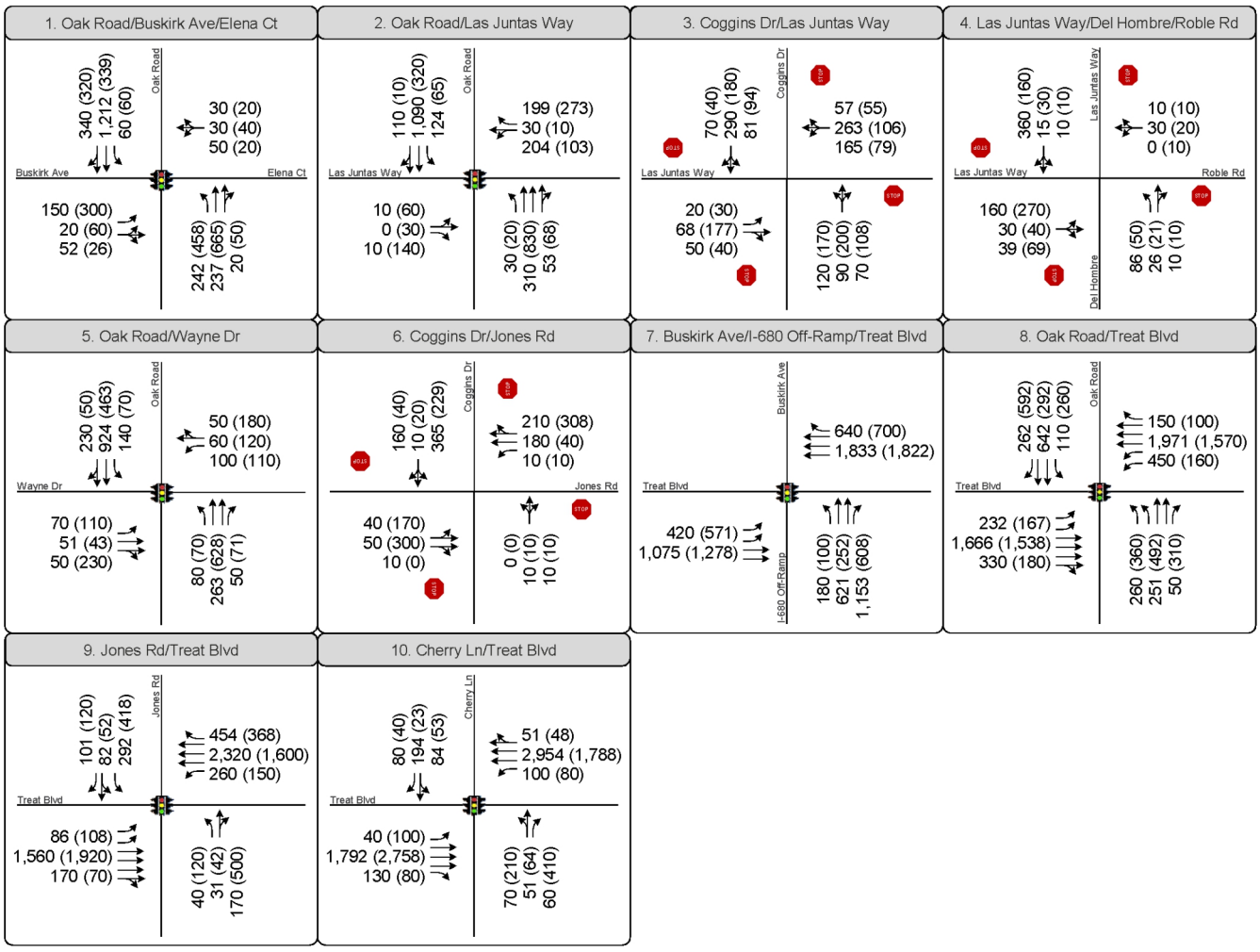

Source: FEHR + PEERS, January 2019.

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Exhibit 3.15-15
Cumulative with Project Peak Hour
Traffic Volumes, Lane Configurations and Traffic Controls

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As already discussed under the Opening Year With Project scenario, restriping within the existing right-of-way to provide a left-turn pocket and a through-right shared lane would be possible if parking is restricted on the north side of Las Juntas Way, resulting in LOS E operations (41 seconds) for vehicles during the AM peak-hour, and thereby reducing the vehicle impact to a less-than-significant level. However, this improvement could increase vehicle/bicycle/pedestrian conflicts associated with the high volume of activity on Iron Horse Trail, which crosses this intersection. Therefore, implementation of this improvement is not recommended, as it could lead to secondary impacts for pedestrians and bicyclists. Including this left-turn pocket would conflict with numerous policies (e.g., Complete Streets, Pleasant Hill BART Specific Plan), as well as general best practices in transit-oriented development planning, but specifically would conflict with General Plan Policy 5-18, which directs the County to prioritize intermodal safety over capacity. Therefore, this left-turn pocket would not be included as part of the project, and the intersection would continue to operate at unacceptable levels in the morning and evening peak-hour under Cumulative Year with Project Conditions.

Implementation of MM TRANS-1b would require improvements be made to Las Juntas Way prior to final inspection. However, these improvements would not result in acceptable operations for vehicles. Therefore, cumulative impacts related to the circulation system in terms of vehicle operations on roadway facilities (specifically in terms of intersection level of service) would be significant and unavoidable even with mitigation.

The TIA includes several recommendations that would increase pedestrian safety on Las Juntas Way between Coggins Drive and Del Hombre Lane. These recommendations are reflected in MM TRANS-1b, resulting in a less than significant impact for bicycle and pedestrian circulation.

The Coggins Drive at Jones Road intersection (Intersection No. 6) is projected to operate at an acceptable service level prior to the addition of project traffic; the addition of project traffic would result in LOS E operations during the morning peak-hour. Peak-hour signal warrants are not satisfied in the cumulative condition even with the addition of project traffic.

All other study intersections would operate at acceptable service levels prior to the addition of project traffic, and would continue to operate at acceptable levels with the addition of project traffic.

Vehicle Queues

Vehicle queues were assessed for the signalized intersections in the Cumulative with Project condition as shown in Table 3.15-13. Table 3.15-13 also includes the operation results for the Cumulative without Project conditions for comparison purposes.

Table 3.15-13: Cumulative Year—95th Percentile Queue Summary

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour		PM Peak-hour	
			Without Project	With Project	Without Project	With Project
1. Oak Road at I-680 on/off-ramps/Buskirk Avenue	EBL	170	**200**	**200**	**275**	**300**
	NBL	150	**450**	**475**	**775**	**825**
	SBL	130	125	125	125	125

Table 3.15-13 (cont.): Cumulative Year—95th Percentile Queue Summary

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour		PM Peak-hour	
			Without Project	With Project	Without Project	With Project
2. Oak Road at Las Juntas Way	EBR	170	25	25	50	50
	WBR	110	75	75	75	75
	NBL	150	75	75	50	50
	SBL	170	**175**	**200**	100	125
5. Oak Road at Wayne Drive	EBL	260	100	100	150	150
	WBL	220	125	125	150	150
	NBL	240	125	125	100	100
	NBR	240	25	25	50	50
	SBL	190	175	175	100	100
7. I-680 Off-Ramp/Treat Boulevard	EBL	275	270	275	**450**	**450**
	NBL	300	150	125	150	150
	NBR	1,200	675	600	375	400
8. Treat Boulevard at Oak Road	EBL	150	**175**	**200**	150	150
	WBL	240	**375**	**375**	150	150
	WBR	320	75	75	50	50
	NBL	260	250	250	250	250
	NBR	240	25	25	225	225
	SBL	275	200	200	**375**	**375**
	SBR	120	**200**	**200**	**625**	**625**
9. Treat Boulevard at Jones Road	EBL	380	75	100	100	125
	WBL	200	**350**	**350**	**375**	**375**
	WBR	350	175	175	225	225
	NBL	370	75	75	175	175
	SBL	240	**250**	**275**	**325**	**350**
	SBR	370	25	50	75	75
10. Treat Boulevard at Cherry Lane	EBL	190	50	50	150	150
	EBR	275	25	25	50	50
	WBL	180	175	**175**	180	**200**
	NBR	110	25	25	**400**	**400**
	SBR	70	50	50	25	25

Table 3.15-13 (cont.): Cumulative Year—95th Percentile Queue Summary

Intersection	Movement	Storage Length (ft)[1]	AM Peak-hour		PM Peak-hour	
			Without Project	With Project	Without Project	With Project

Notes:
Bold indicates queue potentially extends beyond available storage.
Bold Italics indicates potentially significant impact.
— = intersection was not evaluated for this time period.
[1] An additional 60 to 90 feet of storage is typically provided in the taper area outside of the through lane, which is not reflected in the storage length above.
Source: Fehr & Peers 2019.

The addition of project traffic is not expected to result in vehicle queues to increase by more than 50-feet (or two car-lengths) for movements where the 95th percentile queue is already exceeded, as presented in Table 3.15-13.

Signal Warrants

Cumulative signal warrants were evaluated for the unsignalized intersection where LOS E or LOS F conditions would be optimized. As shown in Table 3.15-12, the Coggins Drive at Las Juntas Way intersection is projected to meet peak-hour signal warrants in the cumulative condition prior to the addition of project traffic in the morning peak-hour. In the PM peak-hour, signal warrant would not be met even with the addition of project traffic. Signalization of the intersection would worsen the LOS for vehicles, as the intersection configuration would require split phasing. Therefore, signalization would not be a viable option at this intersection.

The Coggins Drive at Jones Road intersection is projected to operate at an acceptable service level prior to the addition of project traffic; the addition of project traffic would result in LOS E operations during the morning peak-hour. Peak-hour signal warrants are not satisfied in the cumulative condition even with the addition of project traffic. Based on the significance criteria, this is considered less-than-significant.

Transit, Bicycle, and Pedestrian Circulation and Facilities

With respect to transit facilities, should construction or operation of the cumulative projects temporarily or permanently conflict with existing transit connections, the project sponsors would coordinate with the County to provide alternative transit access.

With respect to pedestrian and bicycle facilities, none of the cumulative projects listed in Table 3-1 in Chapter 3, Environmental Impact Analysis, share a street with the project. Cumulative projects that substantially impact bicycle, or pedestrian facilities would be required to mitigate for such impacts. Therefore, cumulative impacts related to the circulation system in terms of transit, bicycle, and pedestrian facilities would be less than significant.

Roadway Safety and Emergency Access

Trucks necessary to construct projects listed in Table 3-1, Chapter 3, Environmental Impact Analysis, would utilize truck routes designated by the County and would not conflict with the automobile traffic and bicycle and pedestrian activity along public streets. Furthermore, the streets near the project area are generally in a grid. This grid design and generally flat grade conditions precludes roadway safety hazards related to design features such as sharp curves, dangerous intersections, or extreme roadway grades. If any of the projects listed in Table 3-1, Chapter 3, Environmental Impact Analysis, would redesign County streets in such a way that would significantly impact roadway safety, they would be required by the County to mitigate such impacts. Roadways constructed as part of the project would be constructed to meet current Contra Costa County design standards.

Cumulative project driveways and access points would be constructed in compliance with the California Fire Code and other applicable regulations related to roadway safety and emergency access. As such, the project, in conjunction with other projects listed in Table 3-1, Chapter 3, Environmental Impact Analysis, would have a less than significant cumulative impact associated with roadway safety or emergency access.

Level of Cumulative Significance Before Mitigation

Potentially Significant

Mitigation Measures

Implement MM TRANS-1b

Level of Cumulative Significance After Mitigation

Significant and Unavoidable (intersection LOS)

Less Than Significant with Mitigation (transit, roadway, bicycle, and pedestrian facilities)

3.16 - Tribal Cultural Resources

3.16.1 - Introduction

This section describes the existing tribal cultural resources setting in the region and project area as well as the relevant regulatory setting. This section also evaluates the possible impacts related to tribal cultural resources that could result from implementation of the project. Information in this section is based on initial consultation with the Native American Heritage Commission (NAHC), subsequent consultation with tribal representatives identified by the NAHC who may have interest in or additional information on tribal cultural resources that may be impacted by project development (Appendix D). The following comments were received during the Environmental Impact Report (EIR) scoping period related to tribal cultural resources:

- Requests that local Native American tribes are contacted; and
- Request to discuss compliance with Assembly Bill (AB) 52 and Senate Bill (SB) 18; NAHC recommendations for Cultural Resource Assessments.

3.16.2 - Existing Setting

Tribal Cultural Resources Components

The term "tribal cultural resources" encompasses tribal cultural resources and burial sites. Below is a brief summary of each component:

- **Tribal Cultural Resources:** Tribal cultural resources include sites, features, places, or objects that are of cultural value to one or more California Native American Tribes.
- **Native American Burial Sites and Cemeteries:** Burial sites and cemeteries are formal or informal locations where human remains have been interred and that are of cultural value to one or more California Native American Tribes.

Overall Tribal Cultural Resources Setting

Following is a brief overview of the prehistory and ethnographic background, providing a context in which to understand the background and relevance of sites found in the general project area. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview. Further details can be found in ethnographic studies, mission records, and major published sources.[1,2,3,4,5,6]

[1] Kroeber, A.L. 1925. Handbook of the Indians of California. Bulletin 78. Bureau of American Ethnology. Washington, D.C. Smithsonian Institution.
[2] Beardsley, R.K. 1948. "Cultural Sequences in Central California Archaeology." American Antiquity 14:1-28.
[3] Bennyhoff, J. 1950. Californian Fish Spears and Harpoons. Berkeley: University of California Anthropological Records 9(4):295–338.
[4] Chartkoff J.L. and K.K. Chartkoff. 1984. The Archaeology of California. Menlo Park: Stanford University Press.
[5] Moratto, M.J. 1984. California Archaeology. San Diego: Academic Press.
[6] Jones, T.L. and Kathryn A. Klar. 2007. California Prehistory. Lanham: AltaMira Press; Rowman & Littlefield Publishers, Inc.

Prehistoric Background

In general, archaeological research in the greater San Francisco Bay Area has focused on coastal areas, where large shellmounds were relatively easily identified on the landscape. This research and its chronological framework, however, is relevant to and has a bearing on our understanding of prehistory in areas adjacent to the San Francisco Bay Area, including modern Contra Costa County.

The San Francisco Bay Area supported a dense population of hunter-gatherers over thousands of years, leaving a rich a varied archaeological record. The Bay Area was a place of incredible language diversity, with seven languages spoken at the time of Spanish settlement in 1776. The diverse ecosystem of the bay and surrounding lands supported an average of three to five persons per square mile, but reached 11 persons per square mile in the North Bay. At the time of Spanish contact, the people of the Bay Area were organized into local tribelets that defended fixed territories under independent leaders. Typically, individual Bay Area tribelets included 200 to 400 people distributed among three to five semi-permanent villages, within territories measuring approximately 10 to 12 miles in diameter.[7]

Native American occupation and use of the greater Bay Area, including the regions comprising modern Walnut Creek and Pleasant Hill, extends over 5,000 to 7,000 years and may be longer. Early archaeological investigations in Central California were conducted at sites located in the Sacramento-San Joaquin Delta region. The first published account documents investigations in the Lodi and Stockton area. The initial archaeological reports typically contained descriptive narratives with more systematic approaches sponsored by Sacramento Junior College in the 1930s. At the same time, University of California at Berkeley excavated several sites in the lower Sacramento Valley and Delta region, which resulted in recognizing archaeological site patterns based on a variation of intersite assemblages. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence. In 1939, researcher Jeremiah Lillard of Sacramento Junior College noted that each cultural period led directly to the next and that influences spread from the Delta region to their regions in Central California.[8] In the late 1940s and early 1950s, researcher Richard Beardsley of the University of California Berkeley documented similarities in artifacts among sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became known as the Central California Taxonomic System (CCTS). This system proposed a uniform, linear sequence of cultural succession.[9]

To address some of the flaws in the CCTS system, D.A. Fredrickson introduced a revision that incorporated a system of spatial and cultural integrative units. Fredrickson separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: Paleo-Indian (10000 to 6000 before Christ [BC]); Lower, Middle and Upper Archaic (6000 BC to *anno domini* [AD] 500), and Emergent (Upper and Lower, AD 500 to 1800). The suggested temporal ranges are similar to earlier horizons, which are broad cultural units that can be arranged in a temporal

[7] Milliken, Randall et.al. 2007. Punctuated Culture Change in the San Francisco Bay Area, In Prehistoric California: Colonization, Culture, and Complexity, edited by T.L. Jones and K.A. Klar, 99–124. AltaMira Press.

[8] Lillard, J.B. and W.K. Purves. 1936. The Archaeology of the Deer Creek-Cosumnes Area, Sacramento Co., California. Sacramento. Sacramento Junior College, Department of Anthropology Bulletin 1.

[9] Beardsley, R.K. 1948. Cultural Sequences in Central California Archaeology. American Antiquity 14:1–28.

sequence.[10] In addition, Fredrickson defined several patterns—a general way of life shared within a specific geographical region. These patterns include:

- Windmiller Pattern or Early Horizon (3000 to 1000 before Common Era [BCE])
- Berkeley Pattern or Middle Horizon (1000 BCE to 500 Common Era [CE])
- Augustine Pattern or Late Horizon (500 CE to historic period)

Brief descriptions of these temporal ranges and their unique characteristics follow.

Windmiller Pattern or Early Horizon (3000 to 1000 BCE)

Characterized by the Windmiller Pattern, the Early Horizon was centered in the Cosumnes district of the Delta and emphasized hunting rather than gathering, as evidenced by the abundance of projectile points in relation to plant processing tools. Additionally, atlatl, dart, and spear technologies typically included stemmed projectile points of slate and chert but minimal obsidian. The large variety of projectile point types and faunal remains suggests exploitation of numerous types of terrestrial and aquatic species.[11] Burials occurred in cemeteries and intra-village graves. These burials typically were ventrally extended, although some dorsal extensions are known with a westerly orientation and a high number of grave goods. Trade networks focused on acquisition of ornamental and ceremonial objects in finished form rather than on raw material. The presence of artifacts made of exotic materials such as quartz, obsidian, and shell indicates an extensive trade network that may represent the arrival of Utian populations into central California. Also indicative of this period are rectangular Haliotis and Olivella shell beads, and charmstones that usually were perforated.[12]

Berkeley Pattern or Middle Horizon (1000 BCE to 500 CE)

The Middle Horizon is characterized by the Berkeley Pattern, which displays considerable changes from the Early Horizon. This period exhibited a strong milling technology represented by minimally shaped cobble mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Fredrickson suggests that the Berkeley Pattern marked the eastward expansion of Miwok groups from the San Francisco Bay Area. Compared with the Early Horizon, there is a higher proportion of grinding implements at this time, implying an emphasis on plant resources rather than on hunting. Typical burials occurred within the village with flexed positions, variable cardinal orientation, and some cremations. As noted by Lillard, Heizer, and Fenenga, the practice of spreading ground ochre over the burial was common at this time. Grave goods during this period are generally sparse and typically include only utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles occasionally were present, which suggest the religious or ceremonial significance of the individual.[13] During this period, larger populations are suggested by the number and depth of sites compared with the Windmiller Pattern.

[10] Fredrickson, D.A. 1973. Early Cultures of the North Coast of the North Coast Ranges, California. PhD dissertation.
[11] Bennyhoff, J. 1950. Californian Fish Spears and Harpoons. University of California Anthropological Records 9(4):295–338.
[12] Ragir, S.R. 1972. The Early Horizon in Central California Prehistory. Contributions of the University of California Archaeological Research Facility 15. Berkeley, CA.
[13] Lillard, J.B., R.F. Heizer, and F. Fenenga. 1939. An Introduction to the Archaeology of Central California. Sacramento Junior College, Department of Anthropology, Bulletin 2.

According to Fredrickson, the Berkeley Pattern reflects gradual expansion or assimilation of different populations rather than sudden population replacement and a gradual shift in economic emphasis.[14]

Augustine Pattern or Late Horizon (500 CE to Historic Period)

The Late Horizon is characterized by the Augustine Pattern, which represents a shift in the general subsistence pattern. Changes include the introduction of bow and arrow technology; and most importantly, acorns became the predominant food resource. Trade systems expanded to include raw resources as well as finished products. There are more baked clay artifacts and extensive use of Haliotis ornaments of many elaborate shapes and forms. According to Moratto, burial patterns retained the use of flexed burials with variable orientation, but there was a reduction in the use of ochre and widespread evidence of cremation.[15] Judging from the number and types of grave goods associated with the two types of burials, cremation seems to have been reserved for individuals of higher status, whereas other individuals were buried in flexed positions. Johnson suggests that the Augustine Pattern represents expansion of the Wintuan population from the north, which resulted in combining new traits with those established during the Berkeley Pattern.[16]

Central California research has expanded from an emphasis on defining chronological and cultural units to a more comprehensive look at settlement and subsistence systems. This shift is illustrated by the early use of burials to identify mortuary assemblages and more recent research using osteological data to determine the health of prehistoric populations. Although debate continues over a single model or sequence for California, the general framework consisting of three temporal/cultural units is generally accepted, although the identification of regional and local variation is a major goal of current archaeological research.

Ethnographic Background

The San Francisco Bay Area consisted of several independent tribal territories during the prehistoric and early historic periods. Native Peoples largely spoke dialects of five distinct languages: Costanoan (Ohlone), Bay Miwok, Plains Miwok, Patwin, and Wappo. The project site lies at intersection of several of these groups at different periods in time, however it was largely within the ethnographic and historic boundaries of Bay Miwok speakers, who occupied the eastern portions of Contra Costa County, from Walnut Creek east to the Sacramento-San Joaquin Delta, including the northern slopes of Mount Diablo. Several bands of Miwok are associated with the area, the closest being the Saclan, whose territory extended through the hills east of present-day Rossmoor, Lafayette, Moraga and Walnut Creek.

The foremost political unit of the Miwok was the tribelet; an independent and sovereign nation with defined boundaries and control over the natural resources within those boundaries. As noted by Levy, villages are described as headquarters of a localized patrilineage, and this social organization

[14] Fredrickson, D.A. 1973. Early Cultures of the North Coast of the North Coast Ranges, California. PhD dissertation.
[15] Moratto, M.J. 1984. California Archaeology. San Diego: Academic Press.
[16] Johnson, J.J. 1976. Archaeological Investigations at the Blodgett Site (CA-SAC-267), Sloughhouse Locality, California. Report to the U.S. National Parks Service, Western Regional Office, Tucson, Arizona.

was further prescribed by individual lineage memberships in a moiety. With the notable exceptions of tobacco and dogs, the Eastern Miwok largely lacked cultivated plants or domesticated animals.[17]

All plant foods were naturally occurring and gathered by hand, the most important of which were the seven varieties of acorn used by the Eastern Miwok people. Acorns were usually allowed to ripen and fall off the tree on their own where they would then be collected in large numbers in burden baskets. The acorns were then shelled, placed on an acorn anvil, and struck with a hammer stone to expose the meats within. These meats were ground into a fine meal using a bedrock mortar and cobblestone pestle. The meal was then sifted into a tightly coiled basket, and several applications of water were run through the basket to leach the bitter tannin from the meal. Once dry, the meal could be used in the preparation of acorn soup, mush, biscuits, and bread. For this reason, access to acorns; clean, moving water; and exposed bedrock was particularly important to the Eastern Miwok.

The project site is located to the east of Grayson Creek, formerly known as Pacheco Creek Springs and to the west of Walnut Creek. Watercourses were often a focus of prehistoric occupation in central California with Native American groups exploiting a variety of ecological niches. While this area was within an environmentally advantageous area for Native Americans located between the resources of the San Francisco Bay margin and the foothills and nearby creeks, no known ethnographic settlements are known to have been located within or adjacent to the project site. Prehistoric site types recorded in the general Pleasant Hill area consist of lithic scatters, quarries, habitation sites (including burials), bedrock mortars or other milling feature sites, petroglyph sites, and isolated burial sites. However, none of these resources or the habitation mounds mapped by Whitney in 1873 or recorded by Nels C. Nelson in 1912 are located on or near the project site.

Records Searches to Identify Existing Tribal Cultural Resources

NAHC Sacred Lands File Search and Tribal Correspondence

On September 10, 2018, FirstCarbon Solutions (FCS) sent a letter to the NAHC in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the project site vicinity. A response was received on September 26, 2018, indicating that the Sacred Lands File failed to indicate the presence of existing Native American cultural resources in the immediate project site vicinity. The NAHC included a list of seven tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential tribal cultural resources that may be affected by the project are addressed, a letter containing project information and requesting any additional information was sent to each tribal representative on October 2, 2018.

3.16.3 - Regulatory Framework

Federal

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA), as amended, established the National Register of Historic Places (NRHP), which contains an inventory of the nation's significant prehistoric and historic properties. Under the Code of Federal Regulations (CFR) 36 CFR 60, a property is

[17] Levy, R. 1978. Costanoan. In California, edited by Robert F. Heizer, pp. 485–495. Handbook of North American Indians, Vol. 8. W.G. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history, or broad patterns of events.
- It is associated with significant people in the past.
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; or it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction.
- It has yielded, or may yield, information important in history or prehistory.

Certain types of properties are usually excluded from consideration for listing in the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (ARPA) amended the Antiquities Act of 1906 (16 United States Code [USC] 431–433) and set a broad policy that archaeological resources are important to the nation and should be protected, and required special permits before the excavation or removal of archaeological resources from public or Indian lands. The purpose of ARPA was to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites that are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October 31, 1979.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act (AIRFA) established federal policy to protect and preserve the inherent rights of freedom for Native groups to believe, express, and exercise their traditional religions. These rights include but are not limited to access to sites, use and possession of sacred objects, and freedom to worship through ceremonials and traditional rites.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

State

CEQA Guidelines Section 15064.5(a)—CEQA Definition of Historical Resources

California Environmental Quality Act (CEQA) Guidelines Section 15064.5(a), in Title 14 of the California Code of Regulations, defines a "historical resource" as:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.

(2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included on any local, State, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical resource for the purposes of CEQA if there is substantial evidence supporting such a determination. A lead agency must consider a resource to be historically significant if it finds that the resource meets the criteria for listing in the California Register of Historical Resources (CRHR).

Archaeological and historical sites are protected pursuant to a wide variety of State policies and regulations, as enumerated in the Public Resources Code. Cultural resources are recognized as nonrenewable resources and receive additional protection under the Public Resources Code and CEQA.

CEQA Guidelines Section 15064.5(a)(3)—California Register of Historical Resources Criteria

As defined by CEQA Guidelines, Section 15064.5(a)(3)(A-D), a resource shall be considered historically significant if the resource meets the criteria for listing on the CRHR. The CRHR and many local preservation ordinances have employed the criteria for eligibility to the NRHP as a model (see

criteria described above under the description of the NHPA), since the NHPA provides the highest standard for evaluating the significance of historic resources. A resource that meets NRHP criteria is clearly significant. In addition, a resource that does not meet NRHP standards may still be considered historically significant at a local or State level.

California Public Resources Code Section 5024.1—California Register of Historic Resources

Section 5024.1 of the Public Resources Code states that the CRHR is a guide to be used by state and local agencies, private groups, and citizens to identify the State's historical resources and to indicate what properties are to be protected from substantial adverse change. Administration of the CRHR is to be overseen by the NAHC. Section 5024.1 indicates that the register shall include historical resources determined by the NAHC, according to adopted procedures, to be significant and to meet the criteria in subdivision (c).

CEQA Guidelines 15064.5(c)—Effects on Archaeological Resources

CEQA Guidelines state that a resource need not be listed on any register to be found historically significant. CEQA Guidelines direct lead agencies to evaluate archaeological sites to determine if they meet the criteria for listing in the CRHR. If an archaeological site is a historical resource, in that it is listed or eligible for listing in the CRHR, potential adverse impacts to it must be considered. If an archaeological site is considered not to be an historical resource but meets the definition of a "unique archeological resource" as defined in Public Resources Code Section 21083.2, then it would be treated in accordance with the provisions of that section.

CEQA Guidelines Section 15064.5(d)—Effects on Human Remains

Native American human remains and associated burial items may be significant to descendant communities and/or may be scientifically important for their informational value. They may be significant to descendant communities for patrimonial, cultural, lineage, and religious reasons. The specific stake of some descendant groups in ancestral burials is a matter of law for some groups, such as Native Americans (CEQA Guidelines § 15064.5(d); Public Resources Code [PRC] § 5097.98). CEQA and other State regulations regarding Native American human remains provide the following procedural requirements to assist in avoiding potential adverse effects on human remains within the contexts of their value to both descendant communities and the scientific community:

- When an initial study identifies the existence or probable likelihood that a project would affect Native American human remains, the lead agency is to contact and work with the appropriate Native American representatives identified through the NAHC to develop an agreement for the treatment and disposal of the human remains and any associated burial items (CEQA Guidelines § 15064.5(d); PRC § 5097.98).
- If human remains are accidentally discovered, the county coroner must be contacted. If the county coroner determines that the human remains are Native American, the coroner must contact the NAHC within 24 hours. The NAHC must identify the most likely descendant (MLD) to provide for the opportunity to make recommendations for the treatment and disposal of the human remains and associated burial items.

- If the MLD fails to make recommendations within 24 hours of notification or the project applicant rejects the recommendations of the MLD, the Native American human remains and associated burial items must be reburied in a location not subject to future disturbance within the project site (PRC § 5097.98).
- If potentially affected human remains or a burial site may have scientific significance, whether or not it has significance to Native Americans or other descendent communities, then under CEQA, the appropriate mitigation of effect may require the recovery of the scientific information of the remains/burial through identification, evaluation, data recovery, analysis, and interpretation (CEQA Guidelines § 15064.5(c)(2)).

California Public Resources Code Section 5097.91—Native American Heritage Commission

Section 5097.91 of the Public Resources Code established the NAHC, whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Under Section 5097.91 of the Public Resources Code, a State policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites or sacred shrines located on public property. Section 5097.98 of the Public Resources Code specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a County Coroner. Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

California Senate Bill 18—Protection of Tribal Cultural Places

SB 18 (California Government Code § 65352.3) incorporates the protection of California traditional tribal cultural places into land use planning for cities, counties, and agencies by establishing responsibilities for local governments to contact, refer plans to, and consult with California Native American tribes as part of the adoption or amendment of any general or specific plan proposed on or after March 1, 2005. SB 18 requires public notice to be sent to tribes listed on the NAHC SB 18 Tribal Consultation list within the geographical areas affected by the proposed changes. Tribes must respond to a local government notice within 90 days (unless a shorter time frame has been agreed upon by the tribe), indicating whether or not they want to consult with the local government. Consultations are for the purpose of preserving or mitigating impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code that may be affected by the proposed adoption or amendment to a general or specific plan.

California Assembly Bill 52—Effects on Tribal Cultural Resources

AB 52 was signed into law on September 25, 2014, and provides that any public or private "project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." Tribal Cultural Resources include "[s]ites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources." Under prior law, Tribal Cultural Resources were typically addressed under the umbrella of "cultural resources," as

discussed above. AB 52 formally added the category of "tribal cultural resources" to CEQA, and extends the consultation and confidentiality requirements to all projects, rather than just projects subject to SB 18 as discussed above.

The parties must consult in good faith, and consultation is deemed concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect on a tribal cultural resource (if such a significant effect exists); or (2) when a party concludes that mutual agreement cannot be reached. Mitigation measures agreed upon during consultation must be recommended for inclusion in the environmental document. AB 52 also identifies mitigation measures that may be considered to avoid significant impacts if there is no agreement on appropriate mitigation. Recommended measures include:

- Preservation in place
- Protecting the cultural character and integrity of the resource
- Protecting the traditional use of the resource
- Protecting the confidentiality of the resource
- Permanent conservation easements with culturally appropriate management criteria

California Public Resources Code Section 21074—Effects on Tribal Cultural Resources

AB 52 amended the CEQA statute to identify an additional category of resource to be considered under CEQA, called "tribal cultural resources," and added Public Resource Code Section 21074, which defines "tribal cultural resources" as follows:

(a) "Tribal cultural resources" are either of the following:
  (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    A) Included or determined to be eligible for inclusion in the CRHR.
    B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
  (2) 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

3.16.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 CEQA Guidelines Appendix G, to determine whether impacts related to cultural resources are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) 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. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Approach to Analysis

This evaluation focuses on whether the project would impact tribal cultural resources. The tribal cultural resources impact analysis is based on information collected from record searches at the NAHC and information from tribal consultation conducted pursuant to AB 52. Impacts are typically associated with construction and/or ground-disturbing activities that have the potential to immediately alter, diminish, or destroy all or part of the character and quality of Native American Artifacts and/or human remains that could be uncovered.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of tribal cultural resources materials impacts resulting from implementation of the project:

- Impair a tribal cultural resource's eligibility ability to convey its significance (i.e., affect a resources' inclusion in the NAHC Sacred Lands File) as defined by Public Resources Code Section 21074.
- Physically damage, destroy, or otherwise adversely impact a site, feature, place, or cultural landscape with cultural value to a California Native American tribe and that is a resource determined by Contra Costa County, 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. This could include a known or unknown burial site that is of cultural value to a California Native American tribe.

Impact Evaluation

Significance of Tribal Cultural Resource and Eligibility for California Register Listing

Impact TRIB-1: **The project would not cause a substantial adverse change in the significance of a Tribal Cultural Resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).**

Construction

No listed or potentially eligible tribal cultural resources have been identified within the project site. Specifically, a review of the CRHR, the NAHC Sacred Lands File, a records search conducted at the Northwest Information Center, and a pedestrian survey of the project site failed to identify any listed tribal cultural resources that could be adversely affected by construction of the project. As such, there are no known eligible or potentially eligible tribal cultural resources that could be adversely affected by the project. Therefore, no construction impact related to previously listed tribal cultural resources would occur.

Operation

Impacts related to a project's potential to cause a substantial adverse change in the significance of a State listed or eligible tribal cultural resource are limited to construction impacts. No respective operational impacts would occur.

Level of Significance

No Impact

Significance of Tribal Cultural Resource and Eligibility as Determined by Lead Agency

Impact TRIB-2: **The project would not cause a substantial adverse change in the significance of a tribal cultural 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.**

Construction

On September 10, 2018, a letter was sent to NAHC in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the project area. A response was received on September 26, 2018, indicating the search returned negative results for tribal cultural resources in the project site vicinity, and recommended contacting tribal representatives for additional information. The NAHC included a list of seven tribal representatives available for consultation. To ensure that Native American knowledge and concerns over potential tribal cultural resources that could be affected by the project are addressed, a letter containing project information and requesting any additional information was sent to each of the seven tribal representatives on October 2, 2018. On April 1, 2019, the Contra Costa County Department of Conservation and Development notified applicable tribal representatives of an opportunity to consult on the project pursuant to Section 21080.3.1 of the California Public Resources code. On April 10, 2019, a response was received from Ed Silva, Natural Resources Coordinator for Wilton Rancheria. Mr. Silva stated that the only concern the tribe has with the project relates to the potential for Native American Artifacts and/or human remains to

be uncovered during construction-related ground disturbance. Mr. Silva requested Wilton Rancheria be notified in the event such discoveries occur, and that all applicable federal and State laws be followed. No additional responses have been received as of the date of this writing. The correspondence with Mr. Silva is included in Appendix D. Contra Costa County, in its capacity as Lead Agency, has also not identified or determined any known tribal cultural resources to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. As such, no construction impact related to tribal cultural resources would occur.

Operation

Impacts related to a project's potential to cause a substantial adverse change in the significance of a Lead Agency listed or eligible tribal cultural resource are limited to construction impacts. No respective operational impacts would occur.

Level of Significance

No Impact

3.16.5 - Cumulative Impacts

Given that the project would have no impact on previously recorded or considered known tribal cultural resources, the project could not combine with other cumulative projects to have a cumulative impact related to tribal cultural resources. Therefore, there would be no cumulative tribal cultural resources impact.

Level of Cumulative Significance

No Impact

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3.17 - Utilities and Service Systems

3.17.1 - Introduction

This section describes the existing conditions related to utilities and service systems (water, wastewater, stormwater, and solid waste) in the County and project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to such utilities and service systems that could result from implementation of the project. Information in this section is based on information provided by the Contra Costa Water District (CCWD), CCWD 2015 Urban Water Management Plan (UWMP), Central Contra Costa Sanitary District (CCCSD), Del Hombre Utility Due Diligence Report, California Department of Resources Recycling and Recovery (CalRecycle), and Contra Costa County General Plan. The following comments regarding utilities and service systems were received as part of the Environmental Impact Report (EIR) public scoping process:

Trash capture devices shall be installed in catch basins to meet the County's National Pollutant Discharge Elimination System (NPDES), subject to the review and approval of the Public Works Department.

3.17.2 - Environmental Setting

Water

The County receives water from the San Joaquin Delta. The CCWD oversees water distribution to central and northeastern Contra Costa County, a total area of more than 140,000 acres.

Water Source and Supply

Contra Costa County

Contra Costa County receives its water from the CCWD, which pumps water from four intakes in the San Joaquin Delta.[1] The CCWD provides water to approximately 500,000 people in Contra Costa County, as both a retail and wholesale water supplier. As a retailer, the CCWD provides treated water to approximately 200,000 customers in the cities of Clayton, Clyde, Concord, Pacheco, Port Costa and parts of Martinez, Pleasant Hill, and Walnut Creek. The CCWD determined that in the Near-Term, the projected water supply is 213,700 acre-feet. By 2025 at Contra Costa County General Plan sunset, the CCWD would have a water supply of 237,700 acre-feet.[2]

Surface Water

The CCWD's water source is provided by the Central Valley Project (CVP), which receives water from storage releases from Shasta, Folsom, and Clair Eagle reservoirs into the Sacramento River in the San Joaquin Delta. The CCWD holds a separate Los Vaqueros water right that allows diversion of excess Delta Flows to Los Vaqueros Reservoir for storage. The CCWD also has a permit and a license that allow for total diversions of up to 26,700 acre-feet/year (AFY) from the Delta at Mallard Slough. However, this water source often has high salinity levels and can only be used seasonally. Little or no water is available from Mallard Slough during dry periods. The CCWD holds water rights that allow diversion of up to 95,980 AFY of excess Delta flows to Los Vaqueros Reservoir for storage

[1] Contra Costa Water District (CCWD). 2015. Urban Water Management Plan.
[2] *Ibid*.

between November 1 of each year and June 30 of the succeeding year, with the total combined limit on the CCWD CVP contract and Los Vaqueros water right diversions equal to 242,000 AFY.[3]

Groundwater

The primary groundwater basins within the CCWD service area are the Ygnacio, Clayton, Pittsburg Plain, and Tracy Groundwater Basins or Sub-Basins. The CCWD does not manage groundwater, nor does it use groundwater to meet any demands. There are an undetermined number of wells throughout the CCWD service area owned by industries, private individuals, and public municipal water utilities including the cities of Martinez and Pittsburg, the Golden State Water Company, and the Diablo Water District.[4]

Project Site

The two residences on the project site receive water service from the CCWD. The project site does not contain groundwater wells.

Recycled Water

Contra Costa County

Currently, over 10,000 AFY of recycled water is put to direct beneficial use in CCWD's service area. The CCWD has agreements with the CCCSD and Delta Diablo (formerly Delta Diablo Sanitation District) regarding specific projects that provide recycled water supplies for industrial uses, wildlife enhancement, and landscape irrigation within CCWD's service area.[5] According to the CCWD 2015 UWMP, the CCWD provides approximately 700 AFY of recycled water to its customers.

Project Site

The project site does not currently receive or utilize recycled water.

Water Demand and Use

Contra Costa County

The CCWD 2015 UWMP summarizes the near-term and 2040 water demands during "Normal," "Single-Dry," and "Multi-Dry Year 3," scenarios in Figures 1-3 and 1-4. According to Figure 1-3 in the CCWD 2015 UWMP, the CCWD service area has a normalized near-term water demand of 150,000 acre-feet during near-term maximum dry year demands. According to Figure 1-4, the CCWD service area will have a 2040 normalized water demand of 190,000 acre-feet. The CCWD has maintained an effective water conservation program that has resulted in the district currently serving less water compared to 1990 levels despite a 40 percent increase in population.[6]

Project Site

The existing two single-family homes connect to the CCWD and are included in the current annual potable water use described in the CCWD 2015 UWMP.[7] In California, the average residential water

[3] *Ibid*.
[4] *Ibid*.
[5] *Ibid*.
[6] Contra Costa Water District (CCWD). 2015 Urban Water Management Plan.
[7] Contra Costa Water District (CCWD). 2015 Urban Water Management Plan, page 57.

use is 86 gallons per person per day.[8] Assuming 2.88 persons per household, the existing home would demand 495.36 gallons per day or 180,806.40 gallons per year. Therefore, the total, single-family uses demand a total of 0.55 AFY.

Water Distribution

Contra Costa County

The CCWD's primary conveyance facility for its untreated water supply is the Canal, which carries water from Rock Slough for deliveries throughout CCWD's service area, terminating at Martinez Reservoir. The Canal is approximately 48 miles long with the major deliveries within the first 26 miles, which runs from Rock Slough to the Shortcut Pipeline near the Ralph D. Bollman Water Treatment Plant in Concord.[9] The original Los Vaqueros Project, a project to expand the Los Vaqueros Reservoir, included a new point of diversion (at Old River south of the Highway 4 crossing) that operates in conjunction with the Rock Slough diversion point and associated water transmission facilities, pumping plants, and other facilities. The pumping plant is at the Old River intake and has an installed capacity of 250 cubic-feet-per-second (cfs). Diversion from the Old River intake for delivery to CCWD's service area began in the summer of 1997. In 2010, the CCWD completed construction of a pumping plant on Victoria Canal near Middle River that also has an installed capacity of 250 cfs.[10]

The two pumping plants are permitted to operate at a combined capacity of 320 cfs. Both the Middle River and Old River pumping plants pump water to the 4-million-gallon Transfer Reservoir. From the Transfer Reservoir, water can either flow by gravity to the Canal or is pumped up to the Los Vaqueros Reservoir by the Transfer Pump Station. Water stored in the Los Vaqueros Reservoir is conveyed to the Canal by gravity.[11]

Project Site

The two residences currently on the project site receive water from the CCWD through one 8-inch water line in Roble Road and three 8-inch water line connections in Del Hombre Lane.[12]

Wastewater

Contra Costa County

The CCCSD provides wastewater treatment services to approximately 147 square miles and includes the cities of Danville, Lafayette, Moraga, Orinda, Pleasant Hill, Walnut Creek, unincorporated areas in central Contra Costa County; portions of Martinez and San Ramon, and several unincorporated communities in Alamo and Pacheco. The CCCSD also receives and treats wastewater from the City of Concord and City of Clayton collection systems. The CCCSD collects and treats an average of approximately 34 million gallons of wastewater per day and up to 230 million gallons per day during

[8] San Francisco Public Utilities Commission. 2017. San Francisco Public Utilities Commissions Water Resources Division Annual Report, page 3.
[9] Contra Costa Water District (CCWD). 2015 Urban Water Management Plan, page 3-4.
[10] *Ibid*.
[11] *Ibid*.
[12] BKF Engineers. Del Hombre Due Diligence. May 23, 2018.

extreme storm events.[13] The CCCSD uses over 1,500 miles of piping with over 35,000 manholes and 19 pump stations to convey wastewater to the treatment plant in Martinez.

Project Site

The CCCSD Wastewater Treatment Plant currently provides sanitary sewer service to the project site.[14] A 30-inch sewer main is located within Del Hombre Lane directly adjacent to the west of the project site boundary. There is currently no connection to the project site from this sewer main. There is also a 10-inch sewer main in Roble Road adjacent to the north of the project site boundary that connects to the project site.

Long-Term Treatment Capacity Plans

The CCCSD published a Comprehensive Waste Master Plan in June 2017. The CCCSD owns and operates the CCCSD Treatment Plant, located in Martinez, California. The CCCSD Treatment Plant has a treatment capacity of approximately 54 million gallons per day (mgd) and approximately 270 mgd of wet-weather flow.[15] The CCCSD Treatment Plant currently treats an average daily dry-weather flow of 34 mgd and estimates to treat 41 average daily dry-weather flow by 2035. The majority of waste is treated to a secondary level, disinfected by ultraviolet light, and then discharged into Suisun Bay. Approximately 600 million gallons per year are treated to a tertiary level through additional filtration and disinfection before being distributed as recycled water for landscape irrigation, industrial processes, and plant operations.[16]

Wastewater Generation

Contra Costa County

Wastewater generated by land uses within Central Contra Costa County is conveyed via existing infrastructure to the CCCSD Treatment Plant for treatment and then disposed or reused as recycled water.

Project Site

The project site contains two residences that generate 495.36 gallons per day or 180,806.40 gallons per year. The Utility Due Diligence Report determined that wastewater demand can be taken as 95 percent of the average daily water demand. As a result, 95 percent of the existing water demand, 495.36 gallons per day, is 470.59 gallons of wastewater per day.

Stormwater

Generation and Collection

Contra Costa County

The Contra Costa County Flood Control and Water Conservation District guides regional drainage plans throughout incorporated and unincorporated County areas. All stormwater drains into Suisun Bay via stormwater drainage systems and regional creeks and streams. The Contra Costa County

[13] Central Contra Costa Sanitary District (CCCSD). 2017. Comprehensive Wastewater Master Plan.
[14] BKF Engineers. Del Hombre Due Diligence. May 23, 2018.
[15] Central Contra Costa Sanitary District (CCCSD). 2017. Comprehensive Wastewater Master Plan.
[16] *Ibid*.

Watershed Program is responsible for ensuring that the County complies with its municipal stormwater NPDES permits.[17] Drainage facilities within unincorporated County are typically maintained by Contra Costa County Public Works or private property owners.[18]

Project Site

The project site is located in unincorporated Contra Costa County, adjacent to the City of Walnut Creek and the Pleasant Hill/Contra Costa Centre Bay Area Rapid Transit (BART) Station, and is covered by the Municipal Regional Permit (MRP) for Discharges to San Francisco Bay. The MRP was adopted on October 14, 2009, and applies to 76 Bay Area municipalities in order to standardize requirements, pool resources and achieve results on a large scale.[19] Contra Costa County Public Works would serve the project site. The project site is located within Drainage Area 44 and drains generally towards the northwest. The project is located on the western edge of Drainage Area 44, which abuts Drainage Area 44B to the west. There is a public storm drain line in Las Juntas Road to the north of the project site that drains northeasterly via Briarwood Lane to Walnut Creek within Drainage Area 44. There is a private storm drain line to the east of the project site on Roble Road, which also drains northeasterly towards Walnut Creek within Drainage Area 44. Within Drainage Area 44B there is an existing 84-inch public storm drain line running parallel and just to the west of Del Hombre Lane in the Iron Horse Regional Trail. A portion of the development to the north of the site drains to the 84-inch line in Drainage Area 44B via a second existing private storm drain system in Roble Road just north of the project. The storm drain connects to a manhole at the intersection of Las Juntas Way, Del Hombre Lane, and Roble Road.[20]

Solid Waste

Generation and Collection

Contra Costa County

Central Contra Costa County Solid Waste Authority (dba RecycleSmart) provides solid waste and residential recycling services for areas within Contra Costa County. RecycleSmart holds franchise agreements with waste franchises that provide solid waste collection and disposal of residential and commercial solid waste. According to CalRecycle, Contra Costa County generates 807,550 tons of solid waste.[21,22]

Project Site

RecycleSmart currently provides solid waste removal services for the project site. RecycleSmart is contracted with Republic Services for the collection, transfer, and disposal of residential and

[17] Contra Costa County. 2018. Welcome to the Flood Control District. Website: http://www.cccounty.us/5586/Flood-Control. Accessed: February 26, 2019.
[18] BKF Engineers. 2018. Del Hombre Due Diligence, page 2.
[19] *Ibid*.
[20] BKF Engineers. 2018. Del Hombre Due Diligence, page 2.
[21] California Department of Resources Recycling and Recovery (CalReycle). 2019. Commercial Waste Stream by Business Group. Website: https://www2.calrecycle.ca.gov/WasteCharacterization/BusinessGroupStreams. Accessed: February 26, 2019.
[22] California Department of Resources Recycling and Recovery (CalReycle). 2019. Residential Waste Stream by Material Type. Website: https://www2.calrecycle.ca.gov/WasteCharacterization/ResidentialStreams. Accessed: February 26, 2019.

commercial garbage, recycling, and organics.[23] The existing two single-family homes on site would generate an estimated 7,300 pounds of solid waste a year.[24]

Landfills

Contra Costa County

There are three separate landfills and four transfer stations that serve Contra Costa County. The three landfills are distributed geographically to serve the West County, Central and South County, and East County.

Project Site

Table 3.17-1 summarizes the closest landfill near the project site. Collectively, this landfill has approximately 63.4 million cubic yards in remaining capacity.

Table 3.17-1: Landfills Proximate to Project Site Summary

Landfill	Location	Tons (approx.)	Cubic Feet (approx.)	
		Maximum Permitted Daily Throughput	Maximum Permitted Capacity	Remaining Capacity
Keller Canyon Landfill	901 Bailey Road Pittsburg, CA 94565	3,500 tons per day	75,018,280 cubic yards	63,408,410 cubic yards
Source: CalRecycle 2015.				

3.17.3 - Regulatory Framework

Federal

Safe Drinking Water Act

The Safe Drinking Water Act authorizes the United States Environmental Protection Agency (EPA) to establish national standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the State Department of Health Services conducts most enforcement activities.

Clean Water Act (National Pollutant Discharge Elimination System)

The Water Pollution Control Act of 1972, more commonly known as the Clean Water Act (CWA), regulates the discharge of pollutants into watersheds throughout the nation. Under the CWA, the EPA implements pollution control programs and sets wastewater standards.

[23] Central Contra Costa County Solid Waste Authority (RecycleSmart). 2018. Website: https://www.recyclesmart.org/. Accessed November 27, 2018.

[24] California Department of Resources Recycling and Recovery (CalRecycle). Residential Sector Generation Rates. Accessed February 15, 2019. Website: https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates. Calculation: (2 single-family homes x 10 lbs/day/unit) x 365 days a year = 7,300.

The NPDES permit program was established within the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities. Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant.

State

California Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne), which was passed in California in 1969, the State Water Resources Control Board (State Water Board) has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine Regional Water Quality Control Boards (RWQCBs) to oversee water quality on a day to-day basis at the local and regional level. The RWQCBs engage in a number of water quality functions in their respective regions, and regulate all pollutant or nuisance discharges that may affect either surface water or groundwater.

California Urban Water Management Planning Act

The Urban Water Management Planning Act (California Water Code Sections 10610–10656) requires that all urban water suppliers with at least 3,000 customers prepare UWMPs and update them every 5 years. The act requires that UWMPs include a description of water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions. Specifically, UWMPs must:

- Provide current and projected population, climate, and other demographic factors affecting the supplier's water management planning;
- Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier;
- Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage;
- Describe plans to supplement or replace that source with alternative sources or water demand management measures;
- Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis (associated with systems that use surface water);
- Quantify past and current water use;
- Provide a description of the supplier's water demand management measures, including schedule of implementation, program to measure effectiveness of measures, and anticipated water demand reductions associated with the measures; and
- Assess the water supply reliability.

California Health and Safety Code

Section 64562 of the California Health and Safety Code establishes water supply requirements for service connections to public water systems. Before additional service connections can be permitted, enough water must be available to the public water system from its water sources and distribution reservoirs to adequately, dependably, and safely meet the total requirements of all water users under maximum-demand conditions.

California Senate Bills 610 and 221

Senate Bill (SB) 610 and SB 221 (Water Code § 10910(c)(2)) amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 seek to promote more collaborative planning between local water suppliers and cities and counties by requiring that detailed information regarding water availability be provided to decision-makers prior to approval of specified large development projects. SB 610 requires that detailed information be included in a Water Supply Assessment (WSA), which is then included in the administrative record that serves as the evidentiary basis for an approval action by a city or county. SB 221 requires that the detailed information be included in a verification of water supply. Under SB 610, WSAs must be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in Water Code Section 10912(a)) subject to the California Environmental Quality Act (CEQA). A WSA was included in the CCWD 2015 UWMP that addresses the current and planned future water supply and demand of the water supplier, and makes a determination of the sufficiency of its water supplies existing and planned future uses, including the project site.[25]

California Water Conservation Act

The California Water Conservation Act (SB X7-7) was enacted in November 2009 and requires each urban water supplier to select one of four water conservation targets contained in California Water Code Section 10608.20 with the statewide goal of achieving a 20 percent reduction in urban per-capita water use by 2020. Under SBX7-7, urban retail water suppliers are required to develop water use targets and submit a water management plan to the Department of Water Resources by July 2011. The plan must include the baseline daily per-capita water use, water use target, interim water use target, and compliance daily per-capita water use.

California Model Water Efficient Landscape Ordinance

The California Model Water Efficient Landscape Ordinance was adopted by the California Office of Administrative Law in September 2009, and requires local agencies to implement water efficiency measures as part of its review of landscaping plans. Local agencies can either adopt the Model Water Efficient Landscape Ordinance or incorporate provisions of the ordinance into its own code requirements for landscaping. The County has not adopted a local ordinance.

California Integrated Waste Management Act

To minimize the amount of solid waste that must be disposed of by transformation and land disposal, the State Legislature passed Assembly Bill 939, the California Integrated Waste

[25] Contra Costa Water District (CCWD). 2015. Urban Water Management Plan.

Management Act of 1989 (AB 939), effective January 1990. The legislation required each local jurisdiction in the State to set diversion requirements of 25 percent in 1995 and 50 percent in 2000; established a comprehensive statewide system of permitting, inspections, enforcement, and maintenance for solid waste facilities; and authorized local jurisdictions to impose fees based on the types or amounts of solid waste generated. In 2007, amendments to the California Integrated Waste Management Act introduced a new per capita disposal and goal measurement system that moves the emphasis from an estimated diversion measurement number to using an actual disposal measurement number as a per capita disposal rate factor. As such, the new disposal-based indicator (pounds per person per year) uses only two factors: a jurisdiction's population (or in some cases employment) and its disposal as reported by disposal facilities.

Regional

San Francisco Bay Regional Water Quality Control Board

The San Francisco Bay RWQCB administers the NPDES stormwater permitting program and regulates stormwater in the San Francisco Bay region. Contra Costa County is a permittee under the Phase II NPDES Municipal Stormwater Permit for the Contra Costa Clean Water Program. Stormwater discharges from construction activities on 1 acre or more are regulated by the RWQCB and are subject to the permitting requirements of the NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (General Construction Permit).

The San Francisco Bay RWQCB prepared the San Francisco Bay Basin Water Quality Control Plan (Basin Plan) for San Francisco Bay).[26] The Basin Plan contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the region and describes beneficial uses of major surface waters and their tributaries.

Local

Contra Costa County General Plan

Public Facilities/Services Element

- **Policy 7-5:** The County shall take an active role in coordinating major infrastructure construction within the County, particularly the transportation system network and extension of sewer and water service, to assure consistency of these improvements with the General Plan.
- **Goal 7-F:** To assure potable water availability in quantities sufficient to serve existing and future residents.
- **Goal 7-G:** To encourage the development of locally controlled water supplies to meet the growth needs of the County.
- **Goal 7-H:** To encourage the conservation of water resources available to the County and to the State.
- **Goal 7-I:** To protect and enhance the quality of the water supplied to County residents.
- **Goal 7-J:** To ensure that new development pays the costs related to the need for increased water system capacity.

[26] California Water Boards. 2018. Basin Planning. Website: https://www.waterboards.ca.gov/sanfranciscobay/basin_planning.html. Accessed: March 5, 2019.

- **Policy 7-16:** Water service systems shall be required to meet regulatory standards for water delivery, water storage and emergency water supplies.
- **Policy 7-17:** Water service agencies shall be encouraged to establish service boundaries and to develop supplies and facilities to meet future water needs based on the growth policies contained in the County and cities' General Plans.
- **Policy 7-18:** Water service agencies should generally be discouraged from constructing new water distribution infrastructure which exceeds future water needs based on the buildout projections of the County General Plan and city general plans.
- **Policy 7-19:** Urban development shall be encouraged within the existing water Spheres of Influence adopted by the Local Agency Formation Commission; expansion into new areas within the Urban Limit Line beyond the Spheres should be restricted to those areas where urban development can meet all growth management standards included in this General Plan.
- **Policy 7-21:** At the project approval stage, the County shall require new development to demonstrate that adequate water quantity and quality can be provided. The County shall determine whether (1) capacity exists within the water system if a development project is built within a set period of time, or (2) capacity will be provided by a funded program or other mechanism. This finding will be based on information furnished or made available to the County from consultations with the appropriate water agency, the applicant, or other sources.
- **Policy 7-26:** The need for water system improvements shall be reduced by encouraging new development to incorporate water conservation measures to decrease peak water use.
- **Goal 7-K:** To provide sewer collection, treatment and disposal facilities adequate to meet the current and projected needs of existing and future residents.
- **Goal 7-L:** To provide wastewater treatment that preserves, and to the extent feasible, enhances water quality and the natural environment.
- **Goal 7-M:** To develop wastewater reclamation as a supplement to imported surface water supplies.
- **Goal 7-N:** To assure that new development pays the costs related to the need for increased sewer system capacity.
- **Policy 7-29:** Sewer treatment facilities shall be required to operate in compliance with waste discharge requirements established by the California Regional Water Quality Control Board. Development that would result in the violation of waste discharge requirements shall not be approved.
- **Policy 7-30:** Sewer service agencies shall be encouraged to establish service boundaries and develop treatment facilities to meet future service needs based on the growth policies contained in the County and cities' General Plans.
- **Policy 7-31:** Urban development shall be encouraged within the sewer Spheres of Influence adopted by the Local Agency Formation Commission. Expansion into new areas within the Urban Limit Line but beyond the Spheres of Influence should be restricted to those areas where urban development can meet growth management standards included in this General Plan.
- **Policy 7-33:** At the project approval stage, the County shall require new development to demonstrate that wastewater treatment capacity can be provided. The County shall determine whether (1) capacity exists within the wastewater treatment system if a development project is built within a set period of time, or (2) capacity will be provided by a

funded program or other mechanism. This finding will be based on information furnished or made available to the County from consultations with the appropriate water agency, the applicant, or other sources.

- **Policy 7-37:** The need for sewer system improvements shall be reduced by requiring new development to incorporate water conservation measures which reduce flows into the sanitary sewer system.
- **Goal 7-Q:** To employ alternative drainage systems improvements which rely on increased retention capacity to lessen or eliminate the need for structural modifications to watercourses, whenever economically possible.
- **Goal 7-R:** To enhance opportunities for public accessibility and recreational use of creeks, streams, drainage channels and other drainage system improvements.
- **Goal 7-T:** To ensure that new development pays its fair share of the costs related to increased runoff created by the development.
- **Goal 7-U:** To support the concept that existing development pays the cost of building and maintaining drainage improvements required to serve existing developed areas.
- **Policy 7-38:** Watershed management plans shall be developed which encourage the development of detention basins and erosion control structures in watershed areas to reduce peak stormwater flows, as well as to provide wildlife habitat enhancement.
- **Policy 7-39:** Land use plans and zoning shall be the primary means for floodplain management in preference to structural improvements, where possible.
- **Policy 7-40:** Alternative drainage system improvements such as floodplains, leveed floodways, bypass channels and culverts, and detention basins, shall be incorporated into new flood control plans and existing plans as they are revised.
- **Policy 7-44:** New development should be required to finance its legal share of the full costs of drainage improvements necessary to accommodate projected peak flows due to the project. Reimbursement from subsequent developments, which benefit from the added capacity, may be provided.
- **Policy 7-45:** On-site water control shall be required of major new developments so that no significant increase in peak flows occurs compared to the site's pre-development condition, unless the Planning Agency determines that off-site measures can be employed which are equally effective in preventing adverse downstream impacts expected from the development or the project is implementing an adopted drainage plan.
- **Policy 7-51:** Detention basins shall be designed for multiple uses such as parks and playing fields when not used for holding water, if liability and maintenance issues can be satisfactorily resolved.
- **Policy 7-55:** As appropriate and to the extent allowed by law, assess all new development projects at least $0.35 per square foot of impervious surface created. This drainage fee is to be collected through existing County Flood Control drainage area fee ordinances, newly adopted drainage area fee ordinances, existing and new assessment districts, or other financial entities. The fee may be applied to the cost of any developer-sponsored regional flood control improvements on- or off-site, which mitigate the project's flooding impacts. Regional facilities are defined as systems sized to handle at least 15 cubic feet per second and suitable for public agency maintenance, i.e., 24-inch diameter and larger storm drains.

Contra Costa County Ordinance Code

Title 8 Chapter 82-26—Water Conservation Landscaping in New Developments

The Water Conservation in Landscaping Act was enacted in 2006, requiring the Department of Water Resources to update the Model Water Efficient Landscape Ordinance (MWELO). In 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which required a retail water supplier or a county to adopt the provisions of the MWELO by January 1, 2010, or to enact its own provisions equal to or more restrictive than the MWELO provisions. Since the County did not adopt a new landscape ordinance by January 1, 2010, the project is subject to the MWELO as amended.

Title 9 Division 916—Water and Sewers

Title 9, Division 916, requires that adequate approved water supply system shall be provided to serve all of a proposed subdivision, that landscaping conform to applicable water conservation requirements, and that sewerage shall be provided to a proposed subdivision by a public sanitation district or utility having adequate plant and facility capacity.

Title 10 Division 1010—Drainage

Title 10, Division 1010, is adopted to provide for the implementation of drainage, recreation and riparian vegetation provisions of the general plan, protect watercourse riparian vegetation, permit control of projects that may change the hydraulic characteristics of watercourses and drainage facilities, control erosion and sedimentation, prevent the placement or discharge of polluting matter into watercourses, and require adequate watercourse drainage facilities.

Title 4 Chapter 418-10—Recycling Requirements for Landfill Disposal

Chapter 418-10 of the Contra Costa County Ordinance Code requires waste from the haulers of a local agency to meet minimum resource recovery requirements in order to dispose of solid waste in landfills located in the unincorporated area of the County.

Contra Costa Water District 2015 Urban Water Management Plan

The CCWD prepared the CCWD 2015 UWMP to meet the requirements of the California Urban Water Management Planning Act. The CCWD 2015 UWMP evaluates sources of the water supply for the County's project population and future water demand until 2040, the planning horizon. The CCWD 2015 UWMP is intended to help facilitate implementation of SB 610 and SB 221.

3.17.4 - Impacts and Mitigation Measures

Significance Criteria

According to 2019 CEQA Guidelines Appendix G, to determine whether impacts related to utilities and service systems are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater 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?

Approach to Analysis

Wastewater production was calculated and compared with CCCSD treatment capacity to determine whether wastewater treatment requirements would be exceeded. In addition, the demand for potable water (both with and without use of recycled water) was calculated to assist in determining whether sufficient water supply would be available. The County's wastewater discharge permitting and stormwater requirements were also reviewed.

The following evaluation discusses whether the project would result in direct impacts on utilities and service systems such as existing wastewater and stormwater drainage facilities, water supply, or water treatment facilities. The evaluation also discusses whether the proposed would result in indirect impacts on utilities and services systems, such as construction impacts from new stormwater drainage systems. The analysis involved reviewing published data and material provided by the CCWD, CCCSD, BKF Engineers (BKF), CalRecycle, and Contra Costa County. Impacts related to electric power, natural gas, and telecommunications facilities are addressed in Section 3.7, Energy.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of utilities and service systems impacts resulting from implementation of the project.

- Create a need for relocated, new, or expanded water supply, wastewater treatment, or stormwater drainage facilities, the construction of which would result in significant construction-related traffic, air quality, greenhouse gas (GHG) emissions, energy, or noise impacts. Determination of significance of construction-related traffic, air quality, GHG emissions, or noise impacts is based on the respective specific thresholds of significance listed in Section 3.15 (Transportation), Section 3.2 (Air Quality), Section 3.7 (Greenhouse Gas Emissions), Section 3.5 (Energy), and Section 3.11 (Noise).
- Result in insufficient water supply to serve the project's potable water demand.
- Inadequate capacity at the CCCSD Treatment Plant to serve the project's wastewater generation.
- Insufficient daily capacity or permitted daily capacity of ACME Landfill and Keller Canyon Landfill to serve the project's waste generation.
- Unable to comply with AB 939 solid waste diversion goals.

Impact Evaluation

Water, Wastewater, Stormwater, and Telecommunications Facilities

Impact UTIL-1: The project could require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Construction

Water Supply

The CCWD 2015 UWMP determined that the CCWD has sufficient water supplies to accommodate the anticipated population growth throughout its service area, including the project site. In addition, this project is located in an urbanized area that is currently served by the CCWD and accounted for in the WSA as described in Chapter 7 of the CCWD 2015 UWMP. As discussed under Impact UTIL-2, the project would not create the need for new water facilities or result in insufficient water supply. Thus, there would no need to construct new or expand existing water treatment facilities. Therefore, impacts related to need for relocation or construction of new or expanded water supply facilities would be less than significant.

Wastewater Treatment

Wastewater from the project site would be conveyed to the CCCSD Treatment Facility consistent with standards established by the San Francisco Bay Area RWQCB. The CCCSD published the Comprehensive Wastewater Master Plan in June 2017 that considered the existing and future wastewater treatment and recycled water needs of the County. The Comprehensive Wastewater Master Plan identifies and describes the needed capacity increases and treatment process upgrades needed to accommodate the anticipated future growth within the CCCSD service area. The Comprehensive Wastewater Master Plan determined that the existing facilities comply with regulatory requirements. The Comprehensive Wastewater Master Plan further identified construction upgrades, necessary to comply with anticipated regulatory changes, to the facilities in order to serve the level of growth anticipated in the CCCSD service area.

As described under Impact UTIL-3, the CCCSD Treatment Facility would contain sufficient capacity to serve all aspects of the project, and a new or expanded wastewater treatment facility would not be required. In addition, the Utility Due Diligence Report that analyzed utility capacity for the project site determined that there is sufficient capacity to handle the project's expected wastewater generation.[27] Furthermore, during preparation of the BKF Utility Due Diligence Report, CCCSD was contacted directly to determine if the project would be served by adequate sanitary sewer systems and if sufficient capacity would be available to serve the project. Correspondence with CCCSD confirmed that the existing sanitary sewer system contains sufficient capacity to handle the project's potential wastewater generation.[28]

Wastewater from the project site would consist mostly of wastewater typical of residential units. The project does not propose industrial or commercial use where wastewater pollutant levels or

[27] BKF Engineers. Del Hombre Due Diligence Report, page 22. May 23, 2018.
[28] Russell B. Leavitt, Central Contra Costa Sanitary District (CCCSD). Personal communication with BKF Engineers, letter. May 29, 2018.

wastewater volumes are typically high. Thus, the project would not require or result in the need for expanded or new wastewater treatment facilities. Therefore, impacts related to need for relocation or construction of new or expanded wastewater treatment facilities would be less than significant.

Stormwater Drainage

The project could have a significant impact if it required the construction or expansion of new stormwater drainage facilities. The project site is mostly undeveloped and composed of pervious surfaces. The project site contains two existing single-story residential homes. There is also an unmaintained concrete path with an east-west orientation in the center of the project site that does not connect to anything on the project site. In total, the project site currently contains a total of 4,908 square feet of impervious surface area and 99,625 square feet of pervious surface area.[29]

The project would result in the development of 83,228 square feet of impervious surface area and 21,305 square feet of pervious surface area.[30] Compared to existing conditions, the project would result in an increase of 78,320 square feet of impervious surfaces, with a commensurate increase in stormwater runoff. As a result, the project could result in the need for new or expanded storm drainage facilities, which represents a potentially significant impact.

Implementation of Mitigation Measure (MM) HYD-3 would ensure that the project collects and conveys stormwater entering or originating from the project site consistent with Division 914 of the municipal code. The project proposes to connect to the existing 84-inch public storm drain line running parallel to, and just to the west of Del Hombre Lane in the Iron Horse Regional Trail located within Drainage Area 44B. This drainage area was not designed to take runoff from Drainage Area 44. This is a diversion from the planned watershed, which will require an exception from Division 914 of the County Ordinance code. The applicant has requested this exception. The applicant has provided preliminary capacity calculations indicating that the Drainage Area 44B storm drain line is likely able to handle the additional runoff. The applicant will be required as a condition of any granting of the exception to provide comprehensive hydrology and hydraulic calculations demonstrating that the 84-inch public storm drain line has adequate capacity. If the line does not have adequate capacity, the applicant will be required to construct improvements such that the storm drain line is adequate, which may include an expansion of this stormwater facility. MM HYD-3 would also ensure that the project complies with regulations of the NPDES permit, and that the project applicant prepares and submits a Final Storm Water Control Plan and Stormwater Control Operation and Maintenance Plan to the County Public Works Department for approval. In addition, a Stormwater Pollution Prevention Plan (SWPPP) would be required as part of MM HYD-3, which would minimize flooding and the discharge of pollutants into waterbodies during construction. Therefore, impacts related to the need for relocation or construction of new or expanded stormwater drainage facilities would be less than significant with mitigation.

Telecommunications

There are no telecommunications facilities located on-site. However, the project would not need new telecommunications facilities because it is located in an urban area that already contains

[29] BKF Engineers. Del Hombre Due Diligence Report, page 22. May 23, 2018.
[30] *Ibid*.

sufficient telecommunications facilities. Therefore, impacts related to need for relocation or construction of new or expanded telecommunications facilities would be less than significant.

Operation

Impacts related to the need for relocation or construction of new or expanded water supply, wastewater treatment, stormwater drainage, or telecommunications facilities are limited to construction impacts. No respective operational impacts would occur.

Level of Significant Before Mitigation

Potentially Significant

Mitigation Measures

Implement MM HYD-3

Level of Significance

Less Than Significant with Mitigation

Water Supply

Impact UTIL-2:	**The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.**

Construction

Impacts related to sufficient water supplies are limited to operational impacts. No respective construction impacts would occur.

Operation

Water supply would be provided to the project site by CCWD. The project consists of 284 residential units. According to the California Department of Finance, unincorporated Contra Costa County has an average of 2.88 persons per household. Using this figure as a multiplier, the project would add approximately 818 persons to the population of Contra Costa County. The Utility Due Diligence Report provided a water demand rate of 185 gallons per day per person.[31,32] Using this rate, the project would generate an estimated water demand of 151,330 gallons per day and 55.23 million gallons per year. On an annual basis, this equates to 168.96 acre-feet.[33] The CCWD 2015 UWMP indicates that the total planned water supply in 2020 is anticipated to be 228,000 acre-feet.[34] Thus, the project water demand would represent less than one percent of the project water supply totals forecasted for year 2020. Additionally, the CCWD 2015 UWMP determined that CCWD would have adequate water supplies to serve all customers in its service area during normal, dry, and multiple

[31] The San Francisco Public Water Resources Division Annual Report 2013–2014 estimates average residential water usage to be 49 gallons per person per day which more closely resembles the high-density residential use of the project. However, as a more conservative estimate, this EIR assumes 185 gallons per person per day to account for the total increase in water demand associated with the project within the County.
[32] San Francisco Public Utilities Commission Water. 2014. Resources Division Annual Report Fiscal Year 2013–2014.
[33] This numbers subtract account for the existing water usage.
[34] Contra Costa Water District (CCWD). CCWD 2015 Urban Water Management Plan.

dry years through 2040.[35] Accordingly, adequate water supplies would be available to serve the project from existing and planned supplies. Therefore, impacts related to sufficient water supply availability would be less than significant.

Level of Significance

Less Than Significant

Wastewater Treatment Capacity

Impact UTIL-3:	**The project would not result in a determination by the wastewater treatment provider, which serves or may serve the project, that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.**

Construction

Impacts related to adequate wastewater treatment capacity are limited to operational impacts. No respective construction impacts would occur.

Operation

The project could have a significant impact if the wastewater treatment provider would not have sufficient capacity to serve the proposed new uses in addition to the provider's existing commitments.

The Utility Due Diligence Report determined that wastewater demand would be taken as 95 percent of the average daily water demand. As a result, 95 percent of the project's water demand, 40,082 gallons per day, is 38,078 gallons of wastewater per day, which would result in project wastewater generation of 37,607.41 when accounting for the wastewater generated by the existing residencies. On an annual basis, this amounts to 13.73 million gallons of wastewater. The wastewater would be treated at the CCCSD Treatment Plant, which has a treatment capacity of approximately 54 mgd and approximately 270 mgd of wet-weather flow by the year 2035.[36] The CCCSD Treatment Plant currently treats an average daily dry-weather flow of 34 mgd and estimates to treat 41 average daily dry-weather flow by 2035. As a result, the project's estimated wastewater generation would be less than one percent of the total capacity of the CCCSD Treatment Plant. Thus, the project would not result in a need for new or expanded wastewater treatment facilities. Therefore, impacts related to wastewater treatment capacity would be less than significant.

Level of Significance

Less Than Significant

[35] Contra Costa Water District (CCWD). CCWD 2015 Urban Water Management Plan, page 7-10. June 2016.
[36] Central Contra Costa Sanitary District (CCCSD). 2017. Comprehensive Wastewater Master Plan.

Landfill Capacity

Impact UTIL-4: The project would not 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.

Construction

During the project's construction phase, the two existing residences would be demolished, which would in turn result in construction-related solid waste. The project would be required to comply with Ordinance Code Chapter 418, which requires proper disposal of solid waste. Construction of the project would generate an estimated 2,266 tons of solid waste.[37] The Keller Canyon Landfills (KCL) would serve as the solid waste disposal site for the project. Keller Canyon has a maximum permitted throughput of 3,500 tons per day and a remaining capacity of 52.5 million tons. Construction waste generated by the project would account for less than one percent of the total permitted capacity of this landfill and contains sufficient capacity to serve the project until their estimated closure dates.[38,39] Assuming KCL receives the maximum daily tonnage permitted, there is approximately 40 years of remaining space left. Therefore, construction impacts related to landfill capacity would be less than significant.

Operation

RecycleSmart would provide operational solid waste collection services for the project site. Daily and annual operational solid waste generation estimates for the project are provided in Table 3.17-2. Operational solid waste generation for the project was calculated using standard waste generation rates provided by CalRecycle.

Table 3.17-2: Project Operational Solid Waste Generation

Land Use	Size	Approximate Waste Generation Rate	Approximate Waste Generation	
			Daily Total (tons)	Annual Total (tons)
Residential	284 units	10 pounds/unit/day	1.42	518.3

Notes:
Source: California Department of Resources Recycling and Recovery (CalRecycle). 2015. Estimated Solid Waste Generation. Website: https://www2.calrecycle.ca.gov/wastecharacterization/general/rates. Accessed December 17, 2018.

The proposed residential units are estimated to generate a total of approximately 518.3 tons or 725.6 cubic yards of solid waste on an annual basis. This waste volume represents less than 0.01 percent of the available landfill capacity in Contra Costa County. Moreover, the values shown in the table are not adjusted to account for recycling, composting and waste reduction activities that would further divert

[37] Email communications with DCD staff and Keller Canyon Landfill Engineer. July 20, 2018.
[38] California Department of Resources Recycling and Recovery (CalRecycle). 2019. Solid Waste Information System (SWIS) Facility Detail, Keller Canyon Landfill. Accessed February 15, 2019. Website: https://www2.calrecycle.ca.gov/SWFacilities/Directory/07-AA-0032/Detail/.
[39] California Department of Resources Recycling and Recovery (CalRecycle). 2019. Solid Waste Information System (SWIS) Facility Detail, ACME Landfill. Accessed February 26, 2019. Website: https://www2.calrecycle.ca.gov/SWFacilities/Directory/07-AA-0002/Detail/.

waste from landfills (as required by compliance with Ordinance Code 418-10—Recycling Requirements for Landfill Disposal), which means that the above-referenced figures are conservative and may over estimate the amount of solid waste to be generated by operation of the project.

As a result, the project represents less than 1 percent of the total capacity of KCL, which contains sufficient capacity to serve the project. Therefore, operational impacts related to landfill capacity would be less than significant.

Level of Significance

Less Than Significant

Solid Waste Regulations Consistency

Impact UTIL-5:	**The project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste.**

Construction

The project would be required to comply with the County's Municipal Code Title 4 Division 418-2.028 related to solid waste reduction and recycling measures. These measures would ensure compliance with the Integrated Waste Management Act by ensuring project construction waste is transferred to facilities that can adequately recycle solid waste. Thus, with compliance with existing County Municipal Code and the Integrated Waste Management Act, the project would comply with applicable solid waste regulations and statutes. Therefore, impacts related to solid waste regulations consistency are less than significant.

Operation

Project operation would be required to comply with applicable State and local regulations related to solid waste such as the California Integrated Waste Management Act and Title 4 Chapter 418 of the Contra Costa County Municipal Code. Adherence to the County Municipal Code would ensure sufficient solid waste collection and transportation is available to the project, and would also ensure that disposal sites contain sufficient capacity through permit review and inspections, and recycling programs are implemented in order to divert waste. As such, project operation would not impede the ability of the County to meet waste diversion requirements or cause the County to violate State and local statutes and regulations related to solid waste. Therefore, with compliance with existing State and County law requiring recycling and waste diversion from landfill requirements, operational impacts related to solid waste regulations consistency would be less than significant.

Level of Significance

Less Than Significant

3.17.5 - Cumulative Impacts

Water

The geographic scope of the cumulative potable water analysis is the service area of the CCWD, which provides potable water to residents and businesses within the County. The CCWD considered

the existing capacity and future demand for capacity to determine needed updates to water facilities. In the course of preparing the UWMP, the CCWD estimated water demand of future development in the service area and forecast the needed facility upgrades. The forecast included supply facility upgrades needed to accommodate growth in the County.

Cumulative projects listed in Table 3-1 (refer to Chapter 3, Environmental Impacts Analysis, Table 3-1, Cumulative Projects) are located within the CCWD service area and would create water supply demand. The CCWD 2015 UWMP determined that CCWD would be able to provide adequate water supplies to the County and cumulative projects area.[40] The County would have adequate water supplies to serve the cumulative projects during normal and dry years.[41] In addition, cumulative projects listed in Table 3-1, would be required to comply with provisions of the County Code and California Green Building Code related to water conservation. Therefore, the project, in conjunction with identified cumulative projects in Contra Costa County, would result in a less than significant cumulative impact related to water supply and water supply facilities.

Wastewater

The geographic scope of the cumulative wastewater analysis is the service area of CCCSD, which provides wastewater collection and treatment services for contracted cities and residents and business in unincorporated County land. The CCCSD considered the existing capacity and future demand for capacity to determine needed updates to wastewater and recycled water facilities. In the course of preparing the Comprehensive Wastewater Master Plan, CCCSD estimated wastewater generated from future development in the service area and forecast the needed facility upgrades. The forecast included treatment facility upgrades needed to accommodate growth in the County and maintain compliance with applicable regulatory standards for wastewater treatment and discharge.

Cumulative projects listed in Table 3-1 are located in the CCCSD service area and would generate volumes of wastewater. The Comprehensive Wastewater Master Plan determined that capacity exists to service the County and cumulative projects area demand with respect to wastewater treatment facilities. Therefore, the project, in conjunction with identified cumulative projects in Contra Costa County would result in a less than significant cumulative impact related to wastewater generation and wastewater treatment facilities.

Storm Drainage

The geographic scope for cumulative storm drainage is the areas that drain to the Contra Costa County Flood Control and Water Conservation District's storm Drainage Area 44B, which would also accommodate the project's storm drainage, pursuant to Contra Costa County Ordinance Code, Title 9 Division 914.

Cumulative projects listed in Table 3-1 predominantly consist of commercial and non-residential uses located in unincorporated Contra Costa County, the City of Walnut Creek, or the City of Pleasant Hill that generate volumes of stormwater. Of the projects listed in Table 3-1, only two appear to be located within Drainage Area 44B. Cumulative Project 1, the Avalon Bay residential project, is

[40] Contra Costa Water District (CCWD). CCWD 2015 Urban Water Management Plan, page 7-1.
[41] *Ibid*.

currently under construction at the Pleasant Hill BART Station area; Cumulative Project 2, the Avalon Walnut Creek office building, is planned for construction at the Pleasant Hill BART Station area; both of these projects are consistent with the land uses assumed as part of the Pleasant Hill BART Station Specific Plan. Construction of these projects, in conjunction with the project, are therefore already accounted for as part of the formation of Drainage Area 44B; as noted in this chapter, the project may be required to construct improvements such that the storm drain line is adequate, which may include an expansion of this stormwater facility to ensure that adequate capacity is maintained. Therefore, the project, in conjunction with the construction of other projects within Drainage Area 44B, would not result in a significant cumulative impact related to stormwater generation and stormwater drainage facilities.

Solid Waste

RecycleSmart, a joint powers authority oversees regional waste diversion programs and contracts for the solid waste recycling collection services provided within this area of the County. Cumulative projects listed in Table 3-1 consist predominantly of residential uses and would generate solid waste that would increase demand on solid waste facilities to receive, process, and dispose solid waste.

As described previously, Keller Canyon Landfill has a remaining capacity of 52.5 million tons, which translates to approximately 40 years of remaining air space.[42] The anticipated waste volume of cumulative projects development would be 3,531.41 cubic yards per year that represents less than one percent of the landfill's maximum permitted capacity.[43] Existing solid waste facilities provide sufficient capacity to serve cumulative development anticipated in the County. Therefore, the project, in conjunction with identified cumulative projects, would result in a less than significant cumulative impact related to solid waste generation and landfill capacity.

Level of Significance

Less Than Significant

[42] Email communications with DCD staff and Keller Canyon Landfill Engineer. July 20, 2018.
[43] California Department of Resources Recycling and Recovery (CalRecycle). 2019. Estimated Solid Waste Generation. Website: https://www2.calrecycle.ca.gov/wastecharacterization/general/rates. Accessed December 17, 2018.

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3.18 - Wildfire

3.18.1 - Introduction

This section describes the existing wildfire conditions in the project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to wildfire that could result from implementation of the project. Information in this section are based on information provided by the Contra Costa County General Plan, Bay Area Air Quality Management District (BAAQMD), and the Contra Costa County Fire Protection District (CCCFPD). No public comments were received during the Environmental Impact Report (EIR) scoping period related to wildfire.

3.18.2 - Existing Setting

Wildfire Hazard Area Designations

Contra Costa County

The northwestern, southern, and eastern areas in Contra Costa County are located in Fire Hazard Severity Zones. In general, the majority of these areas are designated "High" fire hazard severity zones with areas of significant elevation change, such as Mount Diablo State Park and Briones Regional Park.[1] Prevailing winds in the County tend to travel in a south to southwest direction.[2]

Project Site

The project site is not located in a "Fire Hazard Severity Zone" in a State responsibility area or a "Very High Fire Hazard" in a local, State, or federal responsibility area.[3,4] The closest designated "High" fire hazard zone is located approximately 3.5 miles to the southeast of the project site. The closest BAAQMD air data monitoring station is located in the City of Concord, approximately 1.53 miles to the northeast. The average wind speed in Concord in 2018 ranged from 2 to 5 miles per hour (mph) and the highest hourly wind speed ranged from 10 to 17 mph.[5,6]

Wildfire-conducive Conditions

Grassland or other vegetation in California is easily ignited, particularly in dry seasons. Wildfire is a serious hazard in high dry fuel load areas, particularly near areas of natural vegetation and steep slopes, since fires tend to burn more rapidly on steeper terrain. Wildfire is also a serious hazard in areas of high wind, given that fires will travel faster and farther geographically when winds are

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1 California Department of Forestry and Fire Protection (CAL FIRE) Resource and Assessment Program. 2019. Fire Hazard Severity Zone Viewer. Website: http://egis.fire.ca.gov/FHSZ/. Accessed February 26, 2019.

2 Bay Area Air Quality Management District (BAAQMD). Air Monitoring Data. Website: http://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data?DataViewFormat=yearly&DataView=met&StartDate=2/19/2019&ParameterId=204. Accessed February 19, 2019.

3 California Department of Forestry and Fire Protection (CAL FIRE) Resource and Assessment Program. 2019. Fire Hazard Severity Zone Viewer. Website: http://egis.fire.ca.gov/FHSZ/. Accessed February 26, 2019.

4 State of California. 2012. California Fire Prevention Fee. Website: http://www.fire.ca.gov/firepreventionfee/sraviewer_launch. Accessed January 29, 2019.

5 Bay Area Air Quality Management District (BAAQMD). Air Monitoring Data. Website: http://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data?DataViewFormat=yearly&DataView=met&StartDate=12/11/2017&ParameterId=203&StationId=4902. Accessed September 28, 2018.

6 Bay Area Air Quality Management District (BAAQMD). Air Monitoring Data. Website: http://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data?DataViewFormat=yearly&DataView=met&StartDate=2/19/2019&ParameterId=204. Accessed February 19, 2019.

higher. Furthermore, wildfire is more likely in areas where electric power lines are located above ground where they can come into contact with either vegetation or building materials.

Land uses in Contra Costa County range from rural, agricultural, and open space to urban and developed. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone Map, much of Contra Costa County is located in a Moderate, High, and Very High Fire Hazard Zone due to the mountainous terrain and natural vegetation. In particular, areas near open space areas, such as Mount Diablo State Park, Briones Regional Park, and Tilden Regional Park, are located in "High" and "Very High" fire hazard zones. In general, the average wind speed in Contra Costa County ranges from 2 to 5 mph and blows to the southwest.[7] Electric power lines mostly occur in urban areas and along roadways. Natural gas pipelines occur frequently across Contra Costa County, including residential and commercial areas. Natural gas poses a lower risk of causing a fire than petroleum products because it is transported at lower pressures and when released, rises and dissipates into the atmosphere.[8]

Project Site

The project is located in the central portion of Contra Costa County and is adjacent to the City of Walnut Creek. The project site is primarily undeveloped and contains grassland and other vegetation that is dry in summer and autumn months. The project site is relatively flat with little to no slopes and is located in an urbanized area surrounded by development, such as apartments and a Bay Area Rapid Transit (BART) station. According to the CAL FIRE, the project site is not located within a designated "Fire Hazard Severity Zone in a State Responsibility Area" or "Very High Fire Hazard Severity Zone in a Local Responsibility Area."[9] Prevailing winds near the project site have been recorded in the southwest direction with an average speed of 2 to 5 mph.[10] Electric power lines are located directly across Del Hombre Lane from the project site and run along the Iron Horse Trail.

Emergency and Evacuation Routes/Access

Contra Costa County

The Contra Costa County Office of the Sheriff: Emergency Services Division is responsible for planning, outreach, and training or disaster management and emergency preparedness throughout the County.[11] The Contra Costa County General Plan establishes a 5-minute response time standard for responding to fire protection calls for service. Within Contra Costa County, the main routes into and out of the County that would most likely be used as evacuation routes are Interstate 80 (I-80), I-680, and I-580, as well as State Route 4 (SR-4) and SR-24.

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[7] Bay Area Air Quality Management District (BAAQMD). Air Monitoring Data. Website: http://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data?DataViewFormat=yearly&DataView=met&StartDate=2/19/2019&ParameterId=204. Accessed February 19, 2019.

[8] Contra Costa County. Contra Costa County General Plan, Safety Element, page 10-37.

[9] California Department of Forestry and Fire Protection (CAL FIRE). Contra Costa County FHSZ Maps. Website: http://www.fire.ca.gov/fire_prevention/fhsz_maps_contracosta. Accessed February 8, 2019.

[10] Bay Area Air Quality Management District (BAAQMD). Air Monitoring Data. Accessed February 19, 2019. Website: http://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data?DataViewFormat=yearly&DataView=met&StartDate=2/19/2019&ParameterId=204.

[11] Contra Costa County Office of the Sheriff. 2018. Website: http://www.cocosheriff.org/bureaus/support_services/emergency.htm.

Project Site

The Contra Costa County Office of the Sheriff: Emergency Services Division is responsible for planning, outreach, and training or disaster management and emergency preparedness for the project site.[12] Using an average travel speed of 35 miles per hour, a fire engine would be able to reach construction areas at the project site in 2 minutes and 45 seconds, which is under the 5-minute response standard set by the Contra Costa County General Plan.[13] Near the project site, the most likely evacuation route would be Treat Boulevard (in the east/west direction) and I-680 (in the north/south direction).

Post-fire Slope Instability and Drainage Pattern Changes

Slope instability from wildfire scarring of the landscape can result in slope instability in the form of more intensive flooding and landslides. These post-fire slope soils and altered drainage patterns can more easily creep away downslope sides of foundations and reduce lateral support.

Contra Costa County

The major post-wildfire hazards in Contra Costa County are unstable hill slopes and altered drainage patterns. Slopes may suffer landslides, slumping, soil slips, and rockslides. Contra Costa County's General Plan historically have recognized that major slope areas in excess of 26 percent are "not readily developable" and "undevelopable," recognizing the cost and engineering difficulties of grading steep slopes as well as their inherent unsuitability.[14] Figure 10-6 of the Contra Costa County General Plan shows Landslide Hazards in Contra Costa County. The most recent fire in Contra Costa County is the Alhambra Fire (off SR-4 and Alhambra Avenue in the City of Martinez, 2019). This fire was located approximately 6 miles to the northwest of the project site.

Project Site

According to Figure 10-6 of the Contra Costa County General Plan, the project site is not located on a site susceptible to landslides or an area where landslides previously occurred. In addition, the drainage pattern on the project site has not been previously altered due to a fire event and generally drains toward Roble Road or Del Hombre Lane. Furthermore, wildfire has not previously occurred on the project site.

3.18.3 - Regulatory Framework

Federal

United States Department of Interior

Review and Update of the 1995 Federal Wildland Fire Management Policy

1. **Safety—**Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment
2. **Fire Management and Ecosystem Sustainability—**The full range of fire management activities will be used to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components

[12] Contra Costa County Office of the Sheriff. 2018. Website: http://www.cocosheriff.org/bureaus/support_services/emergency.htm.
[13] Contra Costa County General Plan. 2005.
[14] Contra Costa County. General Plan 2025, page 10-22.

3. **Response to Wildland Fire—**Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fire is based on ecological, social, and legal consequences of the fire. The circumstances under which a fire occurs, and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected dictate the appropriate management response to the fire.
4. **Use of Wildland Fire—**Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions contained in operational plans.
5. **Rehabilitation and Restoration—**Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, and safety, and to help communities protect infrastructure.
6. **Protection Priorities—**The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected.
7. **Wildland Urban Interface—**The operational roles of federal agencies as partners in the Wildland Urban Interface are wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, State, or local governments. Federal agencies may assist with exterior structural protection activities under formal Fire Protection Agreements that specify the mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer, and may also enter into formal agreements to assist State and local governments with full structural protection.)
8. **Planning—**Every area with burnable vegetation must have an approved Fire Management Plan. Fire Management Plans are strategic plans that define a program to manage wildland and prescribed fires based on the area's approved land management plan. Fire Management Plans must provide for firefighter and public safety; include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objectives, activities of the area, and environmental laws and regulations.
9. **Science—**Fire Management Plans and programs will be based on a foundation of sound science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical, and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, Fire Management Plans, and implementation plans.

10. **Preparedness—**Agencies will ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment, and management oversight.
11. **Suppression—**Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.
12. **Prevention—**Agencies will work together and with their partners and other affected groups and individuals to prevent unauthorized ignition of wildland fires.
13. **Standardization—**Agencies will use compatible planning processes, funding mechanisms, training and qualification requirements, operational procedures, values-to-be-protected methodologies, and public education programs for all fire management activities.
14. **Interagency Cooperation and Coordination—**Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners.
15. **Communication and Education—**Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be continuously improved through the timely and effective exchange of information among all affected agencies and organizations.
16. **Agency Administrator and Employee Roles—**Agency administrators will ensure that their employees are trained, certified, and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operational, administrative, or other skills will support the wildland fire program as necessary. Agency administrators are responsible and will be held accountable for making employees available.
17. **Evaluation—**Agencies will develop and implement a systematic method of evaluation to determine effectiveness of projects through implementation of the 2001 Federal Fire Policy. The evaluation will assure accountability, facilitate resolution of areas of conflict, and identify resource shortages and agency priorities.

State

California Emergency Response Plan

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Responding to hazardous-materials incidents is one part of this plan. The plan is administered by the California Governor's Office of Emergency Services, which coordinates the responses of other agencies. When Contra Costa County experiences an emergency, an Emergency Operations Center may be opened. In the event an Emergency Operations Center is opened, emergency response team members coordinate efforts and work with local fire and police agencies, emergency medical providers, the California Highway Patrol, CAL FIRE, California Department of Fish and Wildlife, and California Department of Transportation (Caltrans).

California Department of Forestry and Fire Protection Threat Potential Mapping

CAL FIRE has mapped fire threat potential throughout California. CAL FIRE maps fire threat based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The threat levels include no fire threat, moderate, high, and very high fire threat. Further, the maps designate the City of Pleasant Hill as the Local Responsibility Area of the project site. Additionally, CAL FIRE produced a 2010 Strategic Fire Plan for California, which contains goals, objectives, and policies to prepare for and mitigate the effects of fire on California's natural and built environments. The CAL FIRE Office of the State Fire Marshal provides oversight of enforcement of the California Fire Code as well as overseeing hazardous liquid pipeline safety.

California Building Code

The State of California provided a minimum standard for building design through the 2016 California Building Standards Code (CBC), which is located in Part 2 of Title 24 of the California Code of Regulations. The 2016 CBC is based on the 2015 International Building Code, but has been modified for California conditions. It is generally adopted on a jurisdiction by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local City and County building officials for compliance with the CBC. Typical fire safety requirements of the CBC include the installation of sprinklers in all new high-rise buildings and residential buildings; the establishment of fire resistance standards for fire doors, building material; and particular types of construction.

California Public Resources Code

The California Public Resources Code (PRC) includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors[15] on construction equipment that use an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided on-site for various types of work in fire-prone areas.

These regulations include the following:

- Earthmoving and portable equipment with internal combustion engines would be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC § 4442);
- Appropriate fire suppression equipment would be maintained during the highest fire danger period—from April 1 to December 1 (PRC § 4428);
- On days when a burning permit is required, flammable materials would be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor would maintain the appropriate fire suppression equipment (PRC § 4427); and
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines would not be used within 25 feet of any flammable materials (PRC § 4431).

[15] A spark arrestor is any device that prevents the emission of flammable debris from a combustion source (i.e. fireplaces, internal combustion engines, and wood burning stoves).

Regional

Association of Bay Area Governments Hazard Mitigation Plan

The Association of Bay Area Governments (ABAG) multijurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area was updated in 2010 in partnership with the Bay Conservation and Development Commission (BCDC) Adapting to Rising Tides Program to support local governments in the regional plan for existing and future hazards of climate change. This detailed 5-year plan identifies potential natural and human-made hazards, assesses their potential risks, and includes mitigation methods to reduce risks. The potential hazards identified in the plan include earthquakes and liquefaction, wildfires, floods, drought, solar storms, dam or levee failure, disease outbreak, freezes, wind, heat, thunder and lightning storms, siltation, tornadoes, hazardous materials, slope failure and mudflows, and other hazards. Similarly, mitigation measures include hazard event planning, emergency preparedness coordination, education, facility upgrades, and monitoring actions.

Contra Costa County Hazard Mitigation Plan

The Contra Costa County Hazard Mitigation Plan (HMP) contains goals and objectives that are intended to reduce loss of life and property from natural disasters.[16] During the planning process this plan used Federal Emergency Management Agency (FEMA) tools to determine the most likely possible threats would be earthquakes, flooding, landslides, tsunamis, and wildfires in urban interface zones. The HMP identifies mitigation action items that aim to meet objectives and reduce the impacts of these hazards. The Contra Costa County Office of Emergency Services and Contra Costa County Department of Conservation and Development share the lead responsibility for overseeing the plan implementation and maintenance strategy. Plan implementation and evaluation will be a shared responsibility among all planning partnership members and agencies identified as lead agencies in the mitigation action plans.

Contra Costa Emergency Operations Plan

The purpose of the Contra Costa Emergency Operations Plan is to provide the basis for a coordinated response before, during and after an emergency affecting Contra Costa County.[17] The emergency operations plan identifies and facilitates inter-agency coordination in emergency operations. The Plan applies to all emergencies in unincorporated areas of Contra Costa County and within incorporated areas when those emergencies require multi-agency coordination at the operational area level.

Local

Contra Costa County General Plan

Public Facilities/Services Element

The Contra Costa County General Plan establishes the following goals and policies related to wildfire hazards that are related to this analysis:

Wildland Fires

- **Goal 7-AA:** To incorporate requirements for fire-safe construction into the land use planning and approval process.

[16] Tetra Tech. 2018. Contra Costa County Hazard Mitigation Plan.
[17] Contra Costa County. 2015. Emergency Operations Plan.

- **Goal 7-AD:** To provide special fire protection for high-risk land uses and structures.
- **Policy 7-64:** New development shall pay its fair share of costs for new fire protection facilities and services.
- **Policy 7-66:** Sprinkler systems may be required in new residential structures, where necessary to protect health, safety and welfare.
- **Policy 7-80:** Wildland fire prevention activities and programs such as controlled burning, fuel removal, establishment of fire roads, fuel breaks and water supply, shall be encouraged to reduce wildland fire hazards.
- **Policy 7-81:** All structures located in Hazardous Fire Areas, as defined in the Uniform Fire Code, shall be constructed with fire-resistant exterior materials, such as fire safe roofing, and their surroundings are to be irrigated and landscaped with fire-resistant plants, consistent with drought resistance and water conservation policies.
- **Implementation Measure 7-at:** The Conservation and Development Department shall include fire agency code requirements requested by the districts as advisory notes to the applicant within proposed conditions of project approval when the Planning Agency is considering subdivisions, development plans, use permits and other entitlement requests.
- **Implementation Measure 7-au:** Fire protection agencies shall be afforded the opportunity to review projects and submit conditions of approval for consideration to determine whether:
  - There is an adequate water supply for fire fighting
  - Road widths, road grades and turnaround radii are adequate for emergency equipment; and
  - Structures are built to the standards of the Uniform Building Code, the Uniform Fire Code, other State regulations, and local ordinances regarding the use of fire-retardant materials and detection, warning and extinguishment devices.
- **Policy 10-89:** Every high-rise building shall be designed and constructed to provide for the evacuation of occupants and/or for the creation of a safe environment in case of a substantial disaster, such as a severe earthquake or fire.

3.18.4 - Impacts and Mitigation Measures

According to the 2019 CEQA Guidelines Appendix G Environmental Checklist, to determine whether wildfire impacts would be considered significant from implementation of the project, the following questions are analyzed and evaluated. 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?

Approach to Analysis

The project site is not located in a "Fire Hazard Severity Zone" in a State responsibility area or a "Very High Fire Hazard" in a local, State, or federal responsibility area. The closest designated "High" fire hazard zone is located approximately 3.5 miles to the southeast of the project site. The closest BAAQMD air data monitoring station is located in Concord, approximately 1.53 miles to the northeast. Prevailing winds at this station have been recorded in the southwest direction with an average speed of 2-5 mph with maximum wind speeds of 14-17 mph.[18]

As the project site is located more than 3 miles from a State responsibility area or lands classified as very high fire hazard severity zones, this evaluation focuses on whether the project would result in changes to the physical environment that would cause or exacerbate adverse effects related to wildfires or whether the project would be placed in a location susceptible to wildfire or post-wildfire conditions. The evaluation also includes a determination of whether the changes to the physical environment caused by the project would impair or interfere with emergency response plans, expose people to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, expose people/structures to downslope flooding or landslides, or include the installation or maintenance of infrastructure that may exacerbate fire risk. The following analysis is based, in part, on information provided by the Contra Costa County General Plan, CAL FIRE website, and correspondence with CCCFPD.

Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of wildfire impacts resulting from implementation of the project.

- Impaired implementation of or interference with an adopted emergency response plan or emergency evacuation plan via blockage of an evacuation route or provision of only one access point for emergency vehicles.
- Location in or near area of steep slopes, high-wind areas, or historical wildfire burn areas leading to greater wildfire risk and, thereby, exposing project occupants to smoke and other wildfire-related air pollutants.
- Installation or maintenance of roads, fuel breaks, emergency water sources, electrical power lines, or natural gas lines that may exacerbate fire risk.
- Location in or near area of wildfire-scarred slopes or altered drainage areas and, thereby, exposing project occupants to flooding and landslide hazards.

[18] *Ibid.*

Impact Evaluation

Emergency Response/Evacuation Plan Consistency

Impact WILD-1: The project would not substantially impair an adopted emergency response plan or emergency evacuation plan.

Construction

During construction, it is expected that construction equipment and vehicles would be accessing and leaving the project site, which in turn could potentially impede evacuation or emergency vehicle access. However, as discussed under Impact TRANS-5 and Impact HAZ-6, the project would result in less than significant impacts related to emergency vehicle access. In addition, the project would be in compliance with the Contra Costa County Emergency Plan, ensuring efficient response to emergency incidents associated with emergencies affecting Contra Costa County. Furthermore, blockage of an evacuation route would not occur during project construction because the project would not result in road closures to either Treat Boulevard or Interstate 680 (I-680), the most likely evacuation routes from the project site. Therefore, construction impacts related to emergency response/evacuation plan consistency would be less than significant.

Operation

As indicated in Section 3.13, Public Services, Impact PUB-1, and PUB-2, and Section 3.8, Hazards and Hazards Materials, Impact HAZ-6, the project would be adequately served by police and fire services, including respective evacuation or emergency vehicle access. The project would not create a permanent increase in population unaccounted for in the Contra Costa County General Plan that could lead to overwhelming call for emergency services. In addition, the project would be designed in accordance with the County's standards to accommodate emergency vehicle access by providing two points of access to the project site that would be available to emergency vehicles. Furthermore, blockage of an evacuation route would not occur during project operation because the project would not result in road closures to either Treat Boulevard or I-680, the most likely evacuation routes from the project site. With adherence to Contra Costa County General Plan Policies 7-64, 7-66, 7-80, as well as Implementation Measure (IM) 7-at, IM 7-au, and Policy 10-89 that set forth recommendations and requirements related to development fees, installation of sprinkler systems, wildland fire prevention activities, review of project by fire agencies, and creation of a safe environment in the case of substantial disaster, the project would not conflict with the Emergency Operations Plan or Contra Costa County General Plan Safety Goals. Therefore, operational impacts related to emergency response/evacuation plan consistency would be less than significant.

Level of Significance

Less Than Significant

Expose Project Occupants to Pollutant Concentrations from Wildfire

Impact WILD-2: Due to slope, prevailing winds, and other factors, the project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Construction

Impacts related to exposure of project occupants to pollutants concentrations from wildfire are limited to operational impacts. No respective construction impacts would occur.

Operation

The project site is located in the central portion of Contra Costa County and adjacent to the City of Walnut Creek. The area surrounding the project site consists of urban development without steep terrain or unmanaged open space areas prone to wildfires. The closest open space area is located approximately five miles to the east of the project site. The BAAQMD monitors the Bay Area's air quality at a number of stations. The closest station to the project site is located in Concord, approximately 1.53 miles to the northeast. According to the BAAQMD, the average wind speed in Concord in 2018 ranged from 2 to 5 mph and the highest hourly wind speed ranged from 10 to 17 mph.[19] In addition, the project site has not previously experienced wildfire. Given that the project site is not located in or near an area of steep terrain or historical wildfire burn nor experiences consistent high winds, the project site would be not be prone to greater wildfire risk.

According to CAL FIRE, the project site is not located in a Severe or Very High Fire Hazard Severity Zone. The closest designated "High" fire hazard zone is located approximately 3.5 miles to the southeast of the project site. In addition, as indicated in Section 3.13, Public Services, Impact PUB-1 and PUB-2, the project would be adequately served in terms of fire protection services by CCCFPD. The CCCFPD was contacted in order to receive their input on the project's wildfire risks. The CCCFPD Fire Prevention Captain determined that the project would not be exposed to wildfire risks.[20] Furthermore, project structures would be required to comply with the California Fire Code with regard to emergency/fire access and use of building materials that would limit the spread of wildfire to the greatest extent possible. Therefore, impacts related to exposure of project occupants to pollutant concentrations from a wildfire or uncontrolled spread of wildfire would be less than significant.

Level of Significance

Less Than Significant

[19] Bay Area Air Quality Management District (BAAQMD). Air Monitoring Data. Website: http://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data?DataViewFormat=yearly&DataView=met&StartDate=12/11/2017&ParameterId=203&StationId=4902. Accessed September 28, 2018.

[20] Contra Costa County Fire Protection District (CCCFPD). 2019. Email Correspondence with Tracie Dutter, Fire Prevention Captain. January 18, 2019.

Infrastructure That Exacerbates Fire Risk

Impact WILD-3: The project would not 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.

Construction

Impacts related to installation or maintenance of infrastructure (such as roads, fuel breaks, emergency water sources, electrical power lines, or natural gas lines) that may exacerbate fire risk are limited to operational impacts. No respective construction impacts related to infrastructure that exacerbates fire risk would occur.

Operation

The project would include adequate emergency access via existing roads at two access points. The project site is located in an urban area surrounded by existing roadways. The project would not require the installation of firebreaks, because it is in an urban area surrounded by existing development with little natural vegetation. The project would not require emergency water sources, because potable water is currently provided by the Contra Costa Water District, which has adequate water supplies available to serve the project and future development during normal, dry, and multiple dry years. New electrical power and natural gas lines on and connecting to the project site would be installed below ground, minimizing potential ignition and related fire risk above ground, at the project site according to the California Building Code, Uniform Fire Code, and Contra Costa County General Plan IM 7-au.

Therefore, impacts related to infrastructure that exacerbates fire risk would be less than significant.

Level of Significance

Less Than Significant

Flooding and Landslide Hazards Due To Post-fire Slope Instability/Drainage Changes

Impact WILD-4: The project 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.

Construction

Impacts related to post-fire slope instability are limited to operational impacts. No respective construction impacts related to flooding and landslide hazards due to post-fire slope instability or drainage changes would occur.

Operation

The project site is not located on or near steep slopes susceptible to landslides or downstream flooding. The project site has also not been affected by previous wildfires that could have resulted in drainage changes or loss of vegetation. In addition, correspondence with CCCFPD confirmed that the project would not expose people or structures to significant risks due to post-fire slope instability

or drainage changes.[21] Therefore, impacts related to flooding and landslide hazards due to post-fire slope instability or drainage changes would be less than significant.

Level of Significance

Less Than Significant

3.18.5 - Cumulative Impacts

The geographic scope of the cumulative wildfire analysis is the project vicinity or roughly the central portion of Contra Costa County. The cumulative projects included in this analysis are those listed in Table 3-1 as well as the project.

Wildfire Hazards and Emergency/Evacuation Response

A combination of federal, State, and local regulations limit or minimize the potential for exposure to wildfires by reducing the amount of development in wildland urban interface areas, ensuring new development is developed according to California Building Code and Uniform Fire Code, and incorporating requirements for fire-safe construction into the land use planning. Development listed in Table 3-1 (See Chapter 3.0: Environmental Setting) consists predominantly of residential, commercial, and institutional development. The types and sizes of development anticipated in Table 3-1 would not be located in designated and High or Very High Fire Hazard Zones. In addition, all projects in Table 3-1 would be located in areas that are already developed, and do not contain significant levels of dry fuel susceptible to ignition, or significantly high average wind speed.

The cumulative projects, listed in Table 3-1, would result in predominantly in-fill development and would not significantly increase emergency services beyond the existing service area. Furthermore, all cumulative project construction would adhere to City and County Building Codes that are designed to minimize the potential for uncontrolled fires. Adherence to City and County Building Codes would ensure that California Fire Code standards such as automatic sprinkler systems and management of fuel loads in response to annual inspection by the Fire Department are included in development. Once cumulative development is proposed, the City and County assesses the needs for fire protection services and informs efforts to improve or expand needed facilities. All development would, however, comply with emergency access requirements, such as two emergency vehicle access points, as a condition of construction. Furthermore, the cumulative projects would not result in permanent road closures, nor impede an established emergency or evacuation access route, such as I-680, or interfere with emergency response requirements, such as fire protection response time standards established by respective General Plans for the cumulative project sites. As such, there would be a less than significant cumulative impact associated with wildfire hazards and emergency/evacuation response.

Level of Cumulative Significance

Less Than Significant

[21] Contra Costa County Fire Protection District (CCCFPD). 2019. Email Correspondence with Tracie Dutter, Fire Prevention Captain. January 18, 2019.

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CHAPTER 4: EFFECTS FOUND NOT TO BE SIGNIFICANT

4.1 - Introduction

This chapter is based on the Del Hombre Apartments Environmental Impact Report (EIR) Notice of Preparation (NOP), dated October 29, 2018, and contained in Appendix A of this EIR. The NOP was prepared to identify the potentially significant effects of the project and was circulated for public review between October 29, 2018 and November 28, 2018. In the course of the NOP evaluation, certain impacts were found to be less than significant, because construction and operation of the project would not result in such impacts. This chapter provides a brief description of effects found not to be significant or less than significant, based on the NOP, NOP public comments received, or more detailed analysis conducted as part of the EIR preparation process. No NOP public comments were received related to Agriculture and Forestry Resources and Mineral Resources. Note that a number of impacts that are found to be less than significant are addressed in the various EIR topical sections (Sections 3.1 through 3.18) to provide more comprehensive discussion of why impacts are less than significant, in order to better inform decision makers and the general public.

4.2 - Environmental Effects Found Not To Be Significant

4.2.1 - Agriculture and Forestry Resources

No agricultural land or forestland currently exist on the project site. The project site is currently designated for Multiple-Family Residential-Very High (MV) uses in Contra Costa County General Plan and for Single-Family Residential (R-15) and Planned Unit District (P-1) uses in the Contra Costa County Zoning Map.[1,2] The project site is mapped "Urban and Built-up Land," a non-agricultural designation, by the California Department of Conservation Farmland Mapping and Monitoring Program.[3] As such, construction and operation of the project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses, would not conflict with existing zoning for agricultural use or a Williamson Act contract, would not conflict with existing zoning for forestland or timberland, and would not result in loss or conversion of forestland to non-forest uses.[4,5] Therefore, no impact related to agriculture or forestry resources would occur.

4.2.2 - Mineral Resources

There are no mineral resource recovery sites on or in the vicinity of the project site.[6] Therefore, implementation of the project would not result in the loss of a locally important mineral resource

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1 Contra Costa County. 2017. Contra Costa County General Plan, Land Use Element Map. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30949/Land-Use-Element-Map?bidId=. Accessed November 16, 2018.

2 Contra Costa County. 2018. Contra Costa County Code of Ordinances, Chapter 84-12.402-Uses-Permitted. Website: https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO_DIV84LAUSDI_CH84-12R-SIMIREDI. Accessed November 16, 2018.

3 California Department of Conservation. 2018. Contra Costa County Important Farmland 2016. Website: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/con16.pdf. Accessed November 16, 2018.

4 *Ibid*.

5 California Department of Conservation. 2013. Contra Costa County Williamson Act FY 2012/2013. Website: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/con16.pdf. Accessed November 16, 2018.

6 State of California Division of Mines and Geology. 1983. Mineral Resource Zones and Resource Sectors Contra Costa County.

recovery site delineated by an applicable land use plan. A Mineral Resource Zones and Resources Sectors map prepared by the California Geological Survey indicates that the project site is located in an area not containing any known mineral occurrences of undetermined mineral significance.[7] Furthermore, the project site is currently designated for MV uses in Contra Costa County General Plan.[8] As such, construction and operation of the project would not result in the loss of availability of a known mineral resource of value to the region and residents of the State. Therefore, no impact related to mineral resources would occur.

[7] California Department of Conservation. 1987. Mineral Resource Zones and Resource Sectors Contra Costa County.
[8] Contra Costa County. 2017. Contra Costa County General Plan, Land Use Element Map. Website: http://www.co.contra-costa.ca.us/DocumentCenter/View/30949/Land-Use-Element-Map?bidId=. Accessed November 16, 2018.

CHAPTER 5: OTHER CEQA CONSIDERATIONS

5.1 - Significant Unavoidable Impacts

California Environmental Quality Act (CEQA) Guidelines Section 15126.2(a)(b) requires an Environmental Impact Report (EIR) to identify and focus on the significant environmental effects of the project, including effects that cannot be avoided if the project were implemented.

Based on the analysis contained in this EIR, the County has determined that the project would result in the following significant and unavoidable impacts:

- **Project Level:** Operational impact related to unacceptable Level of Service (LOS) at Coggins Drive at Las Juntas Way intersection under Opening Year with Project.
- **Cumulative Level:** Operational impact related to unacceptable Level of Service (LOS) at Coggins Drive at Las Juntas Way intersection under Cumulative Year with Project.

5.2 - Growth-inducing Impacts

There are two types of growth-inducing impacts that a project may have: direct and indirect. To assess the potential for growth-inducing impacts, the project's characteristics that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated (CEQA Guidelines § 15126.2(d)). CEQA Guidelines, as interpreted by the County, state that a significant growth-inducing impact may result if the project would:

- Induce substantial population growth in an area (for example, by proposing new homes and commercial or industrial businesses beyond the land use density/intensity envisioned in the general plan);
- Substantially alter the planned location, distribution, density, or growth rate of the population of an area; or
- Include extensions of roads or other infrastructure not assumed in the general plan or adopted capital improvements project list, when such infrastructure exceeds the needs of the project and could accommodate future developments.

Direct growth-inducing impacts occur when the development of a project imposes new burdens on a community by directly inducing population growth, or by leading to the construction of additional developments in the same area. Also included in this category are projects that remove physical obstacles to population growth (such as a new road into an undeveloped area or a wastewater treatment plant with excess capacity that could allow additional development in the service area). Construction of these types of infrastructure projects cannot be considered isolated from the development they facilitate and serve. Projects that physically remove obstacles to growth, or projects that indirectly induce growth may provide a catalyst for future unrelated development in an area such as a new residential community that requires additional commercial uses to support residents.

The project site is located in Central Contra Costa County. Implementing the project would directly induce growth in the County, but not in a manner that is beyond the Countywide land use densities/intensities envisioned in the Contra Costa County General Plan. The California Department of Finance (CDF) estimated the total population of unincorporated Contra Costa County to be 172,513 as of January 1, 2018.[1] Contra Costa County is projected to have a population of 1,166,670 in 2020.[2] The project would develop 284 residential units and would be expected to result in a population of 818 persons. Conservatively assuming that all 818 residents would be new to unincorporated Contra Costa County, the project's population would represent 0.47 percent of the total 172,513 population of unincorporated Contra Costa County as reported by the CDF in 2018. Therefore, direct population growth as a result of the project is considered negligible. In addition, this direct population growth associated with the project would be consistent with growth projections for the County as projected by the CDF.

In addition to residential units, direct growth from the project would include ancillary and recreational facilities. This growth would add five jobs under the project. The project is an infill development and the surrounding area has a suburban, transit-oriented residential character. Infrastructure and services would be expanded to serve the project, without significant excess capacity. Thus, would not encourage additional growth beyond that already planned for in the Contra Costa County General Plan. As a result, the project would create minimal to no indirect growth that would be inconsistent with CDF projections for the County.

The project would also not significantly and adversely affect the permanent jobs/housing balance. The project would create a minor amount of nonresidential development and jobs but would not create a housing demand above what would otherwise occur in the County. The project would also include 284 residential units and up to 818 new residents. The area is well-served by transportation infrastructure, including the Bay Area Rapid Transit (BART) Pleasant Hill/Contra Costa Centre Station located 0.12 mile west of the project site. Therefore, housing included as part of the project would help the County achieve a more even job/housing balance by providing much-needed housing.

The project is an infill development and, thus, implementing the project would not require the extension of electrical, natural gas, or water utility infrastructure, but would require connections to existing utilities infrastructure on and adjacent to the project site. The project would not extend urban infrastructure other than to the project site and, thus, would not induce growth in other areas, because the adjacent areas are already developed and zoned residential. Furthermore, the project would be compatible with the surrounding residential uses and not pressure adjacent properties to redevelop with new or different land uses. As a result, it is not anticipated that nearby residents would relocate. Therefore, the project would not remove a barrier to growth nor create an indirect population increase.

Since the project would not result in indirect growth, negatively alter the existing jobs/housing balance, or be inconsistent with the Contra Costa County General Plan or CDF direct growth projections for the County, the growth-inducing impact would be less than significant.

[1] California Department of Finance (CDF). 2018. Report E-1 Population Estimates for Cities, Counties, and the State. May.
[2] California Department of Finance (CDF). 2018. Total Estimated and Projected Population for California and Counties: 2010 to 2060 1-year Increments. January.

5.3 - Significant Irreversible Environmental Changes

As mandated by CEQA Guidelines Section 15126.2(c), the EIR must address significant irreversible environmental changes that would result from implementation of the project. Specifically, such an irreversible environmental change would occur if:

- The project would involve a large commitment of nonrenewable resources;
- Irreversible damage can result from environmental accidents associated with the project; and
- The proposed consumption of resources is not justified (e.g., the project results in the wasteful use of energy). (Refer to Section 3.17, Utilities and Service Systems, which addresses this topic in accordance with CEQA Guidelines Appendix J)

The project involves the construction and operation of an apartment building. The residential building would consist of 21 studio apartments, 178 one-bedroom apartments, and 85 two-bedroom apartments, totaling 284 units, with an average unit size of 863 square feet. The proposed residential units would include 36 affordable housing units: 24 moderate-income and 12 very-low-income. The site design would result in 17 percent of the site being left as open space or landscaped area. Additionally, approximately 15 percent of the trees within the site boundaries and directly adjacent to the project site would be preserved.

Construction debris recycling practices would be expected to allow for the recovery and reuse of building materials such as concrete, lumber, and steel and would limit disposal of these materials, some of which are non-renewable. Construction would include the use of building materials, such as petroleum-based products and metals that cannot reasonably be recreated. Construction also would involve significant consumption of energy, usually petroleum-based fuels that deplete supplies of nonrenewable resources. Construction of structures and infrastructure would consume energy and water; however, because of its temporary and one-time nature, construction under the project would not represent a significant irreversible use of resources.

Once construction is complete, the land uses associated with the project would use some nonrenewable fuels to heat and light structures and consume water. The new residential and recreational uses would be required to be built to and adhere to the latest adopted edition of the California Green Building Standards Code, which includes a number of standards that would reduce energy demand, water consumption, wastewater generation, and solid waste generation that would collectively reduce the demand for resources. This would result in the emission and generation of less pollution and effluent and lessen the severity of corresponding environmental effects. Thus, although the project would result in an irretrievable commitment of non-renewable resources, energy for heat and light and water for irrigation and plumbing would not be consumed inefficiently, unnecessarily, or wastefully.

Furthermore, the proposed residential uses do not have the potential to cause significant environmental accidents through releases into the environment, as they would not involve large quantities of hazardous materials (see Section 3.8, Hazards and Hazardous Materials). According to the California Department of Forestry and Fire Protection (CAL FIRE), the project site is not located in

a Severe or Very High Fire Hazard Severity Zone,[3] and the closest designated "High" fire hazard zone is located approximately 3.5 miles to the southeast of the project site. Because the project site has not previously experienced wildfire and is not located in or near an area of steep terrain or historical wildfire burn nor experiences consistent high winds, the project site would not be prone to wildfire risk (see Section 3.18, Wildfire). In addition, as discussed in Section 3.13, Public Services, the existing fire protection facilities would be adequate to serve the project, and the project would not result in a significant and unavoidable impact related to the need for new or altered fire protection facilities. Thus, implementation of the project's proposed residential and recreational uses do not have the potential to result in significant environmental accidents related to wildfire hazards (see Section 3.18, Wildfire) and would not result in significant irreversible environmental changes.

[3] California Department of Forestry and Fire Protection (CAL FIRE). 2009. Fire Resource and Assessment Program.

CHAPTER 6: ALTERNATIVES

6.1 - Introduction

In accordance with California Environmental Quality Act (CEQA) Guidelines Section 15126.6, this chapter contains a comparative impact assessment of alternatives to the project. The primary purpose of an alternatives analysis under CEQA is to provide decision-makers and the public with a reasonable range of feasible alternatives to the project that could attain most of the basic project objectives, while avoiding or reducing any of the project's significant adverse environmental effects.

Analysis of two alternatives to the project is provided for informational purposes and to allow decision-makers to consider the project in light of hypothetical alternative development scenarios, thereby promoting CEQA's purpose as an information disclosure statute. This analysis is guided by the following considerations set forth under CEQA Guidelines Section 15126.6:

- An Environmental Impact Report (EIR) need not consider every conceivable alternative to a project;
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process;
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives;
  - Infeasibility; or
  - Inability to avoid significant environmental effects.

6.2 - Significant and Unavoidable Impacts

The project was analyzed for potentially significant impacts related to each of the environmental issues discussed in Sections 3.1 through 3.18. The results of the analysis indicate that the project would result in the following significant and unavoidable impacts:

- **Project Level:** Operational impact related to unacceptable Level of Service (LOS) at Coggins Drive at Las Juntas Way intersection under Opening Year with Project
- **Cumulative Level:** Operational impact related to unacceptable LOS at Coggins Drive at Las Juntas Way intersection under Cumulative Year with Project.

Mitigation measures were identified for aesthetics, air quality, biological resources, geology/soils, cultural resources, greenhouse gas emissions, hazards/hazardous materials, hydrology/water quality, noise, and transportation impacts that would reduce the impacts to less than significant.

6.3 - Alternatives to the Proposed Project

Pursuant to CEQA Guidelines Section 15126.6, this EIR presents a range of reasonable alternatives to the project for analysis and evaluation of their comparative merits. These alternatives are considered to cover the range of development alternatives that would meet the basic objectives of the project while lessening one or more of its significant impacts. CEQA Guidelines Section 15126.6(a) states that an EIR need not evaluate every conceivable alternative to a project. Information has been provided for each alternative that would allow meaningful comparison with the project.

CEQA requires that an EIR analyze a "no project" alternative (CEQA Guidelines § 15126.6(e)). Where, as here, this alternative means a project would not proceed, the discussion "[sh]ould compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved" (CEQA Guidelines § 15126.6(e)(3)(B)). Another type of alternative to be considered includes consideration of what could reasonably be expected in the foreseeable future if the project is not approved, based on current land use plans/designations/zoning and consistent with available infrastructure and community services. In addition, given the significant and unavoidable historic resources alternative under the project, a type of historic preservation alternative is to be considered.

The two alternatives to the project analyzed in this chapter are as follows:

- **No Project Alternative:** Under the No Project Alternative, the 284-unit 6-story podium apartment community proposed under the project would not be constructed on the project site. In this scenario, the two existing single-family homes and garage on the project site would remain, road improvements would not occur, trees would not be removed or impacted, grading would not take place, and the five parcels would not be merged into one parcel. This alternative would not require a General Plan Amendment, rezoning, minor subdivision, or a Final Development Plan.
- **Reduced Scale Alternative:** Under the Reduced Scale Alternative, 52 townhomes (22 units per acre on 2.37 acres) would be constructed on the project site. While this alternative would reduce the overall intensity of development on the project site, it would still require the development of the entire project site. In this scenario, the number of market rate units would decrease by 82 percent (248 units down to 44 units) and the number of affordable units would decrease by 78 percent (36 units down to 8 units). Similar to the project, the two existing single-family homes and garage on the project site would be demolished. However, no below ground parking would be constructed under this alternative.

6.4 - Project Objectives

As stated in Chapter 2, Project Description, the objectives of the project are to:

- Address the regional housing and employment imbalance by providing 284 housing units to an underserved area.

- Reduce traffic on area roads by increasing housing density in an area well served by regional public transportation (Bay Area Rapid Transit [BART]).
- Provide much needed affordable housing through the delivery of 36 affordable units.
- Provide housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents.
- Create an apartment community consisting of high-quality architecture that encourages the walkability within the neighborhood.
- Implement policies of importance to the County, as reflected in the Contra Costa County General Plan.
- Encourage infill redevelopment of underused sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

6.5 - Alternative 1—No Project Alternative

CEQA Guidelines Section 15126.6(e) requires EIRs to evaluate a "No Project Alternative," which is defined as the "circumstance under which the project does not proceed." Under the No Project Alternative, the 284-unit 6-story podium apartment community proposed under the project would not be constructed on the project site. In this scenario, the two existing single-family homes and garage on the project site would remain, road improvements would not occur, trees would not be removed or impacted, and grading would not take place. This alternative would not require a General Plan Amendment, rezoning, minor subdivision, or a Final Development Plan.

6.5.1 - Impact Analysis

Aesthetics

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. The two existing residential buildings and garage would remain on-site, and existing trees would not be removed or impacted. The new residential units, recreational amenities, and road improvements would not be constructed and operated on the project site. There would be no change in visual character, views, nighttime lighting, daytime glare, or shadow, as there would be no change to the existing on-site buildings, parking area, streets, utility lines, topography, or vegetation/landscaping. Thus, there would be no aesthetics impacts under this alternative.

The project impacts related to aesthetics would be less than significant with mitigation (see Section 3.1, Aesthetics). The No Project Alternative would have a lower level of aesthetic impacts compared to the project; however, this alternative would not meet the project objectives related to residential facilities in terms of visual character, as this alternative would not create an apartment community consisting of architecture and design that encourages walkability within the neighborhood.

Air Quality

Under the No Project Alternative, there would be no change related to criteria pollutant and toxic air contaminant emissions, as there would be no project-related construction or changes to the existing land use. Thus, there would be no impact related to air quality under this alternative.

The project impacts related to air quality would be less than significant with mitigation for criteria pollutant and toxic air contaminant emissions generation. While the No Project Alternative would result in no increase in criteria pollutant and toxic air contaminant emissions generation impacts compared to existing conditions, this alternative would not meet the project objectives related to air quality. In contrast to the project, this alternative would not reduce traffic on area roads by increasing housing density in an area well-served by regional public transportation, nor would it encourage the walkability of the neighborhood.

Biological Resources

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. The two existing residential buildings and garage would remain on-site and trees would not be removed or impacted. There would be no change related to wildlife or habitat on-site. The No Project Alternative would not have potential impacts to special-status bats or nesting birds, nor would it require a tree-removal permit. Thus, there would be no biological resources impacted under this alternative.

The project impacts related to biological resources would be less than significant with mitigation (see Section 3.3, Biological Resources). The No Project Alternative would have a lower level of biological resources impact compared to the project; however, this alternative would not meet the project objectives related to residential facilities in terms of biological resources, as this alternative would not encourage infill redevelopment of underutilized sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Cultural Resources

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. The two existing residential buildings and garage would remain on-site and trees would not be removed or impacted. As such, there would be no change in historic or archeological resources, as there would be no change to the existing on-site buildings and no ground disturbance. Thus, there would be no cultural resources impacts under this alternative.

The project impacts related to cultural resources would be less than significant with mitigation (see Section 3.4, Cultural Resources). The No Project Alternative would have a lower level of cultural resources impact compared to the project. However, this alternative would not meet the project objectives related to residential facilities, as this alternative would not provide housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents. Furthermore, there are no project objectives related to cultural resources.

Energy

Under the No Project Alternative, there would be no change related to energy consumption, as there would be no change to the existing land uses or daily vehicle trips. Thus, there would be no impact related to energy under this alternative.

The project impacts related to energy would be less than significant. The No Project Alternative would not construct the residential apartment building, and would therefore result in a lower level of energy consumption compared to the project. However, the No Project Alternative would not meet the project objectives related to energy conservation because this alternative would not result in the reduction in traffic on area roads that would be associated with increasing housing density in an area well served by regional public transportation.

Geology and Soils

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. The two existing residential buildings and garage would remain on-site and trees would not be removed or impacted. The new residential units, new recreational amenities, and road improvements would not be constructed and operated on the project site. Thus, there would be no impact related to potential exposure of persons and property to seismic- and soil-related hazards under this alternative, nor would there be potential paleontological impacts. There would be no impact with regard to geology and soils under the No Project Alternative.

The project impacts related to geology and soils would be less than significant with mitigation (see Section 3.6, Geology and Soils). The No Project Alternative would have a lower level of geology and soils impact compared to the project, as it would not construct housing in a seismically active area. This alternative would not meet the project objectives related to related to addressing the regional housing and employment imbalance by providing 284 housing units to an underserved area. Furthermore, there are no project objectives related to geology and soils.

Greenhouse Gas Emissions

Under the No Project Alternative, there would be no change related to GHG emission generation, as there would be no change to the existing land uses or daily vehicle trips. Thus, there would be no impact related to GHG emissions under this alternative.

The No Project Alternative would eliminate energy consumption and the associated GHG emissions resulting from construction and operation of the project. Thus, this alternative would result in lower GHG emissions compared to the project. However, it would not meet any of the project objectives related to GHG emissions, because this alternative would not maximize infill redevelopment of underutilized sites in areas served by adequate infrastructure and services and that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Hazards and Hazardous Materials

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. The two residential structures on-site and garage would remain in place. Since there would be no demolition of the existing on-site buildings, no impacts related to potential exposure to lead-based paint or asbestos-containing materials would occur from demolition activities. Therefore, this alternative would not include mitigation requiring abatement of removal of asbestos-containing materials and lead-based paint. Thus, there would be no impact related to potential exposure of persons to hazardous materials under this alternative due to the existing structures remaining on-site.

The project impacts related to hazards and hazardous materials would be less than significant with mitigation (see Section 3.8, Hazards and Hazardous Materials). The No Project Alternative would have a lesser level of hazards and hazardous materials impact compared to the project. In addition, this alternative would not meet the project objectives related to residential facilities in terms of hazardous materials exposure, as this alternative would not provide modernized residential facilities that comply with building safety codes and regulations.

Hydrology and Water Quality

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. No new development or associated on-site stormwater improvements would be constructed. The existing trees on-site would remain in place. There would be no change related to hydrology, stormwater runoff and drainage, water quality, groundwater recharge and depletion, or flooding, as there would be no change to the existing on-site buildings, hardscape, or landscaping resulting in changes in impervious vs. pervious surfaces on-site. Thus, there would be no hydrology and water quality impacts or improvements under this alternative.

The project impacts related to hydrology and water quality would be less than significant with mitigation (see Section 3.9, Hydrology and Water Quality). The No Project Alternative would have a lower level of hydrology and water quality impact compared to the project. However, this alternative would not meet the project objectives related to the infill redevelopment of underutilized sites in areas served by adequate infrastructure and services and that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors. There are no project objectives specifically related to hydrology and water quality.

Land Use and Planning

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. No general plan amendment, rezoning, minor subdivision, or development plan of the site would take place. The No Project Alternative would not demolish the two residential structures and a garage located on an underutilized parcel adjacent to public transit and the project site would remain as five individual parcels. This alternative would not be consistent with the objectives of the General Plan, which focus on infill development near public transit. While the No Project Alternative would have no land use impacts, unlike the project, it would not facilitate the reuse of underutilized parcels.

The project impacts related to land use and planning would be less than significant, and the project would meet many of the objectives of the General Plan. The No Project Alternative would have a higher level of land use and planning impact compared to the project. In addition, this alternative would not meet the project objectives related to residential facilities in terms of land use and planning. This alternative would not provide housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents, implement policies of importance to the County, as reflected in the General Plan, nor encourage infill redevelopment of underutilized sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Noise

Under the No Project Alternative, there would be no change in groundborne vibration and noise sources (including from traffic-related noise), as there would be no changes to the existing land uses or daily vehicle trips. Noise and vibration levels in the project vicinity would remain the same as under existing conditions. Thus, there would be no noise impacts under this alternative.

The project would result in a less than significant impact with mitigation for temporary increase in ambient noise levels during construction, less than significant impacts for noise land use compatibility and groundborne vibration, and no impact for exposure to airport noise. Compared to the project, the No Project Alternative would have no projected noise impacts. However, this alternative would not meet any of the project objectives.

Population and Housing

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. There would be no change related to housing and jobs and no conflict with regional population growth projections, as there would be no change to the existing on-site buildings. Thus, there would be no impact related to population under this alternative. However, this alternative would not be consistent with the objectives of the General Plan that focus on the reuse of underutilized parcels near public transit.

The project impacts related to population and housing would be less than significant and would provide 284 housing units, in support of the Contra Costa County General Plan Housing Element (see Section 3.12, Population and Housing). This Housing Element represents Contra Costa County's long-term commitment to the development and improvement of housing with specific goals for the short term, 2015-2023, and the provision of adequate and affordable housing opportunities is an important goal of the County. The No Project Alternative would not provide any housing, and would therefore have a higher level of population and housing impact compared to the project. In addition, this alternative does not meet the project objectives related to population and housing, including addressing the regional housing and employment imbalance by providing 284 housing units to an underserved area and providing much needed affordable housing through the delivery of 36 affordable units. In addition, the No Project Alternative would not provide housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents or encourage infill redevelopment of underutilized sites in areas served by adequate

infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Public Services

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking. There would be no change related to fire, police, school, or library services, as there would be no change to the existing land uses on the project site.

The project impacts to public services would be less than significant (see Section 3.13, Public Services). Because the No Project Alternative would not construct new housing on the project site, the No Project Alternative would not meet the project objectives related to public services, as it would not encourage infill redevelopment of underutilized sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Recreation

Under the No Project Alternative, the project site would not be developed with a 6-story podium apartment community with associated parking, ancillary facilities, and recreational uses. The outdoor recreation area with a private swimming pool and two outdoor courtyard areas that would be available to residents and their guests would also not be developed under this alternative. There would be no change related to recreation and park services, as there would be no change related to existing land uses. Further, the permanent residential population and daytime employment population and associated demand for parks and recreational facilities would remain the same as currently exists. Thus, there would be no impact related to recreation and parks under this alternative.

The project recreation and parks impact would be less than significant with mitigation for construction-period air quality, noise, and transportation impacts (see Section 3.14, Recreation). The No Project Alternative would have a lower level of recreation and parks impact compared to the project. However, this alternative would not meet the project objectives related to residential facilities in terms of recreation and parks, as this alternative would not provide housing within a nearby commercial area that provides neighborhood recreational services that are accessible to the new residents. Furthermore, there are no project objectives related specifically to recreation.

Transportation

Under the No Project Alternative, the project site would not be developed, and the 6-story podium apartment community with associated parking, ancillary facilities, and recreational uses would not be constructed on-site. The No Project Alternative would not result in additional daily vehicle trips. None of the impacts would occur and none of the mitigation measures that apply to the project would be implemented. The trips generated by the No Project Alternative are shown in Table 6-1. Study intersections under existing conditions generally operate at overall acceptable service levels in accordance with benchmarks set by the County during both the weekday morning, weekday afternoon, weekday evening, and Saturday afternoon peak-hours. Thus, there would be a less than significant impact related to transportation and traffic under the No Project Alternative.

Table 6-1: No Project Alternative Trip Generation

Scenario	Daily Trips	AM Peak-hour	PM Peak-hour
No Project Alternative[1]	20	1	2
Project	1,800	109	128

Notes:
[1] These trips are already on the roadway system and under the No Project Alternative; no net-new traffic would be generated.
Source: Fehr & Peers 2019

The project impacts to transportation and traffic would be less than significant with mitigation (see Section 3.15, Transportation). Transportation impacts associated with the No Project Alternative would be less than those of the project. However, the No Project Alternative would not meet the project objectives related to providing needed residential development near public transit for the County. Specifically, the No Project Alternative would not meet the key project objectives of reducing traffic on area roads by increasing housing density in an area well served by regional public transportation (BART), providing housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents, and encouraging infill redevelopment of underutilized sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Tribal Cultural Resources

Under the No Project Alternative, the project site would not be developed, and the 6-story podium apartment community with associated parking, ancillary facilities, and recreational uses would not be constructed on-site. The two residential structures on-site would remain in place. As such, there would be no change in tribal cultural resources, as there would be no change to the existing on-site buildings and no ground disturbance. Thus, there would be no tribal cultural resources impacts under this alternative.

There would be no project impacts related to tribal cultural resources (see Section 3.16, Tribal Cultural Resources). The No Project Alternative would have a similar level of tribal cultural resources impact compared to the project. The project has no objectives specifically related to tribal cultural resources.

Utilities and Service Systems

Under the No Project Alternative, the project site would not be developed, and the 6-story podium apartment community with associated parking, ancillary facilities, and recreational uses would not be constructed on-site. There would be no change related to water supply and wastewater utilities and stormwater and solid waste collection service systems, as there would be no change to the existing on-site residential buildings or associated utilities demand and infrastructure facilities. Further, this alternative would not provide modernized residential facilities on an urban infill site that would reduce overall long-term maintenance costs and promote greater efficiency in delivery of utility services. Thus, there would be no impact related to utility and service systems under this alternative.

The project impacts to utility and service systems would be less than significant with mitigation (see Section 3.17, Utility and Service Systems). The No Project Alternative would have a lower level of utility and service systems impact compared to the project; however, this alternative would not meet the project objectives related to residential development. Furthermore, the project has no objectives specifically related to utilities and service systems.

Wildfire

Under the No Project Alternative, the project site would not be developed, and the 6-story podium apartment community with associated parking, ancillary facilities, and recreational uses would not be constructed on-site. No existing trees or other plants would be removed. There would be no change to the project site with regard to wildfire susceptibility. Thus, there would be no impact related to wildfire under this alternative.

The project impacts related to wildfire would be less than significant (See Section 3.18, Wildfire). The project is considered urban infill development in an area with low susceptibility to wildfire. The No Project Alternative would have a lower level of wildfire risk, as the existing residential uses would remain on-site and not add additional housing potentially exposing additional persons to wildfire risk. The No Project Alternative would not meet any of the objectives of the project. Furthermore, the project has no objectives specifically related to wildfire.

6.5.2 - Conclusion

The No Project Alternative would avoid the majority of the project's impacts by leaving the site in its existing condition, thus avoiding impacts caused by the demolition of the two residential structures and garage on-site, and the grading and construction that would occur under the project. This alternative would, in general, not exacerbate many of the identified impacts. However, by leaving the existing residences on-site instead of providing much-needed multiple-family housing near a transit station, the No Project Alternative would have greater impacts related to Population and Housing than the project. Furthermore, the No Project Alternative would not advance any of the overall project objectives.

6.6 - Alternative 2—Reduced Scale Alternative

Under the Reduced Scale Alternative, 52 townhomes (22 units per acre on 2.37 acres) would be constructed on the project site. While this alternative would reduce the overall intensity of development on the project site, it would still require the development of the entire project site. In this scenario, the number of market rate units would decrease by 82 percent (248 units down to 44 units) and the number of affordable units would decrease by 78 percent (36 units down to 8 units). Similar to the project, the two existing single-family homes and garage on the project site would be demolished. Under this alternative, surface parking would be provided rather than below ground parking.

6.6.1 - Impact Analysis

Aesthetics

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. The two existing single-family homes and garage on-site would still be demolished; however, surface parking would be provided rather than below ground parking. The Reduced Scale Alternative would develop 232 fewer housing units on the project site (including 204 fewer market rate housing units and 28 fewer affordable housing units) compared to the project. There would be changes in visual character, views, nighttime lighting, and shadow, as there would be an addition of residential uses on-site that do not currently exist. Thus, there would be a less than significant with mitigation aesthetics impact with the incorporation of mitigation (MM AES-4) for light or glare impacts).

The project impacts related to aesthetics would be less than significant with mitigation (see Section 3.1, Aesthetics). The Reduced Scale Alternative would have a similar level of aesthetics and light and glare impact compared to the project due to the inclusion of housing on-site. Additionally, this alternative would only partially meet the project objectives of addressing the regional housing and employment imbalance by providing 284 housing units to an underserved area or of providing much needed affordable housing through the delivery of 36 affordable units. The Reduced Scale Alternative would meet project objectives related to adding housing density in an area well served by regional public transportation (BART). This alternative would also meet the project objectives related to residential facilities in terms of visual character, as this alternative would create an apartment community consisting of architecture and design that encourages walkability within the neighborhood.

Air Quality

Under the Reduced Scale Alternative, new criteria pollutant and toxic air contaminant emissions would result from construction of the alternative and new average daily vehicle trips would be generated by the operation of the reduced-scale residential development.

The project's air quality impacts would be less than significant with mitigation. The Reduced Scale Alternative would have slightly lower operational air quality impacts compared to the project, due to a reduction in energy use and average daily trips associated with fewer residents. The Reduced Scale Alternative would also result in slightly lower construction emission impacts compared to the project; while construction would occupy the same footprint as in the project, the construction schedule would be slightly shorter for the Reduced Scale Alternative. However, similar to the project, implementation of the identified mitigation measures (MM AIR-2 and MM AIR-3) would reduce all impacts associated with this alternative to less than significant with mitigation. This alternative would not meet some of the project objectives related to air quality. While the Reduced Scale Alternative would result in fewer residents and, therefore, lower vehicle miles traveled, the lower density of this alternative compared to the project would result in fewer residents being offered access to the public transit services near the project site.

Biological Resources

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. The two existing single-family homes and garage on-site would still be demolished; however, surface parking would be provided rather than below ground parking. The new development would be distributed throughout the site, and fewer trees would be removed, resulting in a slightly reduced impact to trees and associated habitat for birds and bats. However, similar to the proposed project, the alternative would require pre-construction surveys for special status species, as well as the preparation and implementation of a tree replacement plan and implementation of tree protection guidelines during construction. Therefore, the Reduced Scale Alternative would incorporate the same mitigation measures as the project (MM BIO-1a, MM BIO-1b, MM BIO-5a, and MM BIO-5b). Thus, similar to the project, impacts to biological resources would be less than significant with mitigation under this alternative.

The project impacts related to biological resources would be less than significant with mitigation (see Section 3.3, Biological Resources). The Reduced Scale Alternative would have a similar level of impact to biological resources compared to the project. Additionally, this alternative would not meet the project objectives of addressing the regional housing and employment imbalance by providing 284 housing units to an underserved area or of providing much needed affordable housing through the delivery of 36 affordable units. However, the Reduced Scale Alternative would meet project objectives related to adding housing density in an area well served by regional public transportation (BART), although on a lesser scale. The project does not have objectives specifically correlated to biological resources.

Cultural Resources

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. The two existing single-family homes and garage on-site would still be demolished; however, surface parking would be provided rather than below ground parking. The Reduced Scale Alternative would have would have less than significant with mitigation cultural resource impacts. Similar to the project, implementation of the identified mitigation measures (MM CUL-1 and MM CUL-3) would reduce all impacts associated with this alternative to less than significant with mitigation.

The project impacts related to cultural resources would be less than significant with mitigation (see Section 3.4, Cultural Resources). Because the alternative would be constructed on the entire site, this alternative would have a similar level of impact as the project and would incorporate the same mitigation measures as the project. This alternative would meet most of the project objectives related to residential facilities in terms of providing housing near transit, although on a lesser scale. The project does not have objectives specifically related to cultural resources.

Energy

The Reduced Scale Alternative would reduce the overall intensity of development on the project site, but would still require the development of the entire site. As such, construction of the Reduced Scale Alternative would result in similar energy impacts as the project. The reduction in number of housing units would result in slightly less energy consumption during the operation of this

alternative compared to the project, and, similar to the proposed project, there would be a less than significant impact related to energy under this alternative.

The Reduced Scale Alternative would result in lower energy consumption than the project because of a slightly shorter construction schedule, lower operational vehicle miles traveled, and lower operational electricity and natural gas usage. The Reduced Scale Alternative would satisfy the identified project objectives related to energy conservation to a lesser degree than the project. The reduced density of this alternative would partially achieve the objective of maximizing infill redevelopment of underutilized sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Geology and Soils

The Reduced Scale Alternative would reduce the overall intensity of development on the project site, but would still require the development of the entire site. Thus, there would be potential impacts related to potential exposure of persons and property to seismic- and soil-related hazards under this alternative, as well as potential paleontological impacts. There would be less than significant impacts with mitigation under the Reduced Scale Alternative. Similar to the project, implementation of the identified mitigation measures (MM GEO-1 and MM GEO-6) would reduce all impacts associated with this alternative to less than significant with mitigation.

The project impacts related to geology and soils would be less than significant with mitigation (see Section 3.6, Geology and Soils). The Reduced Scale Alternative would have a lower level of geology and soils impact compared to the project, as it would construct fewer housing units on the project site in a seismically active area. This alternative would meet the project objectives related to residential facilities in terms of providing housing near transit, although on a lesser scale. The project does not have objectives specifically related to geology and soils.

Greenhouse Gas Emissions

The Reduced Scale Alternative would reduce the overall intensity of development on the project site, but would still require the development of the entire site. As such, construction and operation of the Reduced Scale Alternative would result in similar GHG emissions impacts as the project. However, the same mitigation for GHG emissions applied to the project would be applied to this alternative. Thus, there would be a less than significant impact with mitigation related to GHG emissions under this alternative.

The project GHG emissions impact would be less than significant with mitigation. The Reduced Scale Alternative would result in lower GHG emissions generation than the project due to a slightly shorter construction schedule and lower operational vehicle miles traveled. Similar to the project, the Reduced Scale Alternative would result in less than significant impacts with implementation of MM GHG-2. The reduced density of this alternative would partially achieve the objective of maximizing infill redevelopment of underutilized sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.

Hazards and Hazardous Materials

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. The two existing single-family homes and garage on-site would still be demolished and surface parking would be provided rather than below ground parking. Since there would be demolition of the existing on-site buildings, impacts related to potential exposure to lead-based paint or asbestos-containing materials could occur from demolition activities. Therefore, this alternative would include mitigation requiring abatement of removal of asbestos-containing materials and lead-based paint, and there would be a less than significant impact with mitigation.

The project impacts to hazards and hazardous materials would be less than significant with mitigation (see Section 3.8, Hazards and Hazardous Materials). The demolition of the existing on-site buildings would result in the same hazards and hazardous materials impacts as those that would result under the project. Therefore, this alternative would include the same mitigation as the project requiring abatement of removal of asbestos-containing materials and lead-based paint (MM HAZ-1) and would result in less than significant impact with incorporation of mitigation. In addition, this alternative would meet the project objectives related to residential facilities in terms of providing housing near transit, although on a lesser scale. The project does not have objectives specifically related to hazards and hazardous materials.

Hydrology and Water Quality

The Reduced Scale Alternative would reduce the overall intensity of development on the project site, but would still require the development of the entire site. The new development on the site would include on-site stormwater improvements, and some of the trees proposed for removal under the project would be removed under the Reduced Scale Alternative. The project impacts to hydrology and water quality would be less than significant with implementation of MM HYD-3 (see Section 3.9, Hydrology and Water Quality). The Reduced Scale Alternative would result in a similar impact as the proposed project with respect to hydrology, stormwater runoff and drainage, water quality, or groundwater recharge, depletion, or flooding, as there would be residential development throughout the site. Similar to the proposed project, hydrology and water quality impacts or improvements under this alternative would be less than significant with mitigation (MM HYD-3).

This alternative would not meet the project objectives of addressing the regional housing and employment imbalance by providing 284 housing units to an underserved area or of providing much needed affordable housing through the delivery of 36 affordable units. However, the Reduced Scale Alternative would meet project objectives related to adding housing density in an area well served by regional public transportation (BART), although on a lesser scale. There are no project objectives specifically related to hydrology and water quality.

Land Use and Planning

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. In this scenario, the number of market rate units would decrease by 82 percent (248 down to 44) and number of affordable units would decrease by 78 percent (36 down to 8). This alternative would be consistent with the objectives of

the General Plan, which focus on infill development near public transit. The Reduced Scale Alternative, like the project, would facilitate the reuse of underutilized parcels, but on a substantially lesser scale. Impacts would be less than significant under the Reduced Scale Alternative.

At 22 units per acre (52 units per 2.37 acres), this project would not comply with the Multiple-Family Residential Very High land use designation, which requires 30.0-44.9 units per acre and, similar to the proposed project, would require a General Plan Amendment. Therefore, the Reduced Scale Alternative would have a similar level of land use and planning impact compared to the project. This alternative would not meet the project objectives of addressing the regional housing and employment imbalance by providing 284 housing units to an underserved area or of providing much needed affordable housing through the delivery of 36 affordable units. However, the Reduced Scale Alternative would meet project objectives related to adding housing density in an area well served by regional public transportation (BART), although on a lesser scale.

Noise

With fewer housing units, the Reduced Scale Alternative would result in fewer operational daily vehicle trips, which would result in slightly lower traffic noise levels compared to the project. However, similar to the proposed project, this alternative would still require development of the entire project site, which would result in similar construction noise and vibration levels as well as potential conflicts with a land use plan, policy, or regulation which would be reduced to less than significant with mitigation under this alternative (MM NOI-1 and MM NOI-2).

Because of its lower density, this alternative would not satisfy the project objectives of maximizing infill development of underutilized sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to the same degree as the project.

Population and Housing

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. In this scenario, the number of market rate units would decrease by 82 percent (248 down to 44) and number of affordable units would decrease by 78 percent (36 down to 8). Impacts related to population and housing would be less than significant under the Reduced Scale Alternative. This alternative would be consistent with the objectives of the General Plan, which focus on infill development near public transit. Similar to the proposed project, the Reduced Scale Alternative would facilitate the reuse of underutilized parcels, but on a substantially lesser scale.

The project impacts on population and housing would be less than significant and would provide 284 housing units, in support of the Contra Costa County Housing Element (see Section 3.12, Population and Housing). This Housing Element represents Contra Costa County's long-term commitment to the development and improvement of housing with specific goals for the short term, 2015-2023, and the provision of adequate and affordable housing opportunities is an important goal of the County. While the Reduced Scale Alternative would provide housing on-site, it would do so on a far lesser scale, and thus would have greater impacts with regard to population and housing, as it would provide less housing and employment overall. The Reduced Scale Alternative would not meet the

project objectives of addressing the regional housing and employment imbalance by providing 284 housing units to an underserved area or of providing much needed affordable housing through the delivery of 36 affordable units. However, the Reduced Scale Alternative would meet project objectives related to adding housing density in an area well served by regional public transportation (BART), although on a lesser scale.

Public Services

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site. There would be a change in demand related to fire, police, school, or library services, as there would be an increase in housing on the project site. Impacts related to public services under the Reduced Scale Alternative would be less than significant.

The project impacts to public services would be less than significant (see Section 3.13, Public Services). The Reduced Scale Alternative would have lesser impacts than the project as it would house far fewer people on-site. The Reduced Scale Alternative would not meet the project objectives of addressing the regional housing and employment imbalance by providing 284 housing units to an underserved area or of providing much needed affordable housing through the delivery of 36 affordable units. However, the Reduced Scale Alternative would meet project objectives related to adding housing density in an area well served by regional public transportation (BART), although on a lesser scale.

Recreation

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. The outdoor recreation area with a private swimming pool and two outdoor courtyard areas that would be available to residents and their guests would not be developed under this alternative. Impacts related to recreation under the Reduced Scale Alternative would be less than significant.

The Reduced Scale Alternative would have a lower level of recreation and parks impact compared to the project, while also meeting the majority of the project objectives related to providing housing on an underutilized site near public transit. There are no project objectives specifically related to recreation.

Transportation

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. The two existing single-family homes and garage on-site would still be demolished; however, surface parking would be provided rather than below ground parking. The Reduced Scale Alternative would develop 232 fewer housing units on the project site (including 204 fewer market rate housing units and 28 fewer affordable housing units). The Reduced Scale alternative would generate fewer peak-hour trips during the morning and evening peak-hours than the project. As shown in Table 6-2, the Reduced Scale Alternative would generate 320 daily trips, 21 AM peak-hour, and 25 PM peak-hour.

As shown in Table 6-3, under Opening Year, the Coggins Drive at Las Juntas Way intersection is projected to operate at LOS E in the AM peak-hour under the Reduced Scale Alternative, but the Reduced Scale Alternative would not increase delay by more than 5 seconds. As such, LOS intersection

impacts would be less than significant under the Reduced Scale Alternative. As shown in Table 6-4, under Cumulative Year, the Coggins Drive at Las Juntas Way intersection is projected to operate at LOS F in the AM peak-hour under Reduced Scale Alternative, but the Reduced Scale Alternative would not increase delay by more than 5 seconds. In addition, for the PM peak-hour in the Cumulative Year, the Reduced Scale Alternative would degrade intersection operations from LOS D to LOS E, but signal warrants would not be met. As such, LOS intersection impacts would be less than significant under the Reduced Scale Alternative. Therefore, for the Reduced Scale Alternative, operational impacts related to circulation system performance in terms of roadway facilities (specifically intersection LOS) would be less severe than the proposed project, as the proposed project would result in significant and unavoidable impacts at this intersection during operation (specifically intersection LOS).

Similar to the proposed project, the Reduced Scale Alternative would be required to implement MM TRANS-1a (the preparation and implementation of a construction traffic control plan), MM TRANS-1b (improvements to Las Juntas Way), MM TRANS-1c (relocation of the Del Hombre Lane crosswalk), and MM TRANS-1d (preparation of a pedestrian path design and lighting plan). Construction-period impacts would be less, given the lesser scale of development proposed under this Alternative.

Table 6-2: Reduced Scale Alternative Trip Generation

Scenario	Daily Trips	AM Peak-hour	PM Peak-hour
Reduced Scale Alternative	320	21	25
Proposed Project	1,800	109	128
Difference	**(1,480)**	**(88)**	**(103)**
Source: Fehr & Peers 2019			

Table 6-3: Reduced Scale Alternative Opening Year without and with Project—Peak-hour Intersection Levels of Service[1]

Intersection		Control[1]	Peak-hour	Opening Year without Project Condition		Opening Year with Project Condition			
				Delay	LOS	Delay	LOS	Signal Warrant Met?	Potentially Significant Impact?
3	Coggins Drive at Las Juntas Way	AWSC	AM PM	**40** 22	**E** C	**44** 25	**E** C	**Yes** No	No[2] No

Notes:
Bold indicates operations below the intersection LOS standard for acceptable operations
Bold Italics indicates potentially significant impact.
[1] AWSC = All-way Stop Controlled; signalized = traffic signal control
[2] Signal warrant is met without project and project increases delay by less than 5 seconds
Source: Fehr & Peers 2019.

[1] This table focuses on study intersection 3 under the Opening Year scenario as that is the only intersection at which the project results in a significant and unavoidable impact.

Table 6-4: Reduced Scale Alternative Cumulative Year—Peak-hour Intersection Levels of Service[2]

Intersection		Control[1]	Peak-hour	Cumulative Year without Project Condition		Cumulative Year with Project Condition			
				Delay	LOS	Delay	LOS	Signal Warrant Met?	Potentially Significant Impact?
3	Coggins Drive at Las Juntas Way	AWSC	AM	**56**	**F**	**58**	**F**	**Yes**	No
			PM	32	D	**36**	**E**	No	No

Notes:
Bold indicates operations below the intersection LOS standard for acceptable operations
Bold Italics indicates potentially significant impact.
[1] AWSC = All-way Stop Controlled; signalized = traffic signal control
Source: Fehr & Peers 2019.

With respect to all other study intersections, neither the proposed project nor the Reduced Scale Alternative would result in a potentially significant impact.

This alternative would meet the identified project objectives related to proposed residential uses in terms of transportation: provide needed residential development near public transit for the County, reduce traffic on area roads by increasing housing density in an area well served by regional public transportation (BART), provide housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents, and encourage infill redevelopment of underutilized sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors. While this alternative meets these key objectives, it would meet them to a lesser degree than the proposed project.

Tribal Cultural Resources

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site, including 44 market rate units and 8 affordable units. The two existing single-family homes and garage on-site would still be demolished and surface parking would be provided rather than below ground parking. The Reduced Scale Alternative would develop 232 fewer housing units on the project site (including 204 fewer market rate housing units and 28 fewer affordable housing units).

The proposed project would not result in any impacts with respect to tribal cultural resources (see Section 3.16, Tribal Cultural Resources). Because the project was found to have no impact with respect to tribal cultural resources, the Reduced Scale Alternative would, similarly, have no impact to tribal cultural resources and would meet the majority of the project objectives related to providing housing on an underutilized site near public transit. There are no project objectives related specifically to tribal cultural resources.

[2] This table focuses on study intersection 3 under the Cumulative Year scenario as that is the only intersection at which the cumulative projects result in a significant and unavoidable cumulative impact.

Utilities and Service Systems

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site. The addition of housing on-site would result in a change related to water supply demand and distribution services as well as wastewater, stormwater, and solid waste generation and collection services. Impacts to utilities and service systems under the Reduced Scale Alternative would be less than significant with mitigation. Similar to the project, the Reduced Scale Alternative would implement MM HYD-3 (see Section 3.17, Utility and Service Systems), which requires the preparation of a drainage plan prior to grading. The Reduced Scale Alternative would have a lower level of utility and service systems impact compared to the project, as it would develop fewer housing units on-site requiring utilities and service systems, while also meeting the majority of the project's objectives. The project has no objectives specifically related to utilities and service systems.

Wildfire

Under the Reduced Scale Alternative, 52 townhomes would be constructed on the 2.37-acre site. The two existing single-family homes and garage on-site would still be demolished and surface parking would be provided rather than below ground parking. The Reduced Scale Alternative would develop 232 fewer housing units on the project site. While the addition of housing on the site could increase the risk for persons exposed to wildfire on the site, the site is not located in an area with high wildfire susceptibility. Thus, impacts related to wildfire would be less than significant under this alternative.

The project impacts to wildfire would be less than significant (See Section 3.18, Wildfire). The project is considered urban infill development in an area with low susceptibility to wildfire. The Reduced Scale Alternative would have a lower level of wildfire risk compared to the project, as it would develop far fewer housing units on-site while also meeting the majority of the project's objectives. Furthermore, the project has no objectives specifically related to wildfire.

6.6.2 - Conclusion

Overall, the Reduced Scale Alternative would have similar impacts to the project, as it would develop residential structures throughout the 2.37-acre site. This alternative would, in general, not exacerbate many of the identified impacts due to decreased density of development on the project site compared to the project. Because this alternative would provide substantially fewer affordable housing units, and far fewer units in general, it would have greater impacts related to Population and Housing when compared to the project. In addition, this alternative would not adequately address the housing and jobs imbalance based on the reduction of 232 total units compared to the project. The Reduced Scale Alternative would only partially fulfill the project objectives.

6.7 - Environmentally Superior Alternative

CEQA Guidelines Section 15126(e)(2) requires identification of an environmentally superior alternative. If the No Project Alternative is environmentally superior, CEQA requires selection of the "environmentally superior alternative other than the No Project Alternative" from among the project and the alternatives evaluated.

To identify the environmentally superior alternative in accordance with the CEQA Guidelines, Table 6-5 presents a comparison of the impacts related to the alternatives, and Table 6-6 presents a

comparison of the alternatives' ability to meet project objectives. As shown in Table 6-5, the No Project Alternative has no impacts that would be caused by the construction and operation of the proposed project and as such would appear to be the environmentally superior alternative. However, as shown in Table 6-6, the No Project Alternative does not meet any of the project objectives. While the Reduced Scale Alternative has lesser impacts compared to the project due to a lower density of development on-site, the majority of impacts caused on the site would be similar or equal to the project due to construction proposed throughout the project site.

The Reduced Scale Alternative would avoid the proposed project's significant unavoidable impact with respect to transportation (specifically intersection LOS). However, the Reduced Scale Alternative would meet some, but not all of the project objectives. In addition, any objective met by the Reduced Scale Alternative would be accomplished at a far lesser scale than under the proposed project. Because the Reduced Scale Alternative would not result in significant and unavoidable impacts and would still meet most project objectives, the Reduced Scale Alternative is the environmentally superior alternative.

Table 6-5: Summary of Alternatives' Impacts

Impact	Project	Alternative 1—No Project Alternative	Alternative 2—Reduced Scale Alternative
Aesthetics	LTSM	NI	LTSM (similar)
Air Quality	LTSM	NI	LTSM (lesser)
Biological Resources	LTSM	NI	LTSM (similar)
Cultural Resources	LTSM	NI	LTSM (similar)
Energy	LTS	NI	LTS (lesser)
Geology and Soils	LTSM	NI	LTSM (lesser)
Greenhouse Gas Emissions and Energy	LTSM	NI	LTSM (lesser)
Hazards, Hazardous Materials, and Wildfire	LTSM	NI	LTSM (similar)
Hydrology and Water Quality	LTSM	NI	LTSM (similar)
Land Use and Planning	LTS	NI	LTS (similar)
Noise	LTSM	NI	LTSM (lesser)
Population and Housing	LTS	NI (greater)	LTS (greater)
Public Services	LTS	NI	LTS (lesser)
Recreation	LTSM	NI	LTS (lesser)
Transportation	SUM	NI	LTSM (lesser)
Tribal Cultural	NI	NI	NI (similar)
Utilities and Service Systems	LTSM	NI	LTSM (lesser)
Wildfire	LTS	NI	LTS (lesser)

Table 6-5 (cont.): Summary of Alternatives' Impacts

Impact	Project	Alternative 1— No Project Alternative	Alternative 2— Reduced Scale Alternative
Notes: NI = No Impact LTS = less than significant LTSM = less than significant with mitigation incorporated SU = significant and unavoidable SUM = significant and unavoidable with mitigation incorporated Source: Compiled by FCS in 2019			

Table 6-6: Summary of Alternatives' Meeting of Project Objectives

Objective	Project	Alternative 1— No Project Alternative	Alternative 2— Reduced Size Alternative
Address the regional housing and employment imbalance by providing 284 housing units to an underserved area.	All	None	Some
Reduce traffic on area roads by increasing housing density in an area well served by regional public transportation (BART).	All	None	All
Provide much needed affordable housing through the delivery of 36 affordable units.	All	None	Some
Provide housing within a nearby commercial area that provides neighborhood services that are accessible to the new residents.	All	None	All
Create an apartment community consisting of high-quality architecture that encourages walkability within the neighborhood.	All	None	All
Implement policies of importance to the County, as reflected in the General Plan.	All	None	All
Encourage infill redevelopment of underused sites in areas served by adequate infrastructure and services that are near mass transit, freeways, and urban centers to encourage multiple-family housing located in proximity to transit corridors.	All	None	Some

Table 6-6 (cont.): Summary of Alternatives' Meeting of Project Objectives

Objective	Project	Alternative 1— No Project Alternative	Alternative 2— Reduced Size Alternative
Notes: All = meets all respective identified project objectives Some = meets some respective identified project objectives None = meets no respective identified project objectives Source: Compiled by FCS in 2019			

6.8 - Alternatives Considered but Rejected from Further Consideration

The following alternatives were also initially considered. However, for reasons discussed below, they were dismissed from further consideration.

6.8.1 - Zoning-compliant Alternative

Existing zoning for the project site is for single-family residential land uses. However, given the project site's adjacency to the Pleasant Hill BART Station and location amongst multiple-family residential uses, it would not be a compatible use to develop single-family uses on the project site when multiple-family uses are more appropriate for transit-oriented development purposes and goals.

6.8.2 - Alternate Location(s) Alternative

Given the project site adjacency to the Pleasant Hill BART Station and location amongst existing multiple-family residential uses, an alternative location to the project site for the project would not be conducive to meeting transit-oriented development purposes and goals The CEQA Guidelines encourage consideration of an alternative location when significant effects of a project would be avoided or substantially lessened by putting the project at another location (CEQA Guidelines § 15126(f)(2)(A)). An alternative location would need to be at least of comparable size within the urbanized area of Contra Costa County and have adequate roadway access, utility capacity, and proximity to transit. In order to identify an alternative location that might be reasonably considered to "feasibly accomplish most of the basic purposes" of the project and also reduce significant impacts, it was assumed that such a location would ideally have the following characteristics:

- At least 2.5 acres in size;
- Located within 0.25 mile of transit stop or station;
- Served by available infrastructure;
- Available for purchase and development; and
- Zoned for residential development at a density similar to what would be permitted at the project site.

Potential alternative locations were evaluated that would (1) reduce or avoid some or all of the environmental impacts of the project, (2) be of sufficient size to meet most of the basic project objectives, and (3) be immediately available to be acquired or controlled by the applicant.

A suitably sized development location within Contra Costa County could be expected to have transportation impacts, as well as impacts associated with construction. Any project of this size and intensity is likely to result in the same or similar impacts on roadways, some perhaps more significant. Therefore, because no suitable alternative location is available that could meet the basic objectives of the project, an off-site alternative is not feasible.

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