ASCENT ENVIRONMENTAL

DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE

City of Sunnyvale - Corn Palace Residential Development Project

State Clearinghouse No. 2018042040

Sunnyvale

PREPARED FOR:
City of Sunnyvale
Community Development
Department/Planning Division
650 West Olive Avenue
Sunnyvale, California 94086
Contact: Shétal Divatia,
Senior Planner

NOVEMBER 2, 2018

Draft Environmental Impact Report

for the

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Contact: Shétal Divatia, Senior Planner

PREPARED BY

Ascent Environmental, Inc.
455 Capitol Mall, Suite 300
Sacramento, California 95814
Contact: Kristen Stoner

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
2017 Scoping Plan	*California's 2017 Climate Change Scoping Plan*
AB	Assembly Bill
ADT	average daily traffic
AFV	alternative fuel vehicle
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
Btu	British thermal units
CAA	federal Clean Air Act
CAAA	federal Clean Air Act Amendments of 1990
CAFE	Corporate Average Fuel Economy
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	criteria air pollutant
CAP	climate action plan
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	California Fire Code
CFR	Code of Federal Regulations
City	City of Sunnyvale
CLUP	Comprehensive Land Use Plan
CMA	Congestion Management Agency
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNMP	construction noise management plan
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CPUC	California Public Utilities Commission

CUPA	Certified Unified Program Agency
dB	decibel
DBH	diameter at breast height
DDT	dichlorodiphenyltricholoethane
DEH	Santa Clara County Department of Environmental Health
DEIR	draft environmental impact report
diesel PM	particulate exhaust emitted by diesel engines
DOT	U.S. Department of Transportation
DPS	City of Sunnyvale Department of Public Safety
DTSC	California Department of Toxic Substances Control
EAP	Energy Action Plan
ECA	Essential Connectivity Areas
EIA	U.S. Energy Information Administration
Energy Code	Title 24, Part 6, Building Energy Efficiency Standards
EOP	Countywide Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act of 1992
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	Environmental Site Assessment
EV	electric vehicle
FAR	Federal Aviation Regulations
FEIR	Final EIR
FEMA	Federal Emergency Management Agency
FSRAWP	Feasibility Study/Remedial Action Workplan
FTA	Federal Transit Agency
GHG	greenhouse gas
HAP	hazardous air pollutant
HDM	Highway Design Manual
HVAC	heating, ventilation and air conditioning
Hz	hertz
IEPR	Integrated Energy Policy Report
ITE	Institute of Transportation Engineers
lb/day	pounds per day
LCFS	Low Carbon Fuel Standard
L_{dn}	day-night level
L_{eq}	equivalent continuous sound level
L_{max}	maximum sound level

LOS	level of service
LSAP	Lawrence Station Area Plan
LUTE	Land Use and Transportation Element
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
mPa	micro-Pascals
mph	miles per hour
MPO	metropolitan planning organization
MTC	Metropolitan Transportation Commission
$MTCO_2e$/person	metric tons of carbon dioxide-equivalent per person
$MTCO_2e$/year	metric tons of carbon dioxide equivalent per year
NAAQS	national ambient air quality standards
NAHC	California Native American Heritage Commission
NESHAP	national emissions standards for HAPs
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic and Safety Administration
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOP	notice of preparation
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
OEHHA	Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
OSHA	federal Occupational Safety and Health Administration
PG&E	Pacific Gas and Electric
PM_{10}	respirable particulate matter with aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	fine particulate matter with aerodynamic diameter of 2.5 micrometers or less
PPV	peak particle velocity
PRC	Public Resources Code
RCP	representative concentration pathway
RMS	root-mean-square
RPS	renewable portfolio standard
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	regional water quality control board
SB	Senate Bill
SDP	Special Development Permit
SFBAAB	San Francisco Bay Area Air Basin
SFRWQCB	San Francisco Bay RWQCB
SIP	State Implementation Plan

SO_2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SPL	sound pressure level
SR	State Route
SVCE	Silicon Valley Clean Energy
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCR	tribal cultural resource
TIA	Transportation Impact Analysis
TIF	Transportation Impact Fee
TOA	Transportation Operation Analysis
TPY	tons per year
TTC	temporary traffic control plan
TWSC	two-way-stop controlled
UST	underground storage tank
V/C	volume-to-capacity
VCP	State Voluntary Cleanup Program
VdB	vibration decibels
VMT	vehicle miles traveled
VTA	Valley Transportation Authority
ZEV	zero-emission vehicle

1 INTRODUCTION

This draft environmental impact report (DEIR) evaluates the environmental impacts of the proposed Corn Palace Residential Development Project. This DEIR has been prepared under the direction of the City of Sunnyvale (City) in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines. This chapter of the DEIR provides information on the following:

- project requiring environmental analysis (synopsis),
- purpose and intended uses of the DEIR,
- scope of environmental analysis,
- effects found not to be significant,
- agency roles and responsibilities,
- public review process,
- DEIR organization, and
- standard terminology.

1.1 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The following is a synopsis of the project characteristics. The project would include demolition of on-site structures for development of a master-planned residential community of 58 single-family, two-story residential homes on 6.1 acres, a 2-acre public park, and 0.7 acre of public facilities and roadway areas. For further information on the project, see Chapter 3, "Project Description."

1.2 PURPOSE AND INTENDED USES OF THIS EIR

CEQA requires that public agencies consider the potentially significant adverse environmental effects of projects over which they have discretionary approval authority before taking action on those projects (PRC Section 21000 et seq.). CEQA also requires that each public agency avoid or mitigate to less-than-significant levels, wherever feasible, the significant adverse environmental effects of projects it approves or implements. If a project would result in significant and unavoidable environmental impacts (i.e., significant effects that cannot be feasibly mitigated to less-than-significant levels), the project can still be approved, but the lead agency's decision-maker, in this case the Planning Commission, must prepare findings and issue a "statement of overriding considerations" explaining in writing the specific economic, social, or other considerations that they believe, based on substantial evidence, make those significant effects acceptable (PRC Section 21002, State CEQA Guidelines Section 15093).

According to State CEQA Guidelines Section 15064(f)(1), preparation of an EIR is required whenever a project may result in a significant adverse environmental impact. An EIR is an informational document used to inform public agency decision makers and the general public of the significant environmental effects of a project, identify possible ways to mitigate or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

In accordance with State CEQA Guidelines Section 15161, this document is a project EIR that examines the environmental impacts of a specific project. This type of EIR focuses on the changes in the environment that would result from a specific project. In accordance with State CEQA Guidelines Section 15161, a project EIR must examine the environmental effects of all phases of the project, including construction and operation.

Because they have the principal authority over approval of the project, the City is the lead agency, as defined by CEQA, for this EIR.

1.3 SCOPE OF ENVIRONMENTAL ANALYSIS

Pursuant to CEQA and the State CEQA Guidelines, a lead agency shall focus the EIR's discussion on significant environmental effects and may limit discussion on other effects to brief explanations about why they are not significant (PRC Section 21002.1, State CEQA Guidelines Section 15128). Potentially significant impacts were identified based on review of comments received in response to the notice of preparation (see Appendix A) and additional research and analysis of relevant project data during preparation of this DEIR.

The City has determined that the project has the potential to result in significant environmental impacts on the following resources, which are addressed in detail in this DEIR:

- Aesthetics;
- Air Quality;
- Archaeological, Historic, and Tribal Cultural Resources;
- Biological Resources;
- Energy;
- Hazards and Hazardous Materials;
- Transportation and Circulation;
- Greenhouse Gas Emissions; and
- Noise and Vibration.

1.4 EFFECTS FOUND NOT TO BE SIGNIFICANT

CEQA allows a lead agency to limit the detail of discussion of environmental effects that are not potentially significant (PRC Section 21100, State CEQA Guidelines Section 15128). Based on a review of comments received in response to the notice of preparation (Appendix A) as well as additional research and analysis of relevant project data during preparation of this DEIR, it was determined, for reasons described below, that the project would not result in significant environmental impacts in the following areas. Accordingly, these resources are not addressed further in this DEIR.

- Agricultural and Forest Resources,
- Geology and Soils,
- Hydrology and Water Quality,
- Land Use and Planning,
- Mineral Resources,
- Population and Housing,
- Public Services and Utilities, and
- Recreation.

AGRICULTURE AND FORESTRY RESOURCES

The project site is located in the City of Sunnyvale, an urbanized area south of the San Francisco Bay known as the South Bay. A vacant farm stand, associated parking area, and agricultural supply well are located in the southeast corner of the project site and three single-family homes with three outbuildings and other shed structures are located in the northern portion. The remainder of the project site is vacant land that was historically used for agriculture. The project site was last cultivated as farmland in 2015. The project site is designated as Low-Medium Density Residential in the City of Sunnyvale General Plan Land Use and Transportation Element (LUTE) and the Lawrence Station Area Plan (LSAP). The project site is not zoned for agricultural use and is surrounded by residential development. The project site is not classified as Important Farmland under the California Department of Conservation's Farmland Mapping and Monitoring Program. The project site was previously enrolled in a Williamson Act contract; however, the contract was not renewed, and the property has not been under a Williamson Act contract since 1990. The project site is not used or zoned for timber harvest, and no forest land exists on-site.

Therefore, development of the project site would not result in direct or indirect conversion of agricultural land to non-agricultural use or convert forestland to non-forest use. The project would not conflict with zoning for agricultural use or a Williamson Act contract. The project would have **no impact** on agriculture and forestry resources and these issues will not be discussed further in this DEIR.

GEOLOGY AND SOILS

Seismic Hazards

The City is in a seismically active area and would be subject to very strong shaking during a major earthquake. The major active faults in the area are the Monte Vista-Shannon (4.9 miles from site), San Andreas (8.6 miles from the project site), and Hayward-SE Extension (9.8 miles from the project site).

Strong ground shaking during an earthquake can result in ground failure such as that associated with liquefaction, lateral spreading, and liquefaction induced settlement. The geotechnical feasibility study for the project site (Cornerstone Earth Group 2016) found that the project site would be subject to seismic hazards from liquefaction and liquefaction-induced settlement.

The geotechnical feasibility study for the project site concluded the potential for lateral spreading to affect the project site is low. The project site is not within an Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act and no known active or potentially active faults exist on the project site. Therefore, the risk of surface rupture from a known active fault is considered low (Cornerstone Earth Group 2016).

The City's Municipal Code adopts the California Building Code (CBC) by reference in Chapter 16.16.020, with changes and modifications providing a higher standard of protection. All new development and redevelopment is required to comply with the City's Municipal Code and the current adopted CBC, which include design criteria for seismic loading and other geologic hazards. Compliance with these regulations would minimize hazards associated with seismic activity by requiring seismic building design, engineering, and construction techniques. No aspects of the project would increase the potential for seismic activity or the inherent risks associated with such activity.

Adherence to the City's Municipal Code and compliance with the CBC would reduce potential impacts associated with developing on unstable soils. All project components would be required to comply with the seismic design standards of the CBC. The project would also not exacerbate existing seismic hazards. There would be **no impact** associated with seismic hazards.

Tsunamis Hazards

Tsunamis are large waves created by earthquakes, undersea landslides, or volcanic eruptions. Low-lying coastal areas are susceptible to inundation. The California Department of Conservation prepares tsunami inundation maps for coastal areas and all populated areas at risk to tsunami within the state based on the maximum tsunami threat for that area. The project site is not located within a tsunami hazard zone (Cal OES 2015) and a tsunami entering the narrow mouth of the San Francisco Bay would dissipate as the energy of the wave is allowed to spread through the wide and shallow waters of the bay (City of Sunnyvale 2016a: 3.8-9). There would be **no impact** to the project from tsunamis.

Soils

Soils on the project site are mapped as "Urban Land - Bayshore complex, 0 to 2 percent slopes, drained" on the Natural Resources Conservation District soil survey (NRCS 2018). The geotechnical feasibility study concluded that the project site has moderately expansive soils (Cornerstone Earth Group 2016).

The grading and site preparation activities associated with proposed site development would remove soil, disturbing and potentially exposing underlying soils to erosion from a variety of sources, including wind and water. In addition, construction activities may involve the use of water, which may further erode the soil as the water moves across the ground.

All demolition and construction activities in the City would be required to comply with CBC Chapter 70 standards, which would require implementation of appropriate measures during grading activities to reduce soil erosion. Additionally, the City would be required, pursuant to the C.3 and C.6 provisions of the Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit, to implement

construction phase BMPs, post-construction design measures that encourage infiltration in pervious areas, and post-construction source control measures to help keep pollutants out of stormwater. In addition, post-construction stormwater treatment measures are required because the project would result in more than 10,000 square feet of impervious surface. These measures would reduce the amount of stormwater runoff from the project.

During construction, the project would be subject to the NPDES construction permit requirements, including preparation of a stormwater pollution prevention plan (SWPPP). The SWPPP would include erosion and sediment control measures to stabilize the project site, protect slopes, control the perimeter of the project site, minimize the area and duration of exposed soils, and protect any receiving waters adjacent to the project site.

With implementation of these required erosion and sediment control measures and regulatory provisions to limit runoff for new developments, the project would minimize erosion and sedimentation and contributions on-site or off-site. In addition, a design-level geotechnical investigation will be conducted for the project site and recommendations related to expansive soils will be incorporated into the project design.

Thus, there would be **no impact** associated with soil erosion.

HYDROLOGY AND WATER QUALITY

Drainage and Flooding

There are no waterways on-site. The project site is located within the 500-year Flood Hazard Zone and an area removed from flood zones (City of Sunnyvale 2017: Figure 6-2). In 2010, the easternmost portion of the project site was revised from a 100-year floodplain to a 500-year floodplain on Federal Emergency Management Agency (FEMA) flood insurance rate maps (FEMA 2010). Therefore, the project site is not located within a FEMA-designated floodplain or Special Flood Hazard Zone and development of the project site would not expose additional people to flood hazards.

As described in Chapter 3, "Project Description," the project would connect with existing drainage infrastructure located within Dahlia Drive and Vinemaple Avenue and would include onsite stormwater facilities to treat and attenuate stormwater flows consistent with City requirements. Proposed stormwater quality facilities would include the installation of on-site bioretention areas (i.e., ponding areas in which contaminants and sedimentation are collected and removed from stormwater runoff via infiltration into underlying soils or evaporation) and Silva Cells (i.e. modular suspended pavement system that uses soil volumes to support large tree growth and provide on-site stormwater management through absorption, evapotranspiration, and interception) located along the project frontage and internal street system that would provide on-site treatment of storm water before discharge off-site.

With implementation of the required measures and regulatory provisions described above, the project would minimize the potential for impacts related to hydrology and flooding. Therefore, **no impact** related to hydrology and flooding would occur and these issues are not discussed further in this DEIR.

Construction Water Quality Impacts

Construction activities associated with the project would include grading operations that may temporarily alter surface runoff by increasing the amount of silt and debris carried by runoff. Areas with uncontrolled concentrated flow would experience loss of material in the graded areas, potentially degrading waters beyond the construction site. Additionally, refueling and parking of construction equipment and other vehicles on site during construction may result in oil, grease, or related pollutant leaks and spills that may discharge into storm drains. During construction of projects in the City and per Sunnyvale Municipal Code Chapter 12.60, individual coverage under the State's General Construction NPDES permits requires dischargers to eliminate non-stormwater discharges to stormwater systems, develop and implement a SWPPP, and perform monitoring of discharges to stormwater systems. These requirements ensure that

proposed construction does not result in the movement of unwanted material into waters within or outside the construction site. With implementation of these measures and regulatory provisions required during construction activities, **no impact** associated with construction water quality would occur.

Operational Water Quality Impacts

To decrease erosion potential (over the pre-project existing condition) and improve the quality and quantity of stormwater runoff during project operation, projects that create or replace 1 acre or more of impervious surface must implement hydromodification controls and standards per Chapter 12.60.160 of the Sunnyvale Municipal Code. Proposed stormwater quality facilities for the project site would include the installation of on-site bioretention areas (i.e., ponding areas in which contaminants and sedimentation are collected and removed from stormwater runoff via infiltration into underlying soils or evaporation) and Silva Cells (i.e., modular suspended pavement system that uses soil volumes to support large tree growth and provide on-site stormwater management through absorption, evapotranspiration, and interception) located along the project frontage and internal street system that would provide on-site treatment of storm water before discharge off-site. Therefore, **no impact** associated with operational water quality would occur.

LAND USE AND PLANNING

The project site is located along the eastern boundary of the City of Sunnyvale, west of the Lawrence Expressway. A vacant farm stand, associated parking area, and agricultural supply well are located in the southeast corner of the project site and three single-family homes with three outbuildings and other shed structures are located in the northern portion of the project site. The remainder of the project site is vacant land that was historically used for agriculture. The project site was last cultivated as farmland in 2015.

The project site is currently designated as Low-Medium Density Residential in the City of Sunnyvale General Plan LUTE and the LSAP. The project site is also zoned as Low-Medium Density Residential with a Planned Development combining zoning district (R1.5/PD). This land use designation preserves existing small lot single-family, duplex, and smaller multi-family neighborhoods, designed around parks or schools, and located along neighborhood streets or residential collector streets. According to Sunnyvale Municipal Code, the R-1.5/PD low-medium density residential zoning district is reserved for the construction, use, and occupancy of not more than 10 dwelling units per acre (City of Sunnyvale 2018).

The project includes development of a master-planned residential community of 58 single-family, two-story residential units on 6.1 acres, a public park on up to 2-acres, and 0.7 acres of public facilities and roadway areas. The intent of the project is to provide for additional housing within the City consistent with the LSAP (City of Sunnyvale 2016b). The project as proposed is consistent with proposed buildout of the area as identified in the City's General Plan LUTE and LSAP and is consistent with the current land use and designations in the General Plan LUTE, LSAP, and Zoning Code. The project is also consistent with surrounding land uses. Consistent with City development standards (SMC 18.10.020), a 0.725-acre portion of the proposed 2-acre public park would be dedicated to the City; the remaining 1.275-acres of the park site would be purchased by the City.

Additionally, the project would not result in the division of the existing community as the project site is surrounded by residential development and the project site is located outside of the Santa Clara Valley Habitat Conservation Plan area. Therefore, **no impact** related to land use and planning would occur with implementation of the project.

MINERAL RESOURCES

There are no active mines, no known areas with mineral resource deposits, or mineral or aggregate resources areas of statewide importance located in the City of Sunnyvale (City of Sunnyvale 2016a; DOC 1996). Therefore, **no impact** to mineral resources would occur and this issue will not be discussed further in this DEIR.

POPULATION AND HOUSING

Sunnyvale is the second largest city in Santa Clara County, behind only San Jose, which comprises over half the county's population. The population of the City was 153,389 and the persons per household was 2.70 as of January 1, 2018 (California Department of Finance 2018).

The number of housing units in Sunnyvale increased from 48,592 units in 1990 to 59,242 units in 2018. The Association of Bay Area Governments estimates indicated that Sunnyvale had a balanced ratio of jobs-to-employed residents (1.0), similar to the countywide ratio of 1.1. However, the high ratio of jobs-to-employed residents in neighboring cities (2.9 in Palo Alto, 1.9 in Santa Clara, and 1.8 in Los Gatos) can also influence the demand for housing in Sunnyvale because neighboring city residents may migrate to Sunnyvale for more affordable housing. Over the next three decades, Growth projections indicated that Sunnyvale's ratio of jobs-to-employed residents would remain fairly stable. However, although the ratio may be 1:1, most city residents work outside of the city, and the majority of local workers commute in from other areas within the county (City of Sunnyvale 2018).

The project is infill development and would replace vacant land and three on-site residences with approximately 58 single-family housing units and a 2-acre park. It is estimated that the project site would provide housing for approximately 166 persons. Currently, one of the on-site homes is occupied by the property owner, one home is vacant, and the other home is uninhabitable. Because the current property owner is the only occupant on-site, development of the project site would not result in displacement as the occupant is willingly selling the property. Therefore, displacement of housing or population would not occur. It is likely that some future residents of the project site will commute to work in another city. The project would result in direct population growth through development of new housing units consistent with the project site's current land use designations and growth projections of the General Plan LUTE and the LSAP. Although the proposed development and population growth would result in environmental impacts, such impacts are evaluated throughout Chapter 4 of this DEIR. Therefore, because the project would be consistent with growth projections by the City and has been accounted for in current planning documents, the project would have **no impact** on population and housing and this issue will not be discussed further in this DEIR.

PUBLIC SERVICES AND UTILITIES

Public Services

Public services for development of the project site were addressed as part of the LSAP. The Final EIR (FEIR) certified for the LSAP evaluated potential impacts on fire services, police services, and schools. The LSAP FEIR concluded that development within the LSAP area, including the project site, would increase the demand for fire personnel, but would not require construction of any new fire stations that could result in physical impacts on the environment. The LSAP FEIR concluded that a new police substation could be accommodated in the LSAP area if required. Construction of a new police substation was evaluated as part of the LSAP FEIR. In addition, while development under the LSAP would contribute to the need for additional schools, the LSAP development would not independently trigger construction of additional schools. Development within the LSAP, including the project, would be required to pay developer fees in compliance with the requirements of SB 50 and California Government Code Section 65995(b). Therefore, **no impact** on public services would occur.

Utilities

Utilities and service systems for development of the project site were addressed as part of the LSAP FEIR as well as by the LUTE FEIR. The FEIR certified for the LSAP evaluated potential impacts on water (the LUTE and LSAP water demands were addressed in an approved water supply assessment), wastewater, stormwater, and solid waste. The LSAP FEIR concluded that development within the LSAP area, including the project site, would not require new water or wastewater treatment infrastructure, new or expanded water or wastewater entitlements to serve development under the LSAP, or result in wastewater that would exceed treatment

requirements of the Regional Water Quality Control Board (City of Sunnyvale 2016b). There are two water supply wells on-site that will be abandoned as part of the project. Both wells will be abandoned in accordance with Santa Clara Water District requirements and permits will be obtained before abandonment. The project would require construction of water, wastewater, and stormwater infrastructure within the project site to serve the residential units; however, impacts associated with this infrastructure are evaluated throughout Chapter 4 of this DEIR. Stormwater impacts are evaluated above (see "Hydrology and Water Quality").

The LSAP FEIR concluded that before the CEQA documentation for future development under the LSAP can be approved, the City must have a solid waste disposal location to fulfill the needs of development beyond 2024 (City of Sunnyvale 2016b). As of 2017, Kirby Canyon Landfill is estimated to close in 2059 and currently has a remaining capacity of approximately 16 million cubic yards (CalRecycle 2018). Therefore, the current solid waste disposal location for the City has capacity through 2059. In addition, all laws and regulations pertaining to waste collection, conveyance, and disposal would be followed during construction and operation phases of the project. Therefore, **no impact** related to solid waste disposal would occur.

RECREATION

The project would result in an increase in residential units that would increase the demand for recreational facilities. However, the project would include a 2-acre park within the project site that will be operated by the City and will be considered a mini park. The park would be designed to serve residents within a ¼-mile walking radius and is anticipated to include a playground, picnic tables, open turf area, trees and landscaping. The City's design of the park has not been completed and would be determined under a separate process with input from City staff and the community.

Because recreational facilities will be provided as part of the project, this would offset the increase in demand for recreational facilities associated with the increase in residents. Therefore, the project would not result in the physical deterioration of public recreational facilities. Although construction of on-site recreational facilities would result in environmental impacts, such impacts are evaluated throughout Chapter 4 of this DEIR. No additional recreational facilities outside the footprint of the project site would be required. Therefore, the project would have **no impact** on recreational resources.

1.5 AGENCY ROLES AND RESPONSIBILITIES

1.5.1 Lead Agency

The City of Sunnyvale is the lead agency responsible for approving and carrying out the project and for ensuring that the requirements of CEQA have been met. After the EIR public-review process is complete, the City will determine whether to certify the EIR (see State CEQA Guidelines Sections 15090) and approve the project.

1.5.2 Trustee and Responsible Agencies

A trustee agency is a State agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California. The only trustee agency that has jurisdiction over resources potentially affected by the project is the California Department of Fish and Wildlife associated with biological resource issues.

Responsible agencies are public agencies, other than the lead agency, that have discretionary-approval responsibility for reviewing, carrying out, or approving elements of a project. Responsible agencies should participate in the lead agency's CEQA process, review the lead agency's CEQA document, and use the document when making a decision on project elements. For example, State Water Resources Control Board (SWRCB) will use this EIR for discretionary actions such as compliance with the National Pollutant Discharge

Elimination System (NPDES) Stormwater General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities. Agencies that may have responsibility for, or jurisdiction over, the implementation of elements of the project include the following:

STATE AGENCIES

- San Francisco Bay Region Regional Water Quality Control Board (Region 2)
- California Department of Fish and Wildlife

REGIONAL AND LOCAL AGENCIES

- Bay Area Air Quality Management District
- Santa Clara County Department of Environmental Health
- Santa Clara Valley Water District
- Santa Clara County Roads and Airports Department
- City of Sunnyvale (related to water and sewer service, park maintenance, and potential roadway improvements)
- Sunnyvale Department of Public Safety

1.6 PUBLIC REVIEW PROCESS

1.6.1 Notice of Preparation and Initial Study

In accordance with PRC Section 21092 and State CEQA Guidelines Section 15082, the City issued a notice of preparation (NOP) on April 13, 2018, to inform agencies and the general public that an EIR was being prepared and to invite comments on the scope and content of the document (Appendix A). The NOP was submitted to the State Clearinghouse and made available at the City of Sunnyvale. In addition, the NOP was distributed directly to public agencies (including potential responsible and trustee agencies), neighbors within 1,000 feet of the project site, and other interested parties. The NOP was circulated for a 30-day review period, with comments accepted between April 13, 2018 and May 14, 2018.

In accordance with State CEQA Guidelines Section 15082(c), a noticed scoping meeting for the EIR occurred on May 10, 2018.

The purpose of a NOP is to provide sufficient information about the project and its potential environmental impacts to allow agencies and interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including mitigation measures that should be considered and alternatives that should be addressed (State CEQA Guidelines Section 15082[b]). Comments submitted in response to the NOP are used by the lead agency to identify broad topics to be addressed in the EIR. Comments on environmental issues received during the NOP public comment period are considered and addressed throughout Chapter 4 of this DEIR. The NOP and comments to the NOP are included in Appendix A of this DEIR.

1.6.2 Public Review of this DEIR

This EIR is being circulated for public review and comment for a period of 45 days, beginning **November 2, 2018**, and ending **December 17, 2018**.

A public hearing on the DEIR will be held at Council Chambers, City Hall, 456 W. Olive Avenue, Sunnyvale CA 94086, on Monday, **December 10, 2018, at 7:00 p.m.** to receive input from agencies and the public on the Draft EIR. In addition, input on the Historic and Unique Archeological Resources section of the Draft EIR will

be taken at the Heritage Preservation Commission Hearing on Wednesday, **December 5 at 7:00 P.M.,** West Conference Room, City Hall, 456 W. Olive Avenue, Sunnyvale CA 94086.

During the public comment period, written comments from the general public as well as organizations and agencies on the DEIR's accuracy and completeness may be submitted to the lead agency. Because of time limits mandated by State law, comments should be provided in writing no later than 5:00 p.m. on **December 17, 2018**. Please send all comments via regular mail or email to:

Shétal Divatia, Senior Planner
City of Sunnyvale, Community Development Department/Planning Division
456 West Olive Avenue
Sunnyvale, CA 94086
sdivatia@sunnyvale.ca.gov

Agencies that will need to use the EIR when considering permits or other approvals for the project should provide the name of a contact person, phone number, and email address. Comments provided by email should include the name and physical address of the commenter.

Copies of this DEIR are available for public review at the Sunnyvale Public Library (665 West Olive Avenue, Sunnyvale, CA 94086), City of Sunnyvale One-Stop Permit Center (456 West Olive Avenue, Sunnyvale, CA 94086) and the City of Sunnyvale Community Center (550 E Remington Dr, Sunnyvale, CA 94087).

The DEIR is also available for public review online at:
https://sunnyvale.ca.gov/business/projects/cornpalace.htm.

1.6.3 Final EIR

Following public review of the DEIR, a Final EIR will be prepared that will include both written and oral comments on the DEIR received during the public review period, responses to those comments, and any revisions to the DEIR. The DEIR and the Final EIR will comprise the EIR for the Project.

Before taking action on the project, the lead agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the lead agency.

1.7 DRAFT EIR ORGANIZATION

This DEIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Chapter 4, "Environmental Impacts and Mitigation Measures" and Section 4.6, "Energy").

- Chapter 1, "Introduction": This chapter provides a description of the lead and responsible agencies, the legal authority and purpose for the document, and the public review process.
- Chapter 2, "Executive Summary," This chapter provides an overview of the environmental evaluation, including impact conclusions and recommended mitigation measures.
- Chapter 3, "Project Description": This chapter describes the location, background, and goals and objectives and describes the project elements in detail.
- Chapter 4, "Environmental Setting, Impacts, and Mitigation Measures": The sections within this chapter evaluate the expected environmental impacts generated by the project, arranged by subject area (e.g., Land Use, Hydrology and Water Quality). Within each subsection of Chapter 4, the regulatory

background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after development of the project are then evaluated for each subject area. For any significant or potentially significant impact that would result from project implementation, mitigation measures are presented and the level of impact significance after mitigation is identified. Environmental impacts are numbered sequentially within each section (e.g., Impact 4.2-1, Impact 4.2-2). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 4.2-2 would be Mitigation Measure 4.2-2.

- Chapter 5, "Project Alternatives": This chapter evaluates alternatives to the project, including alternatives considered but eliminated from further consideration, the No Project Alternative, and two alternative development options. The environmentally superior alternative is identified.

- Chapter 6, "Other CEQA Considerations": This chapter provides information required by CEQA regarding cumulative impacts that would result from implementation of the project together with other past, present, and probable future projects; significant irreversible environmental changes that would occur with implementation of the project; and growth-inducing impacts of the project.

- Chapter 7, "References": This chapter identifies the organizations and persons consulted during preparation of this DEIR and the documents and individuals used as sources for the analysis.

- Chapter 8, "Report Preparers": This chapter identifies the preparers of the document.

This DEIR uses the following standard terminology:

- "No impact" means no change from existing conditions (no mitigation is needed).

- "Less-than-significant impact" means no substantial adverse change in the physical environment (no mitigation is needed).

- "Potentially significant impact" means an impact that might cause a substantial adverse change in the environment (mitigation is recommended because potentially significant impacts are treated as significant).

- "Significant impact" means an impact that would cause a substantial adverse change in the physical environment (mitigation is recommended).

- "Significant and unavoidable impact" means an impact that would cause a substantial adverse change in the physical environment and that cannot be avoided, even with the implementation of all feasible mitigation.

2 EXECUTIVE SUMMARY

2.1 INTRODUCTION

This Executive Summary is provided in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15123. As stated in the State CEQA Guidelines Section 15123(a), "[a]n EIR shall contain a brief summary of the proposed actions and its consequences. The language of the summary should be as clear and simple as reasonably practical." As required by the guidelines, this chapter includes (1) a summary description of the Corn Palace Residential Development Project, (2) a synopsis of environmental impacts and recommended mitigation measures (Table 2-1), (3) identification of the alternatives evaluated and of the environmentally superior alternative, (4) a discussion of the areas of controversy associated with the project, and (5) issues to be resolved.

2.2 SUMMARY DESCRIPTION OF THE PROJECT

2.2.1 Project Location

The project site is located along the City of Sunnyvale's (City) eastern boundary with the City of Santa Clara on an 8.8-acre site (APN 213-12-001). The project site is bounded by Dahlia Drive to the north, Lawrence Expressway to the east, Lily Avenue to the south, and Toyon Avenue to the west. Surrounding land uses are comprised of single-family residential developments and Lawrence Expressway.

2.2.2 Background and Need for the Project

The project site is relatively flat and currently contains vacant land and structures. A vacant farm stand, associated parking area, and agricultural supply well are located in the southeast corner of the project site. Three single-family homes with three outbuildings and other shed structures are located in the northern portion of the project site. One of the homes is currently occupied and the other two are vacant (1142 Dahlia Court and 1150 Dahlia Court). One of the vacant homes is boarded-up and uninhabitable. The homes have been or are currently connected to a water supply well and septic tanks. The remainder of the project site was historically used as agricultural land and had been under a Williamson Act contract until its cancellation in 1990 (City of Sunnyvale 1990). The land was last cultivated in 2015 and since then is mowed or disked as needed up to five times a year for purpose of fire safety.

In December 2016, the City Council approved the Lawrence Station Area Plan (LSAP). The environmental effects of the LSAP were evaluated in its EIR (State Clearinghouse No. 2013082030). The LSAP, which includes the project site, guides future development of the 19-acre urbanized area surrounding the Lawrence Caltrain Station that better supports and promotes public transit usage. The LSAP designates this site as Low-Medium Density Residential and is intended to be developed consistent with existing adjacent residential uses. In April 2017, the City Council adopted an update to the City's Land Use and Transportation Element (LUTE) of its General Plan. Consistent with the LSAP, the LUTE also designates land uses at the project site as Low-Medium Density Residential.

The intent of the project is to provide new housing opportunities to accommodate the City's existing and future housing demands.

2.3 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

2.3.1 Project-Specific Impacts

This EIR has been prepared pursuant to the CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 1500, et seq.) to evaluate the physical environmental effects of the Project. The City of Sunnyvale is the lead agency for the project. The City has the principal responsibility for approving and carrying out the project and for ensuring that the requirements of CEQA have been met.

Table 2-1, presented at the end of this chapter, provides a summary of the environmental impacts for the Project. The table provides the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

2.3.2 Significant and Unavoidable Environmental Impacts

Detailed mitigation measures have been identified throughout Chapter 4 of this report that are intended to mitigate project effects to the extent feasible. All of these mitigation measures are also identified in Table 2-1 below. After implementation of the proposed mitigation measures, all but 5 significant effects associated with the project would be reduced to a less-than-significant level.

An impact that remains significant after mitigation is considered an unavoidable adverse impact of the project. Implementation of the project would result in the following significant and unavoidable impacts:

- Archaeological, Historic, And Tribal Cultural Resources: Impact 4.3-1, Impacts to Historic Resources
- Archaeological, Historic, And Tribal Cultural Resources: Impact 4.3-2, Potential Impacts to Unique Archaeological Resources
- Noise and Vibration: Impact 4.9-1, Construction Noise
- Archaeological, Historic, And Tribal Cultural Resources Impact 6-4: Cumulative Effect on Historic Resources

2.4 ALTERNATIVES TO THE PROPOSED PROJECT

State CEQA Guidelines Section 15126.6, as amended, mandates that all EIRs include a comparative evaluation of the project with alternatives to the project that are capable of attaining most of the project's basic objectives, but would avoid or substantially lessen any of the significant effects of the project. CEQA requires an evaluation of a "range of reasonable" alternatives, including the "no project" alternative. For a complete discussion of alternatives, see Chapter 5, "Alternatives."

Pursuant to Section 15126.6(c) of the State CEQA Guidelines, this DEIR includes a reasonable range of alternatives to the project that meet most of the objectives of the project and avoid or substantially lessen the identified likely environmental impacts. The following summary describes the alternatives to the project that are evaluated in this DEIR.

The following provides brief descriptions of the alternatives evaluated in this DEIR. The reader is referred to Chapter 5, "Alternatives," for a detailed analysis of project alternatives.

- **Alternative 1: No Project, No Development** assumes no demolition or new construction occurs on the project. The project site would remain in its current condition.
- **Alternative 2: No Project, General Plan Buildout** assumes development consistent with the General Plan and LSAP.
- **Alternative 3: Retain Farm Stand with Reduced Density** assumes the Corn Palace farm stand and associated parking area would be retained onsite and adjacent to the proposed public park and that two fewer residences would be constructed to maintain the 2-acres proposed for park uses.

2.5 AREAS OF CONTROVERSY

A Notice of Preparation (NOP) was distributed for the project on April 13, 2018, to responsible agencies, interested parties, and organizations, as well as private organizations and individuals that may have an interest in the project. A public scoping meeting was held on May 10, 2018. The purpose of the NOP and the scoping meeting was to provide notification that an EIR for was being prepared for the project and to solicit input on the scope and content of the environmental document. The NOP and comments received on the NOP are included in Appendix A of this DEIR. Key concerns and issues that were expressed during the scoping process included the following:

- Construction and operational traffic impacts of the project in combination with other anticipated development in the area;
- Proposed changes to Dahlia Court;
- Impacts to historical and tribal cultural resources;
- Impacts to biological resources, including migratory and wintering birds; and
- Need for wall due to the proposed park being adjacent to Lawrence Expressway;

2.6 ISSUES TO BE RESOLVED

State CEQA Guidelines Section 15123(b)(3) requires that an EIR identify issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the project, the major issues to be resolved include decisions by the City, as the lead agency, related to:

- Whether this DEIR adequately addresses the environmental impacts of the project;
- Whether mitigation measures identified in the DEIR should be adopted and/or modified;
- Whether there are any alternatives or project design modifications that should be considered; and
- Whether the project benefits to the City outweigh identified significant environmental impacts.

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
4.1 Aesthetics			
Impact 4.1-1: Visual Character and Quality Impacts The change in character of the project site, once developed, would be visually compatible with surrounding existing residential neighborhoods to the north, south, and east. Therefore, the project would not substantially degrade the existing visual character or quality of the project site and its surroundings. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.1-2: Light and Glare Impacts Implementation of the project would include uses that would involve new sources of lighting and potential glare within the City of Sunnyvale. The project would be required to comply with City design guidelines and the City Municipal Code and any new sources of light and glare resulting from the project would be similar to that of existing uses surrounding the project site. This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.2 Air Quality			
Impact 4.2-1: Short-Term Construction-Generated Emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ Short-term, construction generated emissions would not exceed BAAQMD's thresholds for ROG, NO_x, PM_{10}, or $PM_{2.5}$. However, unless BAAQMD-Best Management Practices for dust emissions are implemented, construction emissions could contribute to local pollutant concentrations that exceed NAAQS and CAAQS. Therefore, the impact of short-term, construction-generated emissions of criteria pollutants and precursors as a result of project construction would be potentially significant.	PS	**Mitigation Measure 4.2-1: Implement Construction-Related Measures to Reduce Fugitive Dust Emissions** The applicant shall require its construction contractors to implement BAAQMD's Basic Construction Mitigation Measures (BAAQMD 2017b), including but not limited to the following: ▲ Water all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) two times per day. ▲ Cover all haul trucks transporting soil, sand, or other loose material off-site. ▲ Remove all visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day (dry power sweeping is prohibited). ▲ Limit all vehicle speeds on unpaved roads to 15 miles per hour. ▲ Pave all roadways, driveways, and sidewalks as soon as possible, and lay building pads as soon as possible after grading (unless seeding or soil binders are used). ▲ Minimize idling times by shutting equipment off when not in use or reducing the maximum idling time to five minutes. The project will provide clear signage for construction workers at access points.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
		◢ Maintain and properly tune all construction equipment in accordance with manufacturers specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. ◢ Post a publicly visible sign with the telephone number and person to contact at the Lea Agency regarding dust complaints. The person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.	
Impact 4.2-2: Long-Term Operational (Regional) Emissions of Criteria Air Pollutants and Precursors Implementation of the project would not result in long-term operational emissions of ROG, NO_X, PM_{10}, or $PM_{2.5}$ that exceed BAAQMD's thresholds of significance (54 lb/day for ROG, NO_X and PM $_{2.5}$ exhaust; and 82 lb/day for PM_{10}). Thus, long-term operational emissions of criteria air pollutants and precursors would not violate or contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, and/or conflict with air quality planning efforts. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.2-3: Mobile-Source CO Concentrations The project would be consistent with Plan Bay Area 2040 as well as the local congestion management plan. Also, project-generated vehicle trips would not cause any operational deficiencies at nearby intersections, nor would the project add a substantial amount of traffic to any intersection operating at an unacceptable level of service. For these reasons, project-related vehicle trips would not result in, or contribute to, CO concentrations that exceed the NAAQS and CAAQS for CO. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
Impact 4.2-4: Exposure of Sensitive Receptors to TACs Short-term construction activities associated with the project would not result in substantial emissions of diesel PM, would be temporary (i.e., 19 months), and would not be located immediately adjacent to off-site sensitive receptors. The nearest sensitive receptors are single-family residential neighborhoods surrounding the project site. TACs associated with long-term operation of the project would be intermittent, and include only diesel powered delivery trucks serving the residential buildings. Therefore,	LTS	No mitigation is required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
construction- and operation-related TACs would not result in an increase in health risk exposure at off-site sensitive receptors. This impact would be a less than significant.			
Impact 4.2-5: Exposure of Sensitive Receptors to Odors The project would introduce new odor sources into the area (e.g. diesel exhaust generated by delivery trucks). However, these types of odor sources would be limited and infrequent because of the types of uses proposed (i.e. residential and public park). Moreover, these types of odor sources already operate in and near the project area, are common in urban sittings, and do not result in odor complaints. This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.3 Archaeological, Historic, and Tribal Cultural Resources			
Impact 4.3-1: Impacts to Historic Resources Implementation of the Corn Palace Residential project would result in the demolition of existing site structures that appear eligible for CRHR and local listing. Demolition of these on-site structures would result in a significant impact because the historic resources would no longer exist.	S	**Mitigation Measure 4.3-1a: Document Historic Buildings Before Removal** The project applicant shall complete documentation of the buildings present on the Corn Palace property before any construction/demolition work is conducted at the project site. Documentation shall consist of a written history of the property and photographs, as described below. ▲ Written History. The Carey & Co. report, *Historic Resource Evaluation Report, Corn Palace*, shall be used for the written history of each building. The report shall be reproduced on archival bond paper. ▲ Photographs. Digital photographs shall be taken of the dwelling units and the Corn Palace following the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation Digital Photography Standards. The documentation shall be prepared by an architectural historian, or historical architect as appropriate, meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualification Standards. The documentation shall be submitted to the City of Sunnyvale. **Mitigation Measure 4.3-1b: Create an Interpretive Program, Exhibit, or Display** The project applicant shall prepare a permanent exhibit/display of the history of the Corn Palace property including, but not limited to, historic and current photographs, interpretive text, drawings, video, interactive media, and oral histories. The exhibit/display shall be developed in consultation with the City of Sunnyvale, local historical organizations, and those with an interest in the history of the Corn Palace property and/or agricultural historic within the City of Sunnyvale. The exhibit/display	SU

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
		shall be displayed in a location at the proposed park, adjacent to the housing development, that is accessible to the public and may be incorporated into the interpretive exhibit.	
Impact 4.3-2: Potential Impacts to Unique Archaeological Resources Results of the records search and pedestrian survey did not indicate any known archaeological sites within the project site. However, project-related ground-disturbing activities could result in discovery or damage of yet undiscovered subsurface unique archaeological resources. This would be a potentially significant impact.	PS	**Mitigation Measure 4.3-2: Halt Ground-Disturbing Activity Upon Discovery of Subsurface Archaeological Features** In the event that any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100 feet of the resources shall be halted and a professional archaeologist, qualified under the Secretary of the Interior's Professional Qualification Standards, shall be retained to assess the significance of the find. Specifically, the archaeologist shall determine whether the find qualifies as an historical resource, a unique archaeological resource, or a tribal cultural resource. If the find does fall within one of these three categories, the qualified archaeologist shall then make recommendations to the City of Sunnyvale regarding appropriate procedures that could be used to protect the integrity of the resource and to ensure that no additional resources are affected. Procedures could include but would not necessarily be limited to, preservation in place, archival research, subsurface testing, or contiguous block unit excavation and data recovery, with preservation in place being the preferred option if feasible. If the find is a tribal cultural resource, the City of Sunnyvale shall provide a reasonable opportunity for input from representatives of any tribe or tribes the professional archaeologist believes may be associated with the resource. The City shall implement such recommended measures if it determines that they are feasible in light of project design, logistics, and cost considerations.	
Impact 4.3-3: Impacts to Known Tribal Cultural Resources The City of Sunnyvale sent notification for consultation to 16 tribes on August 14, 2018. No responses from tribes contacted were received during the 30-day response period for AB 52 as defined in PRC Section 21074. Because no responses were received, no resources were identified as TCRs. Because no resources meet the criteria for a TCR under PRC Section 21074, there would be no impact to tribal cultural resources.	NI	No mitigation is required.	NI

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
Impact 4.3-4: Discovery of Human Remains Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or un-marked human interments are present within or in the immediate vicinity of the project site. However, ground-disturbing construction activities could uncover previously unknown human remains. Compliance with California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097 would make this impact less than significant.	LTS	No mitigation is required.	LTS
4.4 Biological Resources			
Impact 4.4-1: Disturbance to or Loss of Special-Status Plant Species and Habitat Project implementation could result in the disturbance or loss of one special-status plant species – Congdon's tarplant. Because the loss of special-status plants could substantially affect the abundance, distribution, and viability of local and regional populations, this would be a potentially significant impact.	PS	**Mitigation Measure 4.4-1: Congdon's Tarplant Survey and Avoidance** Before commencing of any ground disturbance or vegetation removal activities, the project applicant shall implement the following measures to reduce potential impacts to Congdon's tarplant. ▲ Before ground disturbance and during the May to November blooming period for Congdon's tarplant, a qualified botanist shall conduct a focused survey for Congdon's tarplant on the project site. This shall include visiting a reference population near the project site to confirm whether the species is blooming or otherwise identifiable in advance of the focused survey. ▲ If Congdon's tarplant is not found, the botanist shall document the findings in a letter report to the City of Sunnyvale and the project applicant and no further mitigation will be required. ▲ If Congdon's tarplant is found and it located outside of the permanent project footprint and can be avoided, the applicant will establish and maintain a protective buffer of sufficient size around the plant to be retained to ensure avoidance. ▲ If individual Congdon's tarplant specimens are found that cannot be avoided during construction, the project applicant shall consult with CDFW to determine the appropriate mitigation measures for direct and indirect impacts that could occur as a result of project construction. The project applicant shall implement measures to achieve no net loss of occupied habitat or individuals. Mitigation measures may include creation of offsite populations on project mitigation sites through seed collection or transplantation, and/or restoring or creating suitable habitat in sufficient quantities to achieve no net loss of occupied habitat and/or individuals.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
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Impact 4.4-2: Disturbance to or Loss of Burrowing Owl Project implementation could result in the disturbance or loss of burrowing owls and their burrows, if present, through disturbance to grassland habitat during ground disturbance activities, such as grading, trenching, or vegetation removal. This would be a potentially significant impact.	PS	Mitigation Measure 4.4-2: Protection of Burrowing Owl The applicant shall implement the following conditions before, and during, grading activities: ◢ The applicant shall retain a qualified biologist to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on the project site and accessible areas of suitable habitat on the project site. Surveys shall be conducted before the start of construction activities and in accordance with Appendix D of CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). ◢ If no occupied burrows are found, a letter report documenting the survey methods and results shall be submitted to the City of Sunnyvale and CDFW and no further mitigation would be required. ◢ If an active burrow is found during the nonbreeding season (September 1 through January 31), the applicant shall consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan shall be developed, as described in Appendix E of CDFW's 2012 Staff Report. Burrowing owls shall not be excluded from occupied burrows until the project's burrowing owl exclusion plan is approved by CDFW. The exclusion plan shall include a plan for creation, maintenance, and monitoring of artificial burrows in suitable habitat proximate to the burrows to be destroyed, that provide substitute burrows for displaced owls. ◢ If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer shall depend on the time of year and level disturbance as outlined in the CDFW Staff Report (CDFW 2012). The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented to prevent burrowing owls from being detrimentally affected. Once the fledglings are capable of independent survival, the owls can be evicted and the burrow	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

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		can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW's 2012 Staff Report. ▲ If active burrowing owl nests are found on the project site and are destroyed by project implementation, the project applicant shall mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW 2012 Staff Report, which states that permanent impacts to nesting, occupied and satellite burrows, and burrowing owl habitat shall be mitigated such that habitat acreage, number of burrows, and burrowing owls adversely affected are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The applicant shall retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards: ◤ Mitigation lands shall be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species range wide. ◤ If feasible, mitigation lands shall be provided adjacent or proximate to the project site so that displaced owls can relocate with reduced risk of take. Feasibility of providing mitigation adjacent or proximate to the project site depends on availability of sufficient suitable habitat to support displaced owls that may be preserved in perpetuity. ◤ If suitable habitat is not available for conservation adjacent or proximate to the project site, mitigation lands shall be focused on consolidating and enlarging conservation areas outside of urban and planned growth areas and within foraging distance of other conservation lands. Mitigation may be accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. If mitigation credits are not available from an approved bank and mitigation lands are not available adjacent to other conservation lands, alternative mitigation sites and acreage shall be determined in consultation with CDFW. ◤ If mitigation is not available through an approved mitigation bank and will be completed through permittee-responsible conservation lands, the	

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		mitigation plan shall include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success shall be based on the number of adult burrowing owls and pairs using the project site and if the numbers are maintained over time. Measures of success, as suggested in the 2012 Staff Report, shall include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors.	
Impact 4.4-3: Disturbance to or Loss of White-Tailed Kite, Nesting Raptors, and Other Birds Project implementation could result in the disturbance or loss of nesting raptors, special-status birds, and other birds, if present, through removal of trees and vegetation. This would be a potentially significant impact.	PS	**Mitigation Measure 4.4-3: Protection Measures for Nesting Raptors and Other Birds** The applicant shall impose the following conditions before, and during, construction: ◢ To minimize the potential for loss of nesting raptors and other birds, tree removal activities will only occur during the nonbreeding season (September 1-January 31). If all suitable nesting habitat is removed during the nonbreeding season, no further mitigation will be required. ◢ Before removal of any trees or other vegetation, or ground disturbing activities between February 1 and August 31, a qualified biologist will conduct preconstruction surveys for nesting raptors and other birds and will identify active nests within 500 feet of the project site. The surveys will be conducted before the beginning of any construction activities between February 1 and August 31. ◢ Impacts to nesting raptors will be avoided by establishing appropriate buffers around active nest sites identified during preconstruction surveys. Activity will not commence within the buffer areas until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer will not likely result in nest abandonment. Typical buffers are 500 feet for raptors, but the size of the buffer may be adjusted if a qualified biologist, in consultation with CDFW, determines that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during construction activities may be required if the activity has potential to adversely affect the nest.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

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		◢ Trees will not be removed during the breeding season for nesting raptors unless a survey by a qualified biologist verifies that there is not an active nest in the tree.	
Impact 4.4-4: Consistency with City of Sunnyvale Tree Preservation Ordinance Project implementation could result in the removal of or damage to trees, including those considered "protected trees" under the City of Sunnyvale Tree Preservation Ordinance. Activities such as ground disturbance and vegetation removal could result in direct tree removal and indirect impacts to root systems which would conflict with the ordinance. Direct loss or damage to trees protected under the ordinance would be a potentially significant impact.	PS	Mitigation Measure 4.4-4: Tree Protection Requirements ◢ The applicant will prepare and submit an arborist report to the director of community development showing the location, size, and species of all trees (protected and unprotected) on the project site. The report must indicate which, if any, protected trees are planned for removal and explain why the trees cannot be relocated or the project design altered to maintain the trees. An application for a protected tree removal permit will also be submitted to the director of community development. Removal of protected trees may be permitted at the discretion of the director. ◢ Protected trees designated for preservation shall be protected during project construction using the following methods: ◤ Protective fencing shall be installed no closer to the trunk than the dripline, and far enough from the trunk to protect the integrity of the tree. The fence shall be a minimum of 4 feet in height and shall be set securely in place. The fence shall be made of sturdy but open material (e.g., chain link) to allow visibility to the trunk for inspections and safety. ◤ The existing grade level around a tree shall normally be maintained out to the dripline of the tree. Alternate grade levels, as described in the tree protection plan, may be approved by the director of community development. ◤ Drain wells shall be installed whenever impervious surfaces will be placed over the root system of a tree. ◤ Pruning that is necessary to accommodate a project feature, such as a building, road, or walkway, shall be reviewed and approved by the department of community development and the department of public works. ◤ New landscaping installed within the dripline of an existing tree shall be designed to reproduce a similar environment to that which existed before construction.	LTS

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4.5 Energy			
Impact 4.5-1: Result In Inefficient and Wasteful Consumption of Energy The project would increase electricity and natural gas consumption at the project site relative to existing conditions; however, the project would be constructed in compliance with the 2019 Title 24 Building Code which requires that renewable energy sources such as solar photovoltaic systems offset the electricity demand of new residential buildings. Additionally, the project is committed to zero net electricity residential units through the installation of photovoltaic systems and high efficiency appliances and lighting. Furthermore, the project would include GHG Reduction Measures developed using Appendix B, Local Action, of the 2017 Scoping Plan, many of which would have direct and indirect benefits to energy consumption associated with improved efficiency and decreased gasoline and diesel fuel consumption. Construction energy consumption would be temporary and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. For these reasons, the project would not result in wasteful, inefficient, or unnecessary consumption of energy. This impact would be less than significant.	LTS	No mitigation is required.	LTS
Impact 4.5-2: Demand for Energy Services and Facilities The project is committed to zero net electricity residential buildings. Adequate infrastructure and capacity exists adjacent to the project area that could meet the project's energy needs. Thus, this impact is less than significant.	LTS	No mitigation is required.	LTS
4.6 Hazards and Hazardous Materials			
Impact 4.6-1: Create a Significant Hazard Through Transport, Use, or Disposal of Common Hazardous Materials Development of the project site could create a significant hazard to the public or the environment through the routine transport, use, or disposal of commonly used hazardous materials during construction and operation activities. Project operation activities associated with hazardous materials at the project site would be required to comply with all applicable federal, state, and local regulations related to hazardous materials. In addition, development contractors would be required to comply with federal and state health and safety regulations during construction activities, including OSHA requirements pertaining to worker safety. Because construction and operation of the project would be required to occur in accordance with project conditions of approval and OSHA requirements, the creation of a significant hazard to the public through routine, transport, use, and disposal of hazardous materials would be less than significant.	LTS	No mitigation is required.	LTS

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Impact 4.6-2: Create Potential Human Health Hazards From Exposure to Existing On-Site Hazardous Materials Elevated concentrations of DDT, chlordane, and dieldrin in soil were found above residential screening values in samples recently collected on-site. In addition, historical structures may contain asbestos and lead-based paint and wells and septic tanks. Demolition, grading, and other construction-related activities could disturb these hazardous materials and become detrimental to the health of construction workers and other people who come into contact with contaminated materials. This impact would be potentially significant.	PS	**Mitigation Measure 4.6-2: Complete Excavation, Validation Testing, and Case Closure Activities Associated with the FSRAWP** The project applicant shall direct that all activities listed in the FSRAWP are completed by the contractor before the start of construction. These activities include the following and will be noted in the project's improvement plans. Design and pre-field work tasks: ▲ pre-sampling surveys; ▲ attainment of necessary permits (e.g., BAAQMD fugitive dust emission and City grading plan); ▲ preparation of a human health risk assessment and site-specific Health and Safety Plan to be approved by DEH; and ▲ pre-fieldwork activities, such as securing site access, delineation of exclusion zones, and placement of temporary construction fences. Remedial actions consist of: ▲ excavation of contaminated soils, ▲ soil grading to backfill excavation areas to match surrounding, ▲ confirmation sampling to ensure that contaminant levels meet SFRWQCB requirements, and ▲ completion of closure procedures through DEH approval process. During the excavation activities discussed in the FSRAWP, a field engineer or geologist under the supervision of a California Professional Geologist or Engineer will document field observations. The field notes will contain pertinent observations about excavation dimensions, equipment operation, unusual conditions encountered during excavation, date and time of arrival, general site conditions, and other field observations relating to the project site. Field documentation will also include photographs, written logs, information about site meetings, health and safety training, and chain-of-custody records. Following attainment of Remedial Action Objectives, as validated by soil sampling and testing, a closure request report will be developed and submitted to DEH. The report will include any changes to the proposed design and will provide the results of the validation testing along with a request for unrestricted site case closure. Construction of the project will not begin until case closure has been granted by DEH.	

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Impact 4.6-3: Impair Emergency Response or Evacuation Plans In the event of an emergency that would require citizens to evacuate, including those citizens who live in the City of Sunnyvale, Santa Clara County would implement its Countywide EOP. The Countywide EOP provides a comprehensive, single-source of guidance and procedure for the County to prepare for, respond to, and manage significant or catastrophic natural or man-made threats, crises, incidents, or events that produce situations requiring a coordinated response. Construction of the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.7 Transportation and Circulation			
Impact 4.7-1: Impacts to Intersection Operating Conditions All study intersections are projected to operate at acceptable LOS under Existing Plus Project and Background Plus Project a.m. and p.m. peak-hour conditions. Thus, this impact is less than significant.	LTS	No mitigation is required.	LTS
Impact 4.7-2: Impacts to Bicycle and Pedestrian Facilities Bicycle and pedestrian facilities in the vicinity of the proposed project are adequate to accommodate the proposed project. The project would not adversely affect existing or planned facilities and would not result in unsafe conditions for bicyclist or pedestrians. Additionally, the project would provide new sidewalks along the border of the project site on Lily Avenue, Toyon Avenue, Dahlia Drive, and Dahlia Court. Therefore, this would be a less-than-significant impact.	LTS	No mitigation required.	LTS
Impact 4.7-3: Impacts to Transit Facilities Transit facilities in the vicinity of the project are adequate to accommodate the increase transit demand generated by the project. Additionally, the project would not adversely affect existing or planned transit service. Therefore, this would be a less-than-significant impact.	LTS	No mitigation required.	LTS
Impact 4.7-4: Transportation Hazards All roadway improvements associated with the project would be constructed in accordance with applicable City of Sunnyvale design and safety standards. Additionally, the project is subject to the City of Sunnyvale off-site improvement plan review process; thus, ensuring that that the project design will comply with the City of Sunnyvale Municipal Code and no parking would be allowed within driveway vision triangles. Therefore, this impact is less than significant.	LTS	No mitigation required.	LTS

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Impact 4.7-5: Construction-Related Impacts on Traffic Project construction may require restricting or redirecting pedestrian, bicycle, and vehicular movements at locations around the site to accommodate construction, staging, and modifications to existing infrastructure. Such restrictions could include lane closures, lane narrowing, and detours. For these reasons, construction traffic impacts would be potentially significant.	PS	**Mitigation Measure 4.7-5: Preparation and Implementation of a Temporary Traffic Control Plan** Before the beginning of construction or issuance of building permits, the developer or the construction contractor will prepare a temporary traffic control plan (TTC) to the satisfaction of the City of Sunnyvale Division of Transportation and Traffic and subject to review by all affected agencies. The TTC shall include all information required on the City of Sunnyvale TTC Checklist and conform to the TTC Guidelines of the City of Sunnyvale. At a minimum, the plan shall include and/or show: ◢ provide vicinity map including all streets within the work zone properly labeled with names, posted speed limits and north arrow; ◢ provide existing roadway lane and bike lane configuration and sidewalks where applicable including dimensions; ◢ description of proposed work zone; ◢ description of detours and/or lane closures (pedestrians, bicyclists, vehicular); ◢ description of no parking zone or parking restrictions; ◢ provide appropriate tapers and lengths, signs, and spacing; ◢ provide appropriate channelization devices and spacing; ◢ description of buffers; ◢ provide work hours/work days; ◢ dimensions of above elements and requirements per latest CA-MUTCD Part 6 and City of Sunnyvale's SOP for bike lane closures; ◢ provide proposed speed limit changes if applicable; ◢ description of bus stops, signalized and non-signalized intersection impacted by the work; ◢ show plan to address pedestrians, bicycle and ADA requirement throughout the work zone per CA-MUTCD Part 6 and City of Sunnyvale's SOP for Bike lane closures; ◢ indicate if phasing or staging is requested and duration of each;	LTS

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		◢ description of trucks including: number and size of trucks per day, expected arrival/departure times, truck circulation patterns; ◢ provide all staging areas on the project site; and ◢ ensure that the contractor has obtained and read the City of Sunnyvale's TTC Guidelines and City of Sunnyvale's SOP for bike lane closures; ◢ ensure traffic impacts are localized and temporary.	
4.8 Greenhouse Gas Emissions			
Impact 4.8-1: Project-Generated GHG Emissions Project construction would generate approximately 966 $MTCO_2e$. Operation of the project would generate approximately 675 $MTCO_2e$/year. Because the project would not be consistent with a local or regional adopted for the purpose of sufficiently reducing the emissions of GHGs after 2020, project-related GHG emissions would contribute to climate change. This impact would be significant.	S	**Mitigation Measure 4.8-1: Implement Project Features to be Consistent with A Future Qualified Climate Action Plan or Implement All Feasible On-Site Greenhouse Gas Reduction Measures And Purchase Carbon Offsets** A. The applicant shall implement project design features sufficient to demonstrate that the project would be consistent with the next version of the City's climate action plan, referred to as CAP 2.0. This option can only be followed if the CAP 2.0 meets the criteria listed in Section 15183.5b(1) of the State CEQA Guidelines prior to any project-related demolition or construction activity. This option can also only be followed if the CAP 2.0 is aligned with the statewide GHG reduction target established by SB 32 of 2016 (i.e., 40 percent below 1990 levels by 2030) and any additional post-2030 statewide reduction targets established by the state legislature at the time. The applicant must follow the City's process for demonstrating that a project is consistent with the CAP 2.0. If CAP 2.0 is not adopted at the time of construction of project facilities, the applicant shall implement Parts B and C of this mitigation measure. B. The applicant shall implement all feasible measures to reduce GHG emissions associated with the project, including but not limited to the construction- and operation-related measures listed below. The applicant may refrain from implementing some of the measures below only if it provides substantial evidence to the City that substantiates why the measure is infeasible for this project. The GHG reductions achieved by the implementation of measures listed in Part B shall be estimated by a qualified third-party selected by the City. All GHG reduction estimates shall be supported by substantial evidence. The effort to quantify the GHG reductions shall be fully funded by the project applicant. Measures should be implemented even if it is reasonable that its	LTS

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		implementation would result in a GHG reduction, but a reliable quantification of the reduction cannot be substantiated. The applicant shall incorporate onsite design measures into the project and submit verification to the City prior to issuance of building permits. Many of these measures are identical to, or consistent with, the measures listed in Appendix B of the 2017 Scoping Plan (CARB 2017a: B-7 to B-8): a. Construction-related GHG Reduction Measures. Implementation of these measures shall be required in the contract the applicant establishes with its construction contractors and identified in the project improvement and site design plans. i. The applicant shall require its contractors to enforce idling of on- and off-road diesel equipment for no more than 5 minutes while on site. This measure is also required by Mitigation Measure 4.2-1, which addresses emissions of particulate matter. ii. The applicant shall implement waste, disposal, and recycling strategies in accordance with Sections 4.408 and 5.408 of the 2016 California Green Building Standards Code (CALGreen Code), or in accordance with any update to these requirements in future iterations of the CALGreen Code in place at the time of project construction. iii. Project construction shall achieve or exceed the enhanced Tier 2 targets for recycling or reusing construction waste of 75 percent for residential land uses as contained in Sections A4.408 and A5.408 of the CALGreen Code. iv. All diesel-powered, off-road construction equipment shall meet EPA's Tier 4 emissions standards as defined in 40 Code of Federal Regulation (CFR) 1039 and comply with the exhaust emission test procedures and provisions of 40 CFR Parts 1065 and 1068. Tier 3 models can be used if a Tier 4 version of the equipment type is not yet produced by manufacturers. This measure can also be achieved by using battery-electric off-road equipment as it becomes available. v. All diesel-powered construction equipment shall be powered only with renewable diesel fuel. The renewable diesel fuel shall meet	

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		California's LCFS and be certified by CARB Executive Officer; be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100 percent biomass material (i.e., non-petroleum sources), such as animal fats and vegetables; contain no fatty acids or functionalized fatty acid esters; and have a chemical structure that is identical to petroleum-based diesel and complies with American Society for Testing and Materials D975 requirements for diesel fuels to ensure compatibility with all existing diesel engines. Suppliers of renewable diesel in the San Francisco Bay Area include Ramos Oil, Propel Fuels, and Western States Oil. The cost of renewable diesel fuel is typically 5 to 6 cents higher per gallon than for conventional diesel fuel. Local governments that have adopted renewable diesel fuel for their diesel vehicle fleets include the City and County of San Francisco, Sacramento County, San Diego County, and Carlsbad (Western States Oil 2018). Moreover, staff at CARB note that some large additional renewable diesel production projects are currently being planned (Wade, pers. comm., 2018). vi. The applicant shall implement a program that incentives construction workers to carpool, use public transit, or EVs to commute to and from the project site. b. Operational GHG Reduction Measures i. The applicant shall achieve as many residential zero net energy (ZNE) buildings as feasible. Prior to the issuance of building permits the project developer or its designee shall submit a Zero Net Energy Confirmation Report (ZNE Report) prepared by a qualified building energy efficiency and design consultant to the city for review and approval. The ZNE Report shall demonstrate that development within the project area subject to application of the California Energy Code has been designed and shall be constructed to achieve ZNE, as defined by CEC in its 2015 Integrated Energy Policy Report, or otherwise achieve an equivalent level of energy efficiency, renewable energy generation, or GHG emissions savings. This measure would differ than the project's commitment zero net	

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		electricity because ZNE also concerns on-site consumption of natural gas. ii. All buildings shall include rooftop solar photovoltaic systems to supply electricity to the buildings. Alternatively, solar photovoltaic systems can be installed on canopies that also shade parking areas. iii. The applicant shall install rooftop solar water heaters if room is available after installing photovoltaic panels. iv. Any household appliances included in the original sale of the residential units shall be electric and certified Energy Star-certified (including clothes washers, dish washers, fans, and refrigerators, but not including tankless water heaters). v. The applicant shall install programmable thermostat timers in all residential dwelling units that allow users to easily control when the HVAC system will heat or cool a certain space, thereby saving energy. vi. Single-family residential buildings shall include efficiency design features that meet standards established by Tier 2 of CalGreen. vii. All buildings shall be designed to include cool roofs consistent with requirements established by Tier 2 of the CALGreen Code. viii. All buildings shall be designed to comply with requirements for water efficiency and conservation as established in the CALGreen Code. ix. If natural gas service is provided to the project site then natural gas connections must be provided in the backyards of single-family homes. This measure is not required if natural gas connections are not provided to the project site. x. Electrical outlets shall be included on every exterior wall of all buildings. These exterior outlets will enable the use of electric-powered landscape maintenance equipment thereby providing an alternative to using fossil fuel-powered generators. xi. Any outdoor parking lot that is part the public park shall include trees and/or solar canopies designed to provide a minimum 50 percent shading of parking lot surface areas.	

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		xii. Provide a minimum of one single-port electric vehicle charging station at each new residential unit that achieves similar or better functionality as a Level 2 charging station (referring to the voltage that the electric vehicle charger uses). xiii. Create safe paths of travel to building and park access points, connecting to existing bicycle and pedestrian facilities. C. In addition to the measures listed under Part B, the applicant shall offset GHG emissions to zero by funding activities that directly reduce or sequester GHG emissions or by purchasing and retiring carbon credits. To the degree that a project relies on GHG mitigation measures, the City of Sunnyvale, BAAQMD, and CARB recommend that lead agencies prioritize on-site design features, such as those listed in Part B of this mitigation measure, and direct investments in GHG reductions within the vicinity of the project site to provide potential air quality and economic co-benefits locally. While emissions of GHGs and their contribution to climate change is a global problem, emissions of air pollutants, which have a localized effect, are often emitted from similar activities that generate GHG emissions (i.e., mobile, energy, and area sources). For example, direct investment in a local building retrofit programs could pay for cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting, energy efficient appliances, energy efficient windows, insulation, and water conservation measures for homes within the geographic area of the project. Other examples of local direct investments include financing installation of regional electric vehicle charging stations, paying for electrification of public school buses, and investing in local urban forests. These investments would not only achieve GHG reductions, but would also directly improve regional and local ambient air quality. However, to adequately mitigate GHG emissions to zero, it is critical that any such investments in actions to reduce GHG emissions meet the criteria of being real, additional, quantifiable, enforceable, validated, and permanent, as stated in CEQA Guidelines Section 15126.4(C)(3). Where further project design or regional investments are infeasible or not proven to be effective, it may be appropriate and feasible to mitigate project emissions through purchasing and retiring carbon credits issues by a recognized and reputable accredited carbon registry (e.g., Climate Action Reserve).	

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		The CEQA Guidelines recommend several options for mitigating GHG emissions. State CEQA Guidelines Section 15126.4(C)(3) states that measures to mitigate the significant effects of GHG emissions may include "off-site measures, including offsets that are not otherwise required..." Through the purchase of GHG credits through voluntary participation in an approved registry, GHG emissions may be reduced at the project level. GHG reductions must meet the following criteria: ◢ Real-represent reductions actually achieved (not based on maximum permit levels), ◢ Additional/Surplus-not already planned or required by regulation or policy (i.e., not double counted), ◢ Quantifiable-readily accounted for through process information and other reliable data, ◢ Enforceable-acquired through legally-binding commitments/agreements, ◢ Validated-verified through accurate means by a reliable third party, and ◢ Permanent-will remain as GHG reductions in perpetuity. In partnership with offset providers, the applicant shall purchase credits to offset 966 $MTCO_2e$ of the project's construction-related GHGs prior to the start of construction from a verified program that meets the above criteria. The applicant shall also purchase 675 $MTCO_2e$ of the project's operational-related GHGs from available programs that not only meet the above criteria, but, demonstrate the ability to counterbalance GHG emissions over the lifespan of the project or "in perpetuity." For example, the purchase of an offset generated by a reforestation or forest preservation program would entail replanting or maintenance of carbon sequestering trees, which would continue to sequester carbon over several years, decades, or even centuries (Forest Trends 2017). The offsets purchased must offer an equivalent GHG reduction benefit annually or more GHGs reduced annually as opposed to a one-time reduction. Alternatively, if such offset programs are unavailable or infeasible, prior to commencing operation, the applicant shall also purchase credits to offset the project's operational emissions of 675 $MTCO_2e$/year multiplied by the number of years of operation between commencement of operation and 2050, which is the target year of Executive Order S-3-05. It should be noted, however, that this	

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
		number is subject to change depending on alterations in the level of on-site mitigation applied to the project depending on the feasibility of individual measures, including those listed in Part B of this mitigation measure. Offset protocols and validation applied to the project could be developed based on existing standards (e.g., Climate Registry Programs) or could be developed independently, provided such protocols satisfy the basic criterion of "additionality" (i.e. the reductions would not happen without the financial support of purchasing carbon offsets). Prior to issuing building permits for development within the project, the city shall confirm that the project developer or its designee has fully offset the project's remaining (i.e. post implementation of GHG reduction measures listed in Part B) GHG emissions by relying upon one of the following compliance options, or a combination thereof: ◢ demonstrate that the project developer has directly undertaken or funded activities that reduce or sequester GHG emissions that are estimated to result in GHG reduction credits (if such programs are available), and retire such GHG reduction credits in a quantity equal to the project's remaining GHG emissions; ◢ provide a guarantee that it shall retire carbon credits issued in connection with direct investments (if such programs exist at the time of building permit issuance) in a quantity equal to the project's remaining GHG emissions; ◢ undertake or fund direct investments (if such programs exist at the time of building permit issuance) and retire the associated carbon credits in a quantity equal to the project's remaining GHG emissions; or ◢ if it is impracticable to fully offset the project's GHG emissions through direct investments or quantifiable and verifiable programs do not exist, the project developer or its designee may purchase and retire carbon credits that have been issued by a recognized and reputable, accredited carbon registry in a quantity equal to the project's remaining GHG Emissions.	

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
4.9 Noise and Vibration			
Impact 4.9-1: Construction Noise Construction activity would be limited Monday through Friday, during daytime hours and occur during less noise-sensitive daytime hours. Short-term construction-generated noise levels associated with the project could expose nearby noise-sensitive receptors to a substantial temporary increase in noise levels at the surrounding noise-sensitive receptors. This impact would be significant.	S	Mitigation Measure 4.9-1: Implement Construction-Noise Reduction Measures To minimize noise levels during construction activities, the construction contractors shall comply with the following measures during all construction work that will be identified in project improvement plans: ◢ All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation. ◢ Noise-reducing enclosures and techniques shall be used around stationary noise-generating equipment (e.g., concrete mixers, generators, compressors). ◢ Where available and feasible, construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that only sound when an object is detected. Self-adjusting backup alarms shall automatically adjust to 5 dB over the surrounding background levels. All non-self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels. ◢ Designate a disturbance coordinator and post that person's telephone number conspicuously around the construction site and provide to nearby residences. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any feasible measures to alleviate the problem. ◢ Install temporary noise curtains as close as feasible to noise-generating activity and that blocks the direct line of sight between the noise source and the nearest noise-sensitive receptor(s). Temporary noise curtains shall consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side. The noise barrier layer shall consist of rugged, impervious, material with a surface weight of at least one pound per square foot.	
Impact 4.9-2: Operational-Related Traffic Noise Traffic generated by the project would result in less than 1 dB increase in traffic noise on Lawrence Expressway, the primary access road to the project site. This level of noise	LTS	No mitigation required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
increase would not be perceptible to the human ear and, therefore, would not be considered a substantial increase in noise. This impact would be less than significant.			
Cumulative Impacts			
Impact 6-1: Substantial Adverse Cumulative Effect on Visual Character and/or Quality The existing project site consists of 8.8 acres of vacant and generally undeveloped land within the City of Sunnyvale. Areas surrounding the project site include a mix of both residential and commercial uses. In combination with other residential development planned or already being constructed within the project vicinity, the project could potentially result in visible construction impacts. As described in Section 4.1, "Aesthetics," Impact 4.1-1, construction activity associated with the project would be temporary in nature and would not result in permanent impacts to visual character and quality of the existing urban character of the area. Therefore, construction impacts in combination with other planned projects would not be cumulatively considerable. The project, in addition to other planned projects, would be required to be consistent with the City of Sunnyvale General Plan and LSAP policies and design guidelines that require compatible urban development and enhancement of the existing visual character of the LSAP area. Thus, the project's contribution to substantial changes to visual character and quality would not be cumulatively considerable.	LTS	No mitigation required.	LTS
Impact 6-2: Substantial Adverse Cumulative Effect on Light and Glare The cumulative setting for light and glare impacts is confined to the area surrounding the project site. The project site is bound by existing development, including residential uses and existing roadways. Implementation of the project would create new nighttime lighting compared to existing conditions, however, new lighting and/or glare would be comparable and consistent with surrounding uses. Given the developed nature of the area, the project, in combination with surrounding uses and projects planned or currently under construction, would not result in substantial adverse impacts related to light and glare. Implementation of the project and other projects within the project site vicinity would be required to adhere to the City of Sunnyvale Municipal Code and design guidelines that would prevent any excess light and/or glare illumination and offset any lighting/glare impacts. Therefore, the project's contribution to substantial effects of light and glare would not be cumulatively considerable.	LTS	No mitigation required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
Impact 6-3: Cumulative Effect on Air Quality The LSAP Final EIR identified that buildout of the LSAP area in combination with buildout of the City under the LUTE Update and regional growth would result in cumulatively considerable and significant and unavoidable air quality from increased air pollutant emissions (City of Sunnyvale 2016). As identified in Table 4.2-4 and 4.2-5 in Section 4.2, "Air Quality," the project's construction and operational emissions would not exceed the Bay Area Air Quality Management District's thresholds of significance. Further the project is consistent with the land use designations and development potential in the LSAP and LUTE Update. Thus, project's contributions to these traffic operation impacts were already disclosed in the LSAP Final EIR and would not result in a substantial increase in the severity of these impacts. Therefore, the project's contribution to new or increased cumulative air quality impacts would not be cumulatively considerable.	LTS	No mitigation required.	LTS
Impact 6-4: Cumulative Effect on Historic Resources Because all significant historic resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant historical resources, all adverse effects erode a dwindling resource base. The loss of any one historical site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the historic system of which they are a part. As discussed in Section 4.3, "Archaeological, Historic, and Tribal Cultural Resources," the project site appears eligible for California Register of Historic Resources (CRHR) and local listing. Implementation of the project would result in demolishment of existing site structures on the project site. The project site is considered to be one of very few remaining agricultural lands in Sunnyvale; and is a rare survivor of a family farm from the period when agriculture dominated the local economy. Mitigation Measures 4.3-1a and 4.3-1b would partially mitigate the project's impacts on this historic property, though not to a less than considerable level. Because the project would result in the loss of a historic resource within the City of Sunnyvale, the project's incremental contribution to these cumulative effects would be cumulatively considerable; therefore, this would be a significant and unavoidable cumulative impact.	SU	There are no additional feasible mitigation measures to reduce the project's contribution to cumulative historic resources to less than cumulatively considerable.	SU

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
Impact 6-5: Cumulative Effect on Previously Undiscovered Unique Archaeological Resources As indicated through the records search and pedestrian surveys, no known prehistoric or historic-period archaeological sites are present within the project site. Because cultural resources surveys and archival review did not result in the identification of any prehistoric or historic-period archaeological resources within the project site or a half-mile radius and the project site has been continually disturbed for agricultural production, the sensitivity of the project site and vicinity for known archaeological sites is considered low. Based on previous cultural resource surveys and research, the project is within an area historically occupied by the Ohlone. The proposed project, in combination with other development in Ohlone territory could contribute to the loss of undiscovered unique archaeological resources. Implementation of the project, in combination with other proposed or planned projects within the Ohlone territory, would involve ground-disturbing activities which could result in discovery of or damage to previously undiscovered archaeological as defined in State CEQA Guidelines Section 15064.5. This could result in potentially significant cumulative impacts to previously undiscovered or unrecorded archaeological sites and materials. However, when considered in combination with the impacts of other projects in the cumulative scenario, the project would not be cumulatively considerable because implementation of Mitigation Measures 4.3-2 would reduce project impacts associated with accidental damage to unknown resources. Further, cumulative development would be required to implement similar mitigation to avoid/reduce impacts to archaeological resources. Therefore, the project's potential contribution to impacts related to previously undiscovered archaeological resources would not be cumulatively considerable.	LTS	No mitigation required.	LTS
Impact 6-6: Cumulative Effects Related to Disturbance or Loss of Special-Status Plants, Burrowing Owl, White-Tailed Kite, Nesting Raptors and Other Birds As identified in Impact 4.4-1 through 4.3 of Section 4.4, "Biological Resources," implementation of the project would result in potential disturbance or loss of the following special-status plant and wildlife species: Congdon's tarplant, burrowing owls, white-tailed kite, nesting raptors, and other birds. Specifically, loss of grassland habitat on-site could result in the disturbance or loss of Congdon's tarplant and burrowing owls, both special-status species. Removal of on-site trees and vegetation could result in the disturbance or loss of nesting raptors, special-status birds, and other birds, if present.	LTS	No mitigation required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
Decades of growth and development in the vicinity have resulted in an overall significant cumulative effect related to disturbance or loss of these sensitive species and their habitat. Present and probable future projects in the vicinity are primarily infill development that would be less likely to result in adverse effects on special-status plants and burrowing owl due to previous habitat removal and degradation. Present and probable future development in the vicinity would likely result in removal of trees, potentially affecting nesting raptors and other birds. When combined with other past, present, and probable future projects with similar biological effects, implementation of the project would contribute to an adverse cumulative effect on special-status species and their habitat. However, all potential cumulative projects must comply with federal, state, and local regulations regarding listed or other protected species and habitats, and potential impacts to special-status plants and special-status wildlife will require mitigation to reduce project impacts to a less-than-significant level. With implementation of mitigation measures 4.4-1 through 4.4-3 to avoid, minimize, and compensate for project impacts to special-status species and their habitat, the project is not expected to substantially affect the distribution, breeding productivity, population viability, or the regional population of any special-status species; or cause a change in species diversity locally or regionally. Mitigation measures include conducting focused preconstruction surveys for special-status species, nesting raptors, and other birds, which would avoid, minimize, or compensate for the loss of individuals, burrows, nests, or roost sites of these species during construction. Therefore, the project's potential contribution to impacts on special-status species, nesting raptors, and other birds would not be cumulatively considerable.			
Impact 6-7: Cumulative Effects Related to Consistency with City of Sunnyvale Tree Preservation Ordinance As identified in Impact 4.4-4 of Section 4.4, "Biological Resources," implementation of the project would result in the removal of or damage to "protected trees" under the City of Sunnyvale Tree Preservation Ordinance. Growth and development in the project vicinity have resulted in an overall significant cumulative effect related to removal or damage of protected trees. Activities such as ground disturbance and vegetation removal could result in direct tree removal and indirect impacts to root systems which would conflict with the ordinance. When combined with other past, present, and probable future projects that result in disturbance or removal of "protected trees", implementation of the project would contribute to an adverse cumulative effect on	LTS	No mitigation required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
"protected trees" if implementation was inconsistent with the City's Tree Preservation Ordinance. With implementation of Mitigation Measure 4.4-4, the applicant would be required to maintain compliance with the City of Sunnyvale Tree Preservation Ordinance and the project would offset impacts to "protected trees". Therefore, the project's potential contribution to impacts related to consistency with City of Sunnyvale Tree Preservation Ordinance would not be cumulatively considerable.			
Impact 6-8: Cumulative Effects Related to Energy Use As identified in Impact 4.5-1 of Section 4.5, "Energy," implementation of the project would increase electricity and natural gas consumption at the project site relative to existing conditions; however, the project would be constructed in compliance with the 2019 Title 24 Building Code which requires that renewable energy sources such as solar photovoltaic systems offset the electricity demand of new residential buildings. Additionally, the project is committed to zero net electricity residential units through the installation of photovoltaic systems and high efficiency appliances and lighting. The project is also located 0.46 miles of a major transit facility (Caltrain Lawrence Station) and would provide pedestrian (sidewalk) improvements in the project area. Therefore, the project's potential contribution to impacts related to energy use would not be cumulatively considerable.	LTS	No mitigation required.	LTS
Impact 6-9: Create Potential Human Health Hazards From Exposure to Existing On-Site Hazardous Materials As identified in Impact 4.6-2 (see Section 4.6, "Hazards and Hazardous Materials" of this DEIR), potential human health hazards from exposure to existing on-site hazardous materials could occur during demolition, grading, and other construction-related activities of the project. On-site soil is contaminated with DDT, chlordane, and dieldrin due to past pesticide application. In addition, demolition of on-site historic structures could result in release of hazardous building materials (i.e., asbestos and lead-based paint) as well as an accompanying septic and well system. When combined with other past, present, and probable future projects with similar issues, implementation of the project would contribute to an adverse cumulative effect related to potential human health hazards from exposure to hazardous materials. All potential cumulative projects must comply with federal, state, and local regulations related to hazards and hazardous materials that will require mitigation to reduce project impacts to a less-than-significant level. As discussed in Section 4.6, "Hazards and Hazardous Materials", the project applicant entered into a Voluntary Cleanup	LTS	No mitigation required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
Program (VCP) agreement with the Santa Clara County Department of Environmental Health (DEH), on March 27, 2017, to remediate the project site. As part of the VCP agreement, a Feasibility Study/Remedial Action Workplan (FSRAWP) was developed and approved by DEH in March 2018. With implementation of Mitigation Measures 4.6-2 (see Section 4.6, "Hazards and Hazardous Materials" of this DEIR), the project applicant is required to direct that all activities listed in the FSRAWP are completed by the contractor before the start of construction and case closure has been granted by DEH. Implementation of this mitigation measure would offset the project's potential public health impacts. Therefore, the project's potential contribution to human health hazards from exposure to hazardous materials would not be cumulatively considerable.			
Impact 6-10: Cumulative Effect on Traffic Operations The LSAP Final EIR identified that buildout of the LSAP area in combination with buildout of the City under the LUTE Update and regional growth would result in the following significant traffic operations impacts (City of Sunnyvale 2016): ◢ Lawrence Expressway/Tasman Drive Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection) ◢ Lawrence Expressway/Lakehaven Drive Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection) ◢ Lawrence Expressway/Oakmead Parkway Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection) ◢ Lawrence Expressway/Arques Avenue Intersection in p.m. peak hour (Congestion Management Plan intersection) ◢ Wolfe Road/Arques Avenue Intersection in a.m. peak hour ◢ Wolfe Road/Kifer Road Intersection in a.m. and p.m. peak hour ◢ Wolfe Road/Reed Avenue Intersection in a.m. peak hour ◢ Wolfe Road/Fremont Avenue Intersection in a.m. and p.m. peak hour ◢ Lawrence Expressway/Cabrillo Avenue Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection located in the City of Santa Clara) ◢ Lawrence Expressway/Brenton Street Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection located in the City of Santa Clara)	LTS	No mitigation required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
◢ Lawrence Expressway/Homestead Road Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection located in the City of Santa Clara) ◢ Lawrence Expressway/Pruneridge Avenue Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection located in the City of Santa Clara) ◢ Lawrence Expressway/I-280 Southbound Ramp Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection) ◢ Bowers Avenue/Central Expressway Intersection in a.m. and p.m. peak hour ◢ Bowers Avenue/Kifer Road Intersection in p.m. peak hour ◢ Bowers Avenue/Monroe Street Intersection in p.m. peak hour ◢ SR 237 - Lawrence Expressway to Great American Parkway both directions in a.m. and p.m. peak hour ◢ US 101 southbound - Bowers Avenue/Great American Parkway to Montague Expressway/San Tomas Expressway in p.m. peak hour ◢ US 101 northbound -Montague Expressway/San Tomas Expressway to SR 237 in a.m. peak hour ◢ US 101 northbound high occupancy vehicle lane only - Fair Oaks Avenue to SR 237 in a.m. and p.m. peak hour ◢ I-280 - Lawrence Expressway to Saratoga Avenue both directions in a.m. and p.m. peak hour			
Impact 6-11: Cumulative Effect on Bicycle, Pedestrian, and Transit Facilities The LSAP Final EIR identified that buildout of the LSAP area would not result in any significant bicycle, pedestrian, and transit facility and service impacts as the implementation of the LSAP would provide improvements to bicycle, pedestrian, and transit facilities and would not result in any significant delays to transit service (City of Sunnyvale 2016). The project would contribute to improvements pedestrian facilities in the LSAP area through new sidewalks and would not conflict with any existing or planned bicycle facilities. The project would also not result in significant delays to transit service due to increases in traffic volumes. Thus, the project's impact to bicycle, pedestrian, and transit facilities and services would not be cumulatively considerable.	LTS	No mitigation required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
Impact 6-12: Cumulative Short-Term Construction-Generated Noise Cumulative impacts from construction-generated noise could result if other future planned construction activities were to take place in close proximity to the project and cumulatively combine with construction noise from the project. The Monticello Village project, located at 1515 Monroe Street (Santa Clara), is the closest project (approximately 1,700 feet north east) to the project site and is currently under construction. As discussed in Impact 4.9-1 (see Section 4.9, "Noise and Vibration", of this DEIR, construction noise from the project could reach 86 dBA Leq at existing receptors located within 50 feet of construction activity. Assuming similar levels of construction noise would occur at the Monticello Village project, noise levels from construction 1,700 feet away would attenuate, from distance alone, to approximately 55 dBA Leq. If construction noise mitigation were in place at Monticello Village project, noise levels at the project site would be lower. Nonetheless, when combining 55 dBA Leq with project-generated construction noise of 76 dba Leq (assuming incorporated mitigation), due to the logarithmic nature of combining noise levels, noise levels would not increase. Specifically, it takes a doubling of a noise source to result in an increase in 3 dB. Thus, when combining a lesser noise level with a greater noise level, noise levels do not increase. All other ongoing and future anticipated development would be located further away (see Exhibit 6-1) and thus would influence the project site even less than the Monticello Village project. Further, construction-related noise is typically a site-specific impact that affects those in close proximity to the construction activities and construction activities would be temporary. Therefore, even though project construction would result in a significant and unavoidable impact at nearby receptors, no other nearby construction noise would combine with project construction to result in a cumulatively considerable impact. Therefore, the project's potential contribution to construction noise impacts would not be cumulatively considerable.	LTS	No mitigation required.	LTS
Impact 6-13: Cumulative Long-Term Ambient Noise Levels Numerous development projects are underway and planned within the City of Sunnyvale and the City of Santa Clara (e.g., Monticello Village, Lawson Lane Office Campus, Gateway Village), surrounding the project area. For a complete list and location of each project, refer to Table 6-2 and Exhibit 6-1 above. These projects would result in additional traffic-related noise on surrounding roads and highways. In December 2016, City Council approved the Lawrence Station Area Plan (LSAP), which includes the project site and guides future development of the area surrounding	LTS	No mitigation required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measure	Significance after Mitigation
LTS = Less than significant, PS = Potentially significant, S = Significant, SU = Significant and unavoidable			
the Lawrence Caltrain Station. The LSAP designates the project site as Low-Medium Density Residential, consistent with the project. Subsequently, in April 2017, the City Council adopted an update to the City's Land Use and Transportation Element (LUTE) of its General Plan, including preparation of a DEIR (State Clearinghouse No. 2012032003). The DEIR evaluated anticipated traffic increases and associated traffic noise increases due to development anticipated within Sunnyvale, including the LSAP area and the project site. The DEIR determined that anticipated growth, including buildout of the project, traffic noise would result in a significant and unavoidable cumulative impact (City of Sunnyvale Land Use and Transportation Element DIER, Page 3.6-43) However, as discussed in Impact 4.9-2 of this DEIR, the project would result in a daily increase of 629 vehicles and an associated noise increase of less than 1 dB, an increase that is imperceptible to the human ear. Thus, although a cumulatively considerable impact from traffic noise was determined as a result of all future anticipated development, the project's potential contribution would not be cumulatively considerable.			

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3 PROJECT DESCRIPTION

3.1 INTRODUCTION

This chapter presents a detailed description of the proposed Corn Palace Residential Development Project (project). The project consists of demolition of the on-site structures for development of a master-planned residential community of 58 single-family, two-story residential homes, a public park, and associated public facilities and roadway areas. This chapter describes the project's location, background, objectives, project components, and anticipated schedule for construction and operation.

3.2 PROJECT SITE

3.2.1 Location and Surrounding Land Uses

The project site is located along the City of Sunnyvale's (City) eastern boundary with the City of Santa Clara on an 8.8-acre site (APN 213-12-001). The project site is bounded by Dahlia Drive to the north, Lawrence Expressway to the east, Lily Avenue to the south, and Toyon Avenue to the west. Surrounding land uses are comprised of single-family residential developments and Lawrence Expressway. Refer to Exhibit 3-1 (all exhibits can be found at the end of the chapter) for an aerial view of the project site and surrounding vicinity.

3.2.2 Project Background and Site Characteristics

The project site is relatively flat and currently contains vacant land and structures. A vacant farm stand, associated parking area, and agricultural supply well are located in the southeast corner of the project site. Three single-family homes with three outbuildings and other shed structures are located in the northern portion of the project site. One of the homes is currently occupied and other two are vacant (1142 Dahlia Court and 1150 Dahlia Court). One of two vacant homes is boarded-up and uninhabitable. The homes have been or are currently connected to a water supply well and septic tanks. The remainder of the project site was historically used as agricultural land and had been under a Williamson Act contract until its cancellation in 1990 (City of Sunnyvale 1990). The land was last cultivated in 2015 and since then is mowed or disked as needed up to five times a year for purpose of fire safety.

In December 2016, the City Council approved the Lawrence Station Area Plan (LSAP). The environmental effects of the LSAP were evaluated in its EIR (State Clearinghouse No. 2013082030). The LSAP, which includes the project site, guides future development of the 372-acre urbanized area surrounding the Lawrence Caltrain Station that better supports and promotes public transit usage. The LSAP designates this site as Low-Medium Density Residential and is intended to be developed consistent with existing adjacent residential uses.

In April 2017, the City Council adopted an update to the City's Land Use and Transportation Element (LUTE) of its General Plan. Consistent with the LSAP, the LUTE also designates land uses at the project site as Low-Medium Density Residential.

Exhibit 3-1

Project Vicinity

ASCENT ENVIRONMENTAL

3.2.3 Project Objectives

CEQA requires that an EIR include a statement of objectives for the project, and that the objectives include the underlying purpose of the project. These objectives help the lead agency determine the alternatives to evaluate in the EIR (see CEQA Guidelines Section 15124[a]). The following is a list of objectives for the project:

- Create a residential community offering two-story single-family detached homes for sale in an area with low, new home availability.
- Provide housing located within close proximity to major regional transit and several large private tech employers.
- Meet and/or exceed Green Building Standards.
- Create a project that will set aside a 2-acre public park on-site for future residents and surrounding neighborhoods.
- Create a residential community that makes efficient use of land while offering lower densities and building masses that compliment existing residential developments of adjacent land uses in the project area.
- Create a residential development that is consistent with the City's vision and goals for sustainable growth and economic development.

3.3 PROPOSED PROJECT

The project is the proposed demolition of a farm stand, associated paved parking area, three homes, outbuildings and sheds, and redevelopment of the project site as a master-planned residential community of 58 single-family residential homes on 6.1 acres, a public park on up to 2-acres, and 0.7 acre to be dedicated for public facilities and roadway area improvements (Exhibit 3-2). As discussed above, the project site is currently designated as Low-Medium Density Residential in the City of Sunnyvale General Plan LUTE and the LSAP. The project site is also zoned as Low-Medium Density Residential with a Planned Development combining zoning district (R1.5/PD). The project would be consistent with the current land use designation and zoning.

3.3.1 Single-Family Homes

A master-planned residential community of 58 single-family, two-story residential homes on 6.1 acres of the project site. Each home would be two-stories tall with a maximum height of 30 feet. The average lot size would be 3,816 square feet and homes would range in size between 2,618 square feet and 2,897 square feet. The average floor area ratio (FAR) of homes would be 0.71 and the average lot coverage of the homes would be 0.41. Proposed lots 1 through 12 would front onto Toyon Avenue to integrate with the existing neighborhood. See Exhibit 3-3 for proposed layout of the homes and Exhibit 3-4 for the preliminary site data and setback plan.

The project would consist of five different architectural building designs. Exhibits 3-5a through 3-5e illustrate the proposed five housing elevations of each design.

3.3.2 Park and Project Landscaping

The proposed 2-acre public park would be located in the southern portion of the project site with frontage on Lily and Toyon Avenues (Exhibit 3-2). The park would be dedicated to the City after project build-out.

Consistent with the City's mini park design and development guidelines (City of Sunnyvale 2008: Appendix E), the park would be designed to serve residents within a ¼-mile walking radius and is anticipated to include a playground, picnic tables, open turf area, trees and landscaping. The City's detailed design of the park has not been completed and would be determined under a separate process with input from City staff and the community.

As shown in Exhibit 3-6a, landscaping of the project site would include planting of a variety of trees along internal streets and the north, south, and west perimeter of the project site. Landscape area calculations and drawings for proposed homes are shown in Exhibit 3-6b. All landscape plant materials and irrigation would comply with the California Landscape Model Water Efficiency Landscape Ordinance and City Municipal Code Chapter 19.37 (Landscaping, Irrigation, and Useable Open Space). The landscape design would utilize plant material of low and medium water needs and the irrigation system would consist of drip irrigation, bubblers, and low flow spray heads to minimize water use. Hydrozones would be designated based on solar exposure, plant water use requirements, soil type, microclimates, and common and private areas. Sustainable planting techniques such as pervious paving, bio-filtration, and stormwater management would be integrated into the project site.

3.3.1 Infrastructure

ROADWAYS, CIRCULATION, AND PARKING

Exhibit 3-2 shows the project frontage and interior roadway cross-sections. As noted above, lots 1 through 12 would obtain direct access to Toyon Avenue, while the remaining residential units would use the project's internal privately maintained street that would obtain access from Dahlia Drive and Dahlia Court.

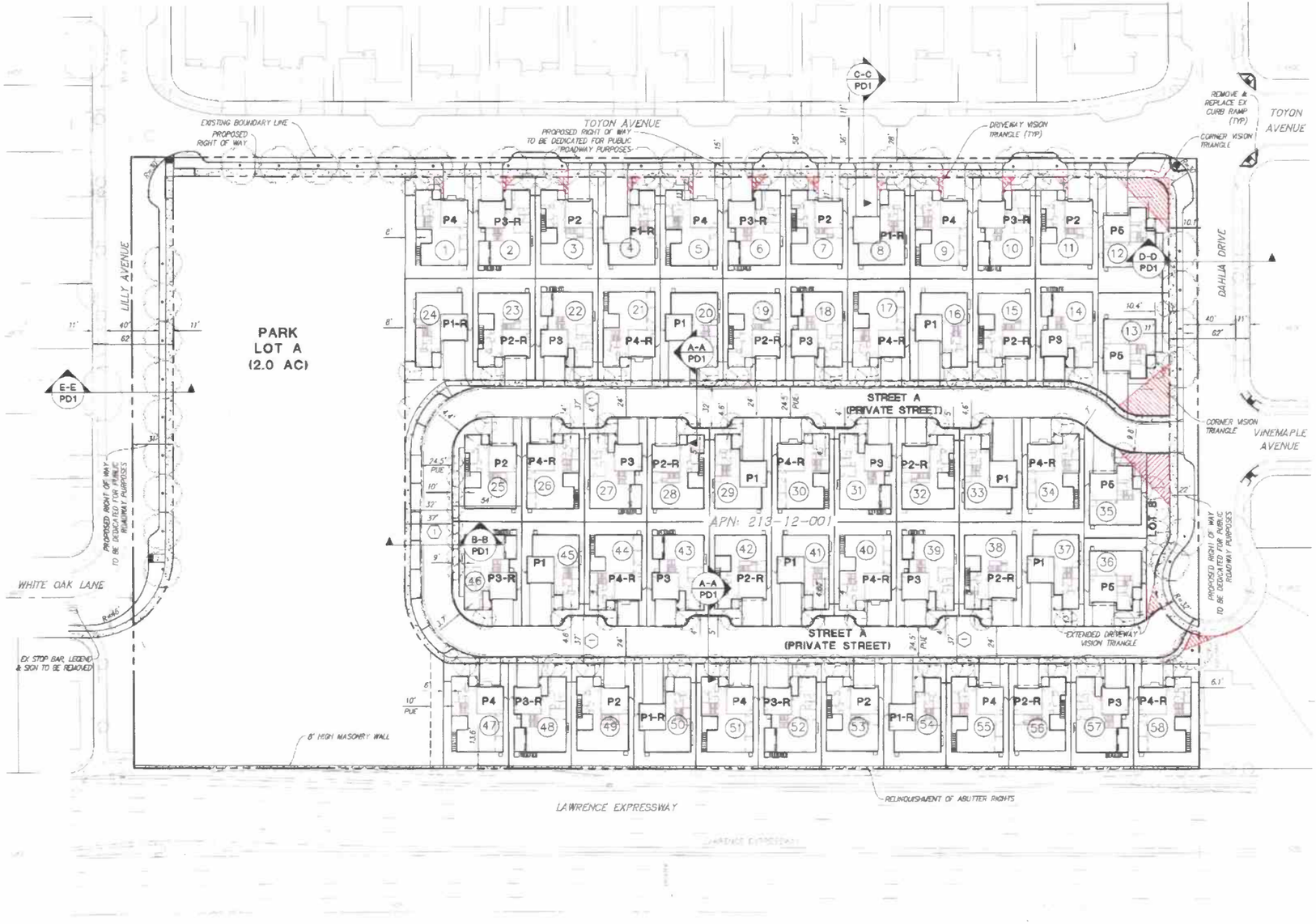
As shown in Exhibit 3-7, a total of 279 parking spaces would be created. This would consist of 132 off-street residential parking spaces and 47 on-street parking spaces. Of the 47 on-street parking spaces, 38 spaces are located adjacent to the proposed park site. Exhibit 3-8 illustrates pedestrian access to be provided with four-foot wide perimeter sidewalks that would connect with sidewalks along the internal road.

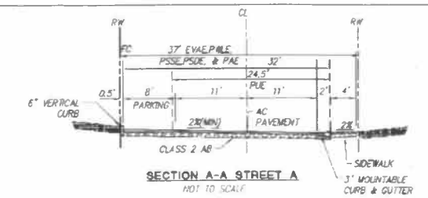
UTILITIES AND SERVICES

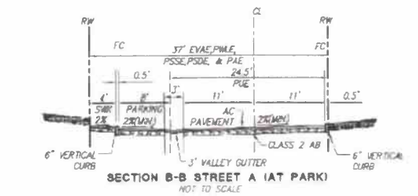
As shown in Exhibit 3-9 and 3-10a, the project would connect to existing City water, wastewater, and drainage infrastructure facilities located adjacent to the project site along Toyon Avenue and Dahlia Drive. A new 18-inch diameter storm drainage pipeline would be constructed within Dahlia Court that would connect to existing storm drainage pipelines within Dahila Drive and Vinemaple Avenue. The project would also upsize the existing 4-inch diameter water pipeline with a new 6-inch diameter water pipeline and the existing 6-inch diameter sewer pipeline with a new 8-inch diameter sewer pipeline located within Dahila Court.

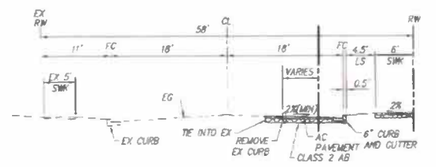
Storm water quality facilities would include the installation of on-site bioretention areas (i.e., ponding areas in which contaminants and sedimentation are collected and removed from stormwater runoff via infiltration into underlying soils or evaporation) and Silva Cells (i.e., modular suspended pavement system that uses soil volumes to support large tree growth and provide on-site stormwater management through absorption, evapotranspiration, and interception) located along the project frontage and internal street system that would provide on-site treatment of storm water before discharge off-site (see Exhibit 3-10b).

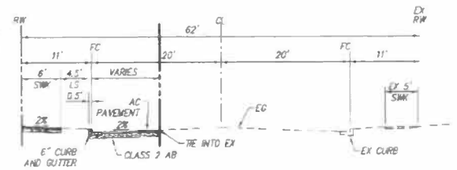
Electric and natural gas services would be provided by Pacific Gas and Electric Company (PG&E). Electrical and natural gas facilities would be extended from existing infrastructure along adjacent streets. No off-site improvements for electrical or natural gas service would be required for the project. As discussed in Chapter 1 of this DEIR, utilities and service systems for development of the project site were addressed as part of the LSAP FEIR and the LUTE FEIR.

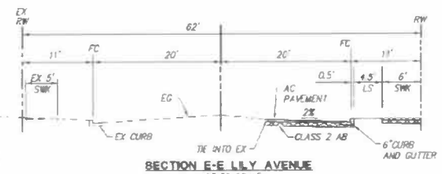












LEGEND

(1) EVAE, PAE, PSDE, PSSE, AND PWLE

ABBREVIATIONS

EVAE	EMERGENCY ACCESS EASEMENT
PAE	PUBLIC ACCESS EASEMENT
PUE	PUBLIC UTILITY EASEMENT
PSDE	PRIVATE STORM DRAIN EASEMENT
PSSE	PRIVATE SANITARY SEWER EASEMENT
PWLE	PRIVATE WATER LINE EASEMENT

NOTES:

1. TYPICAL LOT SIZE IS 48' x 78'.
2. SEE SHEET P02 FOR TYPICAL SETBACK DIMENSIONS AND SIDE DATA SUMMARY.

N

0 40 80 120

1 inch = 40 ft.

Source: Image provided by Trumark Homes in 2018

X17010129.01 004

Exhibit 3-2

Preliminary Site Plan

ASCENT ENVIRONMENTAL

TRACT NO. 10101
THE ESTATES AT SUNNYVALE

TRACT NO. 1403
WESTERN TERRACE

TRACT NO. 3215
BELMONT ESTATES

SECTION A

SECTION B

SECTION C

SUMMARY:
(12) PLAN 1 - 2618 S.F.
(14) PLAN 2 - 2776 S.F.
(14) PLAN 3 - 2713 S.F.
(14) PLAN 4 - 2897 S.F.
(4) PLAN 5 - 2662 S.F.
58 TOTAL UNITS

CODE SUMMARY:

ZONING R1.5 PD =
10 DU/AC MAXIMUM

PROPOSED DENSITY =
9.5 DU/AC

PRIVATE STREET A

1142 DAHLIA COURT

PRIVATE STREET A

13' HIGH SOUND WALL

13' HIGH SOUND WALL

TRACT NO. 1453
LAWRENCE MEADOWS UNIT 3
71 M 43

TRACT NO. 1870
KILLARNEY FARMS UNIT 1

0 15 30 60

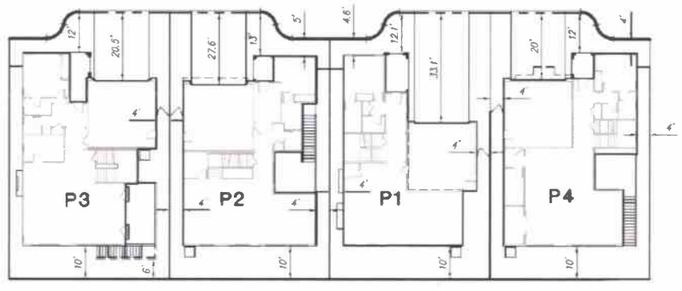
Source: Image provided by Trumark Homes in 2018

X17010129.01 006

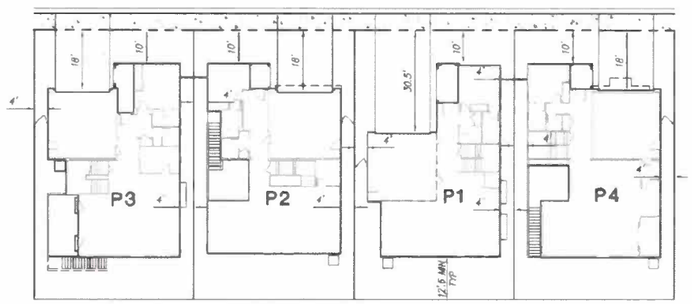
Exhibit 3-3

Home Layout Plan

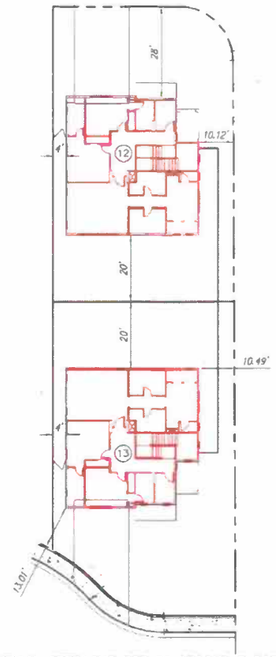
TYPICAL LOT SETBACKS FOR P1-P4 2ND FLOOR
SCALE 1"=20'



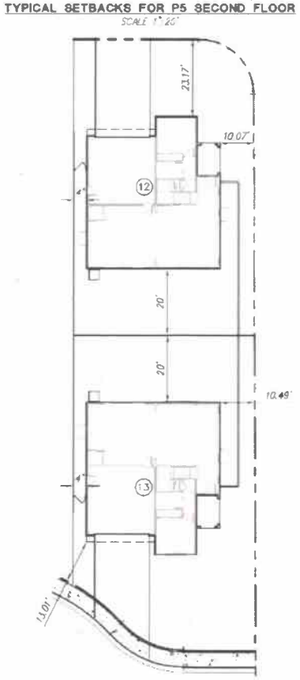
TYPICAL SETBACKS FOR P1-P4 FLOOR (WITH PARKING BAY)
SCALE 1"=20'



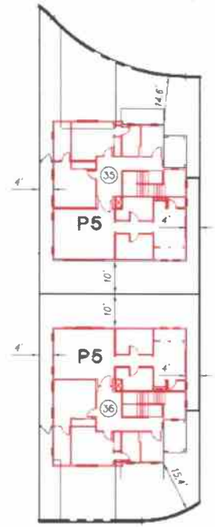
TYPICAL SETBACKS FOR P1-P4 FIRST FLOOR (WITHOUT PARKING BAY)
SCALE 1"=20'



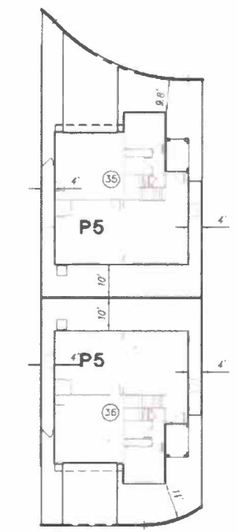
TYPICAL SETBACKS FOR P5 SECOND FLOOR
SCALE 1"=20'



TYPICAL SETBACKS FOR P5 FIRST FLOOR
SCALE 1"=20'



TYPICAL SETBACKS FOR P5 SECOND FLOOR
SCALE 1"=20'



TYPICAL SETBACKS FOR P5 FIRST FLOOR
SCALE 1"=20'

SITE SUMMARY TABLE		
1. TOTAL NUMBER OF LOTS	58	
2. GROSS AREA	8.8± AC	383,973 S.F.
3. PARK AREA (LOT A)	2.0± AC	87,480 S.F.
4. LOT B	0.04± AC	1,668 S.F.
5. PRIVATE STREET A (LOT C)	1.0± AC	42,855 S.F.
6. PUBLIC STREETS DEDICATION	0.7± AC	30,627 S.F.
7. NET AREA (NOT INCLUDING PARK & PUBLIC STREET DEDICATION)	6.1± AC	265,866 S.F.
8. SETBACKS	SEE PLAN	

FAR CALCULATION TABLE			
	TOTAL AREA (SF)	NUMBER OF UNITS	TOTAL FLOOR AREA (SF)
PLAN 1	3,075±	12	36,900
PLAN 2	3,365±	14	47,110
PLAN 3	3,139±	14	43,946
PLAN 4	3,425±	14	47,950
PLAN 5	3,057±	4	12,228
TOTAL			188,134
SITE			265,866
FAR			0.71

NOTE:
* SEE ARCH SHEET A0.3 FOR FAR DIAGRAMS FOR EACH PLAN TYPE

LOT COVERAGE TABLE			
	TOTAL AREA (SF)	NUMBER OF UNITS	TOTAL FLOOR AREA (SF)
PLAN 1	1,809±	12	21,708
PLAN 2	1,903±	14	26,642
PLAN 3	1,933±	14	27,062
PLAN 4	1,956±	14	27,384
PLAN 5	1,667±	4	6,668
TOTAL			109,464
SITE			265,866
LOT COVERAGE			0.41

NOTE:
* SEE ARCH SHEET A0.3 FOR LOT COVERAGE BREAKDOWN FOR EACH PLAN TYPE AND ELEVATION. LOT COVERAGE SHOWN IN TABLE ABOVE IS THE AVERAGE OF THE THREE DIFFERENT ELEVATIONS FOR EACH PLAN TYPE

NOTE:
1. SEE ARCHITECTURAL SHEET A0.4 FOR BUILDING HEIGHT ANALYSIS

Source: Image provided by Trumark Homes in 2018

X17010129.01 007

Exhibit 3-4

Preliminary Site Data and Setback Plan

Front Elevation-1-Agrarian A

Agrarian A
Material Legend:

1 Flat Concrete Tile Roofing /
Alt Presidential Series Composition Shingle
2 Stone Veneer
3 Cementitious Board and Batten Siding
4 Decorative Kicker / Corbel
5 2x Cementitious Trim / Alt 2x Wood Trim
6 Enhanced Sills

Front Elevation-1-Agrarian B

Agrarian B
Material Legend:

1 Flat Concrete Tile Roofing /
Alt Presidential Series Composition Shingle
2 Stone Veneer
3 Cementitious Siding
4 Accent Metal Roofing
5 Decorative Kicker / Corbel
6 2x Cementitious Trim / Alt 2x Wood Trim
7 Enhanced Sills

Source: Image provided by Trumark Homes in 2018

x17010129.01 015

Exhibit 3-5a

Plan 1 Exterior Elevations

ASCENT ENVIRONMENTAL

Front Elevation - 2 - **Agrarian** A

Agrarian A - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Board and Batten Siding
4. Decorative Kicker / Corbel
5. 2x Cementitious Trim / Alt 2x Wood Trim
6. Enhanced Sills
7. Wood Posts
8. Wood Railings

Front Elevation - 2 - **Agrarian** B

Agrarian B - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Siding
4. Accent Metal Roofing
5. Decorative Kicker / Corbel
6. 2x Cementitious Trim / Alt 2x Wood Trim
7. Enhanced Sills
8. Wood Posts
9. Wood Handrail and Horizontal Metal Cables at Railing

Front Elevation - 2 - **Agrarian** C

Agrarian C - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Board and Batten Siding
4. 2x Cementitious Trim / Alt 2x Wood Trim
5. Enhanced Sills
6. Wood Posts
7. Wood Railings

Source: Image provided by Trumark Homes in 2018

x17010129.01 016

Exhibit 3-5b

Plan 2 Exterior Elevations

Front Elevation-3-Agrarian A

Agrarian A
Material Legend:

1 Flat Concrete Tile Roofing /
Alt Presidential Series Composition Shingle
2 Stone Veneer
3 Cementitious Board and Batten Siding
4 Decorative Kicker / Corbel
5 2x Cementitious Trim / Alt 2x Wood Trim
6 Enhanced Sills
7 Wood Posts
8 Wood Trellis

Front Elevation-3-Agrarian B

Agrarian B
Material Legend:

1 Flat Concrete Tile Roofing /
Alt Presidential Series Composition Shingle
2 Stone Veneer
3 Cementitious Siding
4 Accent Metal Roofing
5 Decorative Kicker / Corbel
6 2x Cementitious Trim / Alt 2x Wood Trim
7 Enhanced Sills

Source: Image provided by Trumark Homes in 2018

X17010129.01 017

Exhibit 3-5c

Plan 3 Exterior Elevations

Front Elevation - 4 - Agrarian A

Agrarian A - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Board and Batten Siding
4. Decorative Kicker / Corbel
5. 2x Cementitious Trim / Alt 2x Wood Trim
6. Enhanced Sills

Front Elevation - 4 - Agrarian B

Agrarian B - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Siding
4. Accent Metal Roofing
5. Decorative Kicker / Corbel
6. 2x Cementitious Trim / Alt 2x Wood Trim
7. Enhanced Sills
8. Wood Posts and Corbels

Front Elevation - 4 - Agrarian C

Agrarian C - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Board and Batten Siding
4. Decorative Awning Shutter
5. 2x Cementitious Trim / Alt 2x Wood Trim
6. Enhanced Sills

Source: Image provided by Trumark Homes in 2018

X17010129.01 018

Exhibit 3-5d

Plan 4 Exterior Elevations

Front Elevation - 5 - Agrarian A

Agrarian A - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Board and Batten Siding
4. Decorative Kicker / Corbel
5. 2x Cementitious Trim / Alt 2x Wood Trim
6. Enhanced Sills
7. Wood Trellis

Front Elevation - 5 - Agrarian B

Agrarian B - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Siding
4. Accent Metal Roofing
5. Decorative Kicker / Corbel
6. 2x Cementitious Trim / Alt 2x Wood Trim
7. Enhanced Sills

Front Elevation - 5 - Agrarian C

Agrarian C - Material Legend

1. Flat Conc. Tile Roofing / Alt. Presidential Series Composition Shingle
2. Stone Veneer
3. Cementitious Board and Batten Siding
4. Decorative Awning Shutter
5. 2x Cementitious Trim / Alt 2x Wood Trim
6. Enhanced Sills

Source: Image provided by Trumark Homes in 2018

X17010129.01 019

Exhibit 3-5e

Plan 5 Exterior Elevations

CONCEPT PLANT SCHEDULE

SYMBOL	BOTANIC SPECIES/ COMMON NAME	WUCOLS
	NARROW SITE TREES	
	GINKGO BILOBA 'PRINCETON SENTRY' / PRINCETON SENTRY GINKGO	M
	MAGNOLIA GRANDIFLORA 'LITTLE GEM' / DWARF SOUTHERN MAGNOLIA	M
	PYRUS CALLERYANA 'CHANTICLEER' / CHANTICLEER PEAR	M
	TRISTANIA LAURINA / WATER GUM	M
	SMALL ORNAMENTAL TREES	
	ACER PALMATUM 'BUTTERFLY' / BUTTERFLY JAPANESE MAPLE	M
	CERCIS OCCIDENTALIS / WESTERN REDBUD	VL
	COTINUS COGGYGRIA 'GOLDEN SPIRIT' / SMOKE TREE	L
	LAGERSTROEMIA X 'TUSCARORA' / CRAPE MYRTLE CORAL PINK	L
	LAURUS NOBILIS 'SARATOGA' / SWEET BAY	L
	PRUNUS CERASIFERA 'PURPLE PONY' / DWARF FLOWERING PLUM	
	STREET TREE - LILY AVE	
	FRAXINUS VELUTINA 'RIO GRANDE' / VELVET ASH	M
	STREET TREE - TOYON AVE	
	PISTACIA CHINENSIS 'KEITH DAVEY' / KEITH DAVEY CHINESE PISTACHE	L
	STREET TREE - DAHLIA DRIVE	
	PODOCARPUS GRACILIOR / FERN PINE	M

PLANTING NOTES:

1. ALL LANDSCAPED AREAS WILL MEET CITY OF SUNNYVALE REQUIREMENTS FO PLANTING AND IRRIGATION IMPROVEMENTS.
2. TREES WITHIN 5' OF A BUILDING, SIDEWALK OR OTHER SURFACE TO BE PROTECTED SHALL BE INSTALLED WITH A ROOT BARRIER.
3. ALL PLANTING AREA SOILS WILL MEET REQUIREMENTS PROVIDED THROUGH AGRONOMIC SOILS TESTING RECOMMENDATIONS. A LAYER OF BARK MULCH WILL BE APPLIED FOLLOWING PLANTING OPERATIONS.

IRRIGATION STATEMENT

NOTE: OWNER SHALL PROVIDE AN AUTOMATIC IRRIGATION SYSTEM TO EFFECTIVELY WATER ALL PLANTS SHOWN ON THE LANDSCAPE PLAN. THE DESIGN OF THE IRRIGATION SYSTEM SHALL CONSIST OF DRIP IRRIGATION, BUBBLERS AND LOW FLOW SPRAY HEADS THAT WILL SUFFICIENTLY IRRIGATE THE PROPOSED PLANT MATERIAL IN COMPLIANCE WITH CALIFORNIA'S UPDATED MODEL WATER EFFICIENT LANDSCAPE ORDINANCE AB 1881 AND CITY OF SUNNYVALE REQUIREMENTS.

HYDROZONES WILL BE DESIGNATED BASED ON SOLAR EXPOSURE, PLANT WATER USE REQUIREMENTS, SOIL TYPE, MICROCLIMATES, AND COMMON AND PRIVATE AREAS.

THIS LANDSCAPE HAS BEEN DESIGNED TO COMPLY WITH THE CITY OF SUNNYVALE WATER EFFICIENCY DESIGN OPTION ONE.

0 20 40 80

Source: Image provided by SSA Landscape Architects in 2018

X17010129.01 008

Exhibit 3-6a

Conceptual Landscape Plan

PLAN 1A

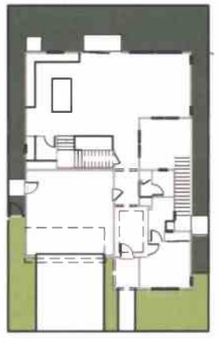
PLAN 1B

PLAN 1D

PLAN 4A

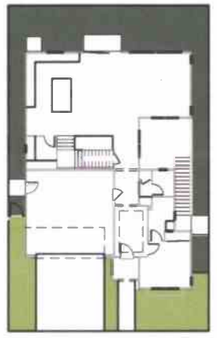
PLAN 4C

PLAN 4D



PLAN 2A

PLAN 2C



PLAN 2D

PLAN 5A

PLAN 5B

PLAN 5C

PLAN 3A

PLAN 3B

PLAN 3C

LANDSCAPE AREA CALCULATIONS:

FLOORPLAN	FRONT YARD	BACK YARD
FLOORPLAN 1		
FLOORPLAN 1A	500 S.F.	802 S.F.
FLOORPLAN 1B	493 S.F.	802 S.F.
FLOORPLAN 1D	500 S.F.	802 S.F.
FLOORPLAN 2		
FLOORPLAN 2A	399 S.F.	788 S.F.
FLOORPLAN 2C	396 S.F.	788 S.F.
FLOORPLAN 2D	399 S.F.	788 S.F.
FLOORPLAN 3		
FLOORPLAN 3A	389 S.F.	664 S.F.
FLOORPLAN 3B	392 S.F.	664 S.F.
FLOORPLAN 3C	389 S.F.	664 S.F.
FLOORPLAN 4		
FLOORPLAN 4A	392 S.F.	754 S.F.
FLOORPLAN 4C	392 S.F.	754 S.F.
FLOORPLAN 4D	392 S.F.	754 S.F.
FLOORPLAN 5		
FLOORPLAN 5A	490 S.F.	656 S.F.
FLOORPLAN 5B	481 S.F.	656 S.F.
FLOORPLAN 5C	481 S.F.	656 S.F.

NOTES
1 REFER TO SUNNYVALE MUNICIPAL CODE 19.37 LANDSCAPING, IRRIGATION, AND USABLE OPEN SPACE FOR INFORMATION REGARDING LANDSCAPE IMPROVEMENTS
2 NEW LANDSCAPE INSTALLATIONS OF 500 SQUARE FEET OR MORE SHALL MEET THE REQUIREMENTS OF THIS CHAPTER NEW LANDSCAPE INSTALLATIONS OF 500 SQUARE FEET OR LESS ARE SUBJECT TO ONLY 19.37.040D AND 19.37.120

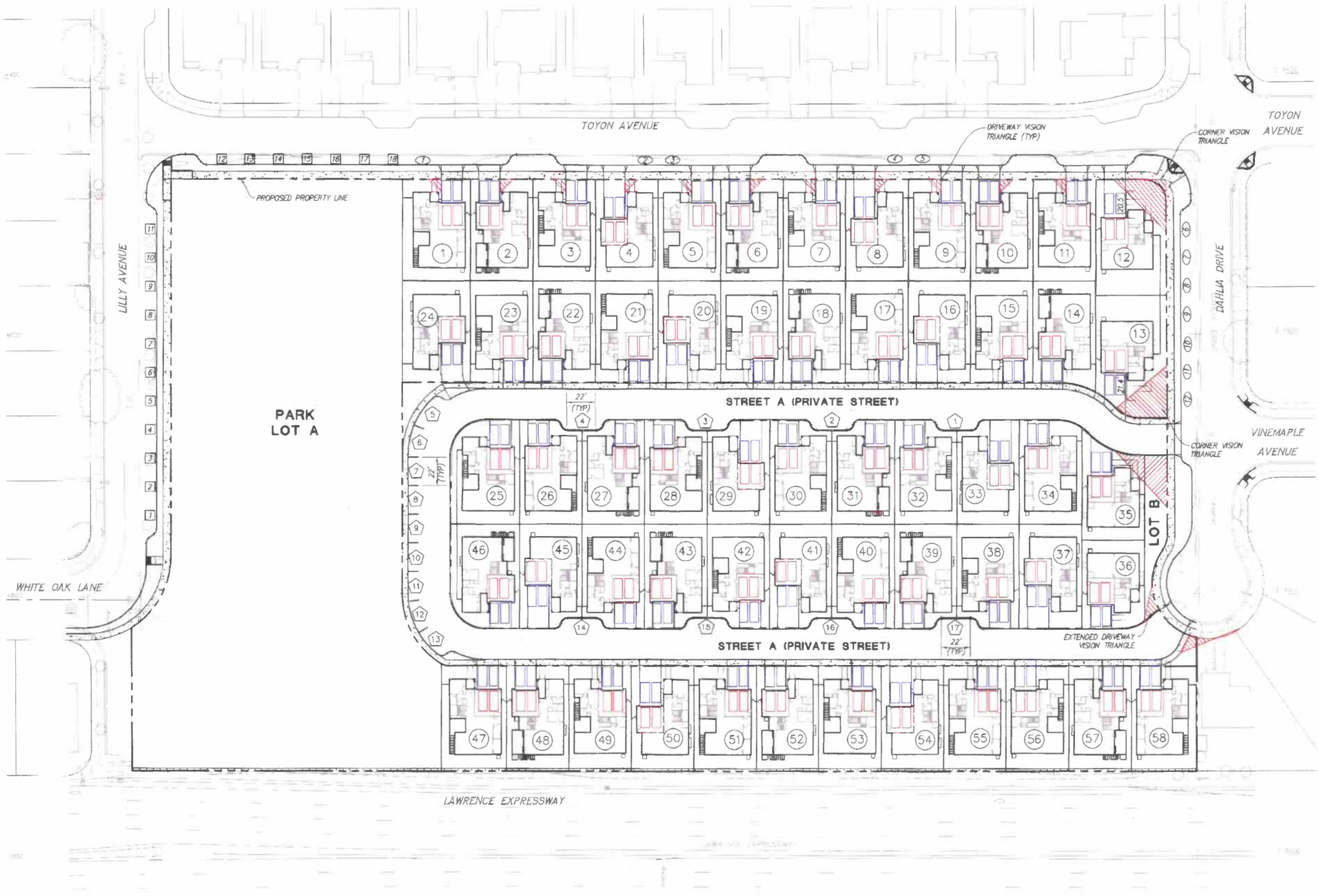
Source: Image provided by SSA Landscape Architects in 2018

x17010129.01 009

Exhibit 3-6b

Landscape Area

ASCENT ENVIRONMENTAL



PARKING SUMMARY	
a. GARAGES	116
b. DRIVEWAYS	116
c. PRIVATE STREET	17
d. PUBLIC STREET (ADJACENT TO RESIDENTIAL)	12
e. TOTAL	261
f. RATIO	4.5
g. PUBLIC STREET (ADJACENT TO PARK)	18

Source: Image provided by Trumark Homes in 2018

x17010129.01 010

Exhibit 3-7

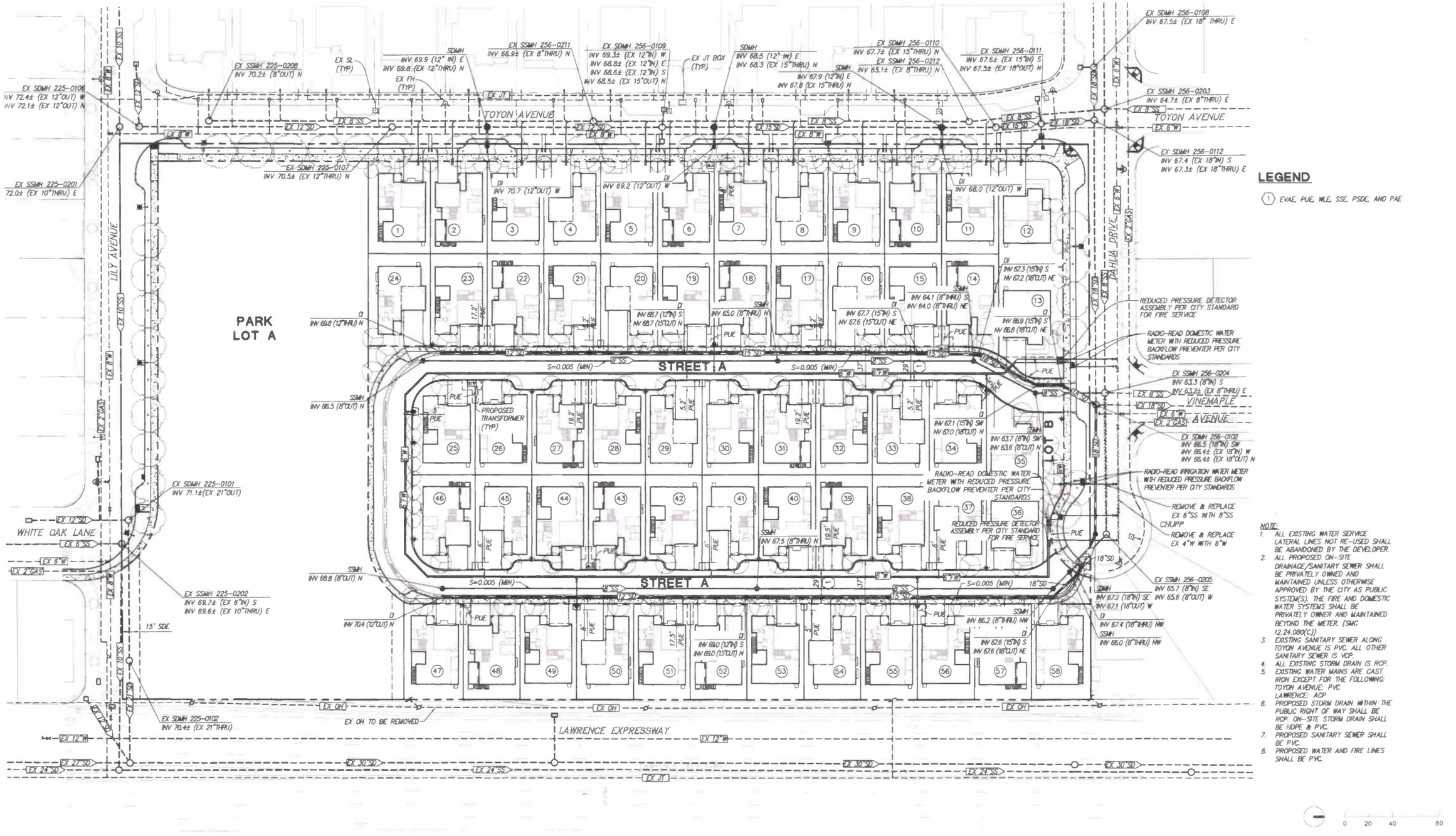
Preliminary Parking Plan

Source: Image provided by Trumark Homes in 2018

X17010129.01 011

Exhibit 3-8

Preliminary Pedestrian Access Plan



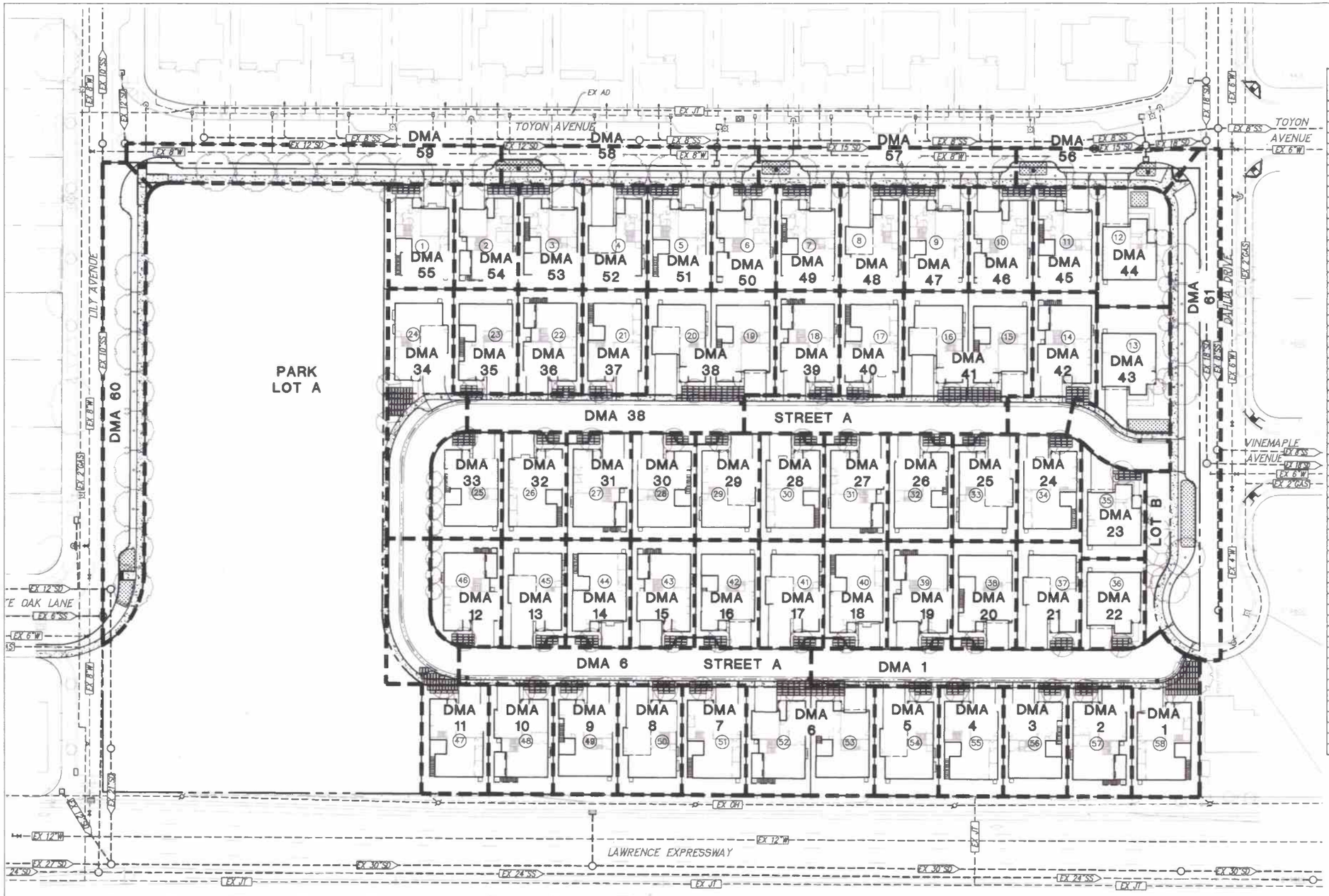
Source: Image provided by Ruggeri-Jensen-Azar in 2018

X17010129.01 012

Exhibit 3-9

Preliminary Utility Plan

ASCENT ENVIRONMENTAL



STORMWATER TREATMENT CALCULATION

AREA ID	SURFACE	IMPERVIOUS AREA (SF)	EFFECTIVE LANDSCAPE AREA (SF)	BMP USED	SIZING FACTOR	REQUIRED SURFACE AREA (SF)	SURFACE AREA AS PROVIDED (SF)
DMA #1	ROOF/PAV/LS	11,585	73	SILVA CELLS	0.04	472	474
DMA #2	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #3	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #4	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #5	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #6	ROOF/PAV/LS	13,945	146	SILVA CELLS	0.04	560	560
DMA #7	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #8	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #9	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #10	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #11	ROOF/PAV/LS	7,631	73	SILVA CELLS	0.04	328	330
DMA #12	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #13	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #14	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #15	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #16	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #17	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #18	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #19	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #20	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #21	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #22	ROOF/PAV/LS	2,890	32	SILVA CELLS	0.04	117	118
DMA #23	ROOF/PAV/LS	3,120	34	SILVA CELLS	0.04	126	131
DMA #24	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #25	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #26	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #27	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #28	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #29	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #30	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #31	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #32	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #33	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #34	ROOF/PAV/LS	7,555	54	SILVA CELLS	0.04	320	324
DMA #35	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #36	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #37	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #38	ROOF/PAV/LS	12,490	108	SILVA CELLS	0.04	528	529
DMA #39	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #40	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #41	ROOF/PAV/LS	12,188	113	SILVA CELLS	0.04	492	492
DMA #42	ROOF/PAV/LS	4,762	62	SILVA CELLS	0.04	193	193
DMA #43	ROOF/PAV/LS	6,722	49	BIO-RETENTION	0.04	270	270
DMA #44	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	137
DMA #45	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #46	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #47	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #48	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #49	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #50	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #51	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #52	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #53	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #54	ROOF/PAV/LS	3,300	54	SILVA CELLS	0.04	136	136
DMA #55	ROOF/PAV/LS	3,300	73	SILVA CELLS	0.04	136	136
DMA #56	PAV/LS	2,870	79	BIO-RETENTION	0.04	118	123
DMA #57	PAV/LS	4,690	88	BIO-RETENTION	0.04	191	193
DMA #58	PAV/LS	4,690	88	BIO-RETENTION	0.04	191	193
DMA #59	PAV/LS	6,660	134	BIO-RETENTION	0.04	272	272
DMA #60	PAV/LS	8,500	222	BIO-RETENTION	0.04	349	361
DMA #61	PAV/LS	10,860	460	BIO-RETENTION	0.04	503	513

0 20 40 80

NOTES:

1. THE ABOVE CALCULATIONS ARE BASED ON THE SANTA CLARA COUNTYWIDE CLEAN WATER PROGRAM, C.3 STORMWATER TECHNICAL GUIDANCE, DATED JANUARY 1, 2015, AND THE FOLLOWING CRITERIA:
   a. EFFECTIVE IMPERVIOUS AREA = IMPERVIOUS AREA + 10% OF PERVIOUS AREA
   b. 0.2 INCHES/HOUR RAINFALL INTENSITY ON 100% OF EFFECTIVE IMPERVIOUS AREA.
   c. SOIL FOR TREATMENT MEDIUM WITH A 5 INCHES/HOUR INFILTRATION RATE.
2. SIZING FACTOR OF 0.04 NOTED ABOVE IS CALCULATED BASED ON THE FOLLOWING CRITERIA:
   a. SIZING FACTOR=(0.2 IN/HR)/(5 IN/HR)=0.04
3. HOA WILL BE RESPONSIBLE FOR MAINTAINING ALL STORMWATER TREATMENT MEASURES ON-SITE AND IN THE BULBOUTS ON THE PUBLIC STREET (PROJECT SIDE ONLY), ALONG THE HOMES AND PUBLIC PARK WITHIN LILY AVENUE, TOYON AVENUE, AND DAHLIA DRIVE STREET RIGHT OF WAY.

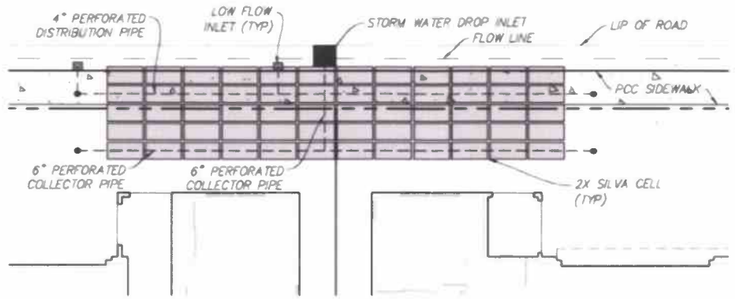
Source: Image provided by Ruggeri-Jensen-Azar in 2018

X17010129.01 013

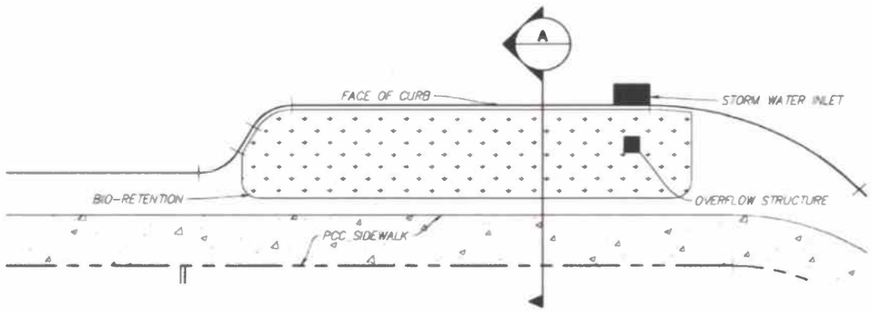
Exhibit 3-10a

Preliminary Stormwater Treatment Plan

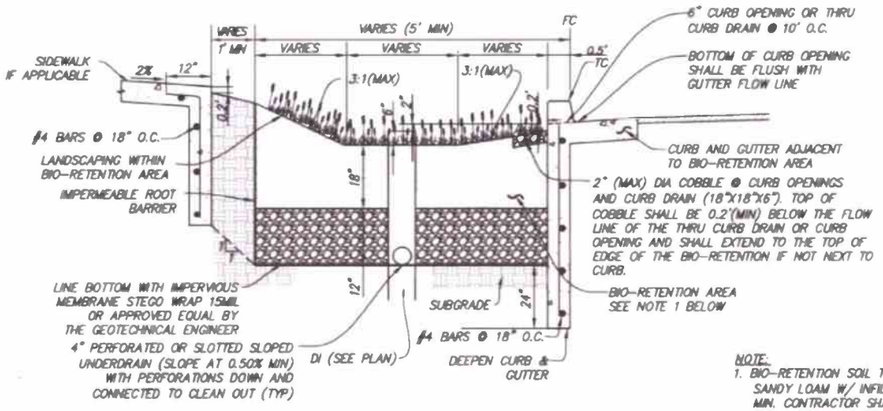
ASCENT ENVIRONMENTAL



SILVA CELL TYPICAL PLAN VIEW
NOT TO SCALE



BIO-RETENTION IN PUBLIC STREET PLAN VIEW
NOT TO SCALE

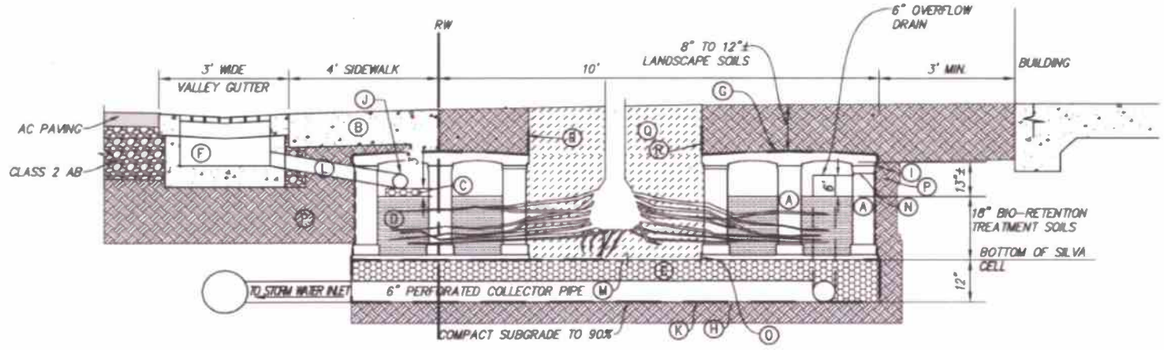


SECTION A-A BIO-RETENTION IN PUBLIC STREET SECTION VIEW
NOT TO SCALE

NOTE:
1. BIO-RETENTION SOIL TREATMENT SOIL: SANDY LOAM W/ INFILTRATION RATE OF 5 IN/HR MIN. CONTRACTOR SHALL SUBMIT A LETTER STATING THE MIX OF SOIL WITH A CERTIFICATION THE SANDY LOAM MATERIAL MEETS THE 5 INCH/HOUR (MIN) INFILTRATION RATE PRIOR TO DELIVERING THE MATERIAL TO THE PROJECT SITE.
2. ALL WATER & FIRE SERVICES SHALL BE INSTALLED 6" BELOW ALL DEEPEN CURB & GUTTER & BIO-RETENTION SOILS.

KEY PLAN

- (A) 2X SILVA CELL SYSTEM BY DEEP ROOT (DECK, BASE, AND POSTS)
- (B) 5" CONCRETE SIDEWALK.
- (C) 2" DRAIN ROCK
- (D) BIO-RETENTION TREATMENT SOILS PER TREATMENTSOILS NOTE ON THIS SHEET
- (E) CLASS 2 PERMEABLE MATERIAL PER CALTRANS SPECIFICATIONS, SECTION 68.
- (F) LOW FLOW INLET INTO SILVA CELLS – 12"x12" OLD CASTLE PRECAST DROP INLET MODEL CP1212 (EK) WITH TRAFFIC GALVANIZED STEEL FRAME & GRATE. SEE DETAIL ON THIS SHEET.
- (G) HP 570 GEOTEXTILE – TD EDGE OF EXCAVATION
- (H) MIRAFI 180N – GEOTEXTILE FABRIC, PLACED BELOW AGGREGATE SUB BASE.
- (I) MIRAGRID 2XT – GEOGRID TO LINE PERIMETER OF SYSTEM WITH 6" TOE (OUTWARD FROM BASE) AND 12" EXCESS (OVER TOP OF DECK).
- (J) 4" SDR-35 PVC PERFORATED DISTRIBUTION PIPE.
- (K) 6" SDR-35 PVC PERFORATED COLLECTOR PIPE.
- (L) 4" SDR-35 SOLID PVC PIPE INTO SILVA CELL SYSTEM.
- (M) SILVA CELL BASE
- (N) CABLE TIE, ATTACHING GEOGRID TO SILVA CELL AT BASE OF UPPER LEG FLARE.
- (O) PIN, PER SILVA CELL SPECIFICATIONS.
- (P) NATIVE BACKFILL, COMPACTED TO 95%
- (Q) PLANTING SOIL PER LANDSCAPE ARCHITECT
- (R) DEEPROOT UB18-2 ROOT BARRIER



SILVA CELL TYPICAL SECTION VIEW
NOT TO SCALE

Source: Image provided by Ruggeri-Jensen-Azar in 2018

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PROJECT ENERGY CONSERVATION FEATURES

The project would assist in reducing city-wide vehicle miles traveled and provide an on-site amenities community park to further reduce the extent of project resident travel.

Sustainability features that have been included in the project are separated into 4 main categories below and would be included in the project as standard features (i.e., not optional).

1. Indoor Environmental Quality
   - Low-E windows
   - High-Efficiency A/C with environmentally preferable refrigerants
   - Verified Air Flow Testing
   - Verified Insulation Installation
   - Third Party Compliance Verification on T-24 Compliance
   - ENERGY STAR bathroom fans on timers or humidistats

2. Transportation
   - Bicycle connectivity to parks and Sunnyvale trail system

3. Energy
   - Zero Net Electricity (ZNE) homes
   - Homes to have 2.4 kW Minimum Solar Systems to meet anticipated 2019 T-24 Energy Standards
   - ENERGY STAR appliances
   - LED Light fixtures
   - High Efficiency Tankless Hot Water Heater
   - High Efficiency FAU System
   - Tested Duct System for Air Leakage
   - High Performance Attic Insulation System
   - High Performance Wall Insulation System

4. Water
   - Potable water use maintained below allocation baseline
   - All Hot Water Lines to be insulated
   - High-efficiency toilets and fixtures, and water sub-metering
   - High efficiency irrigation, smart controllers/satellite data

Section 4.5, "Energy," provides further details on anticipated energy use associated with project construction, operation, and transportation.

OUTDOOR LIGHTING

Outdoor lighting would be installed in conformance with City codes and ordinances, applicable safety and illumination requirements, and California Title 24 requirements. Lighting would be installed at the north, south, and west perimeter of the project site, including both entrance intersections and mid-block pedestrian crossings, as appropriate for public safety, and along the private street as needed for public safety. Limited safety and security lighting would also be provided at the public park.

SOUND BARRIER MASONRY WALL

An eight-foot tall masonry wall is proposed along the property line adjacent to Lawrence Expressway for the purpose of minimizing expressway traffic noise in the neighborhood (see Exhibit 3-2). Consistent with other walls along Lawrence Expressway, the proposed wall would meet County of Santa Clara requirements for color, finish, and dimensions.

3.4 CONSTRUCTION ACTIVITIES

3.4.1 Remediation Activities

Construction activities would require cleanup of existing on-site contamination before completion and occupancy of the residential units. As discussed in Section 4.6.2, "Hazards and Hazardous Materials," of this DEIR, a Phase I ESA was prepared in 2017 to evaluate potentially hazardous environmental conditions on the project site. The Phase I ESA indicated that the soil is contaminated with dichlorodiphenyltrichloroethane (DDT), chlordane, and dieldrin because of past pesticide application. In addition, older on-site structures may contain asbestos and lead-based paint and old septic and well systems. Refer to Section 4.6.3 of this DEIR for a description of remedial activities that would be required before the start of construction and earthmoving activities necessary for development of the project.

3.4.2 Construction

Construction activities associated with the project would include demolition activities, removal of approximately eight trees with a diameter greater than 12 inches, excavation and relocation of soil on the project site, backfilling and compaction of soils, construction of infrastructure improvements (i.e., water supply, wastewater, drainage facilities, electrical and natural gas, roadway), a private road and associated entrances, and construction of residential and park uses. Construction equipment would vary day-to-day depending on the project phase and the activities occurring, but would involve operation of graders, dozers, excavators, scrapers, other tractors, forklifts, generator sets, curb equipment, pavers, paving equipment, rollers, welders, and air compressors.

Construction workers would typically access the project site via the existing entrance. A construction management plan will be required by the City and the City would determine the construction truck routes. The overall site development is anticipated to export approximately 11,160 cubic yards of soil and the import of approximately 7,250 cubic yards of new concrete and 1,050 cubic yards of new asphalt. Construction staging for materials and equipment would occur on the project site.

3.4.3 Demolition

The project would require demolition of the existing on-site buildings. These materials would be transported off-site to transfer stations and landfill facilities. During this phase, the project site would be graded and up to 11,160 cubic yards of soil would be hauled off-site.

3.4.4 Construction Phasing and Schedule

The following discussion of construction phasing pertains to development of the project site and related improvements. During construction of each phase (see Table 3-1 below), a water truck would be operated and maintained at the project site to water the site at least twice daily. Activities under each construction phase would occur between 8:00 a.m. and 5:00 p.m., Monday through Friday. No work would occur on Saturdays, Sundays or Holidays. No restrictions on construction seasons are expected. Completion of the development is expected in 2021 and construction is anticipated to be divided into the following six phases of development. However, ultimate development of the project site would be based on market conditions.

Table 3-1 Construction Phasing and Anticipated Dates

	Construction Phase Activity	Anticipated Start Date	Anticipated End Date
Phase 1	Demolition	10/25/19	11/28/19
Phase 2	Grading	12/10/19	1/28/20
Phase 3	Utilities	2/5/20	7/3/20
Phase 4	Curb, gutter, paving, street improvements	7/6/20	9/3/20
Phase 5	Vertical construction and landscaping	2/4/20	8/7/20
Phase 6	Public park construction and associated landscaping	8/22/20 (estimated)	5/22/21 (estimated)

3.5 REQUIRED PERMITS AND APPROVALS

The following approvals would be required for the project:

- approval of a Special Development Permit for site and architectural (i.e. design) review under City Municipal Code Chapter 19.90; and
- approval of a tentative subdivision map.

Other anticipated permits, approvals, and actions associated with the project includes the following:

- park site plan approval;
- issuance of demolition permits for removal of existing structures and building permits for construction of the new project;
- encroachment permit or maintenance agreement with County of Santa Clara regarding construction and maintenance of masonry wall;
- easements from the City for access and utilities;
- well destruction and abandonment activities permit from the Santa Clara Valley Water District;
- septic tank abandonment permit and site mitigation permit from Santa Clara County Department of Environmental Health; and
- compliance with State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities.
- preparation of a human health risk assessment and site-specific Health and Safety Plan to be approved by Santa Clara County Department of Environmental Health (DEH)
- completion of case closure procedures associated with the Feasibility Study/Remedial Action Workplan (FSRAWP) through DEH approval process

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4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

APPROACH TO THE ENVIRONMENTAL ANALYSIS

This draft environmental impact report (Draft EIR) evaluates and discloses the environmental impacts associated with the Corn Palace Residential Project, in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000, et seq.) and the State CEQA Guidelines (California Code of Regulation, Title 14, Chapter 3, Section 1500, et seq.). Sections 4.1 through 4.9 of this DEIR present a discussion of regulatory background, existing conditions, environmental impacts associated with construction and operation of the project, mitigation measures to reduce the level of impact, and residual level of significance (i.e., after application of mitigation, including impacts that would remain significant and unavoidable after application of all feasible mitigation measures). Issues evaluated in these sections consist of the environmental topics identified for review in the Notice of Preparation (NOP) prepared for the project (see Appendix A of this DEIR). Chapter 6 of this DEIR, "Other CEQA Considerations," presents an analysis of the project's impacts considered together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. Chapter 5, "Project Alternatives," presents a reasonable range of alternatives and evaluates the environmental effects of those alternatives relative to the proposed project, as required by Section 15126.6 of the State CEQA Guidelines. Chapter 5, "Other CEQA Considerations," includes an analysis of the project's growth inducing impacts, as required by Section 21100(b)(5) of CEQA.

Sections 4.1 through 4.9 of this Draft EIR each include the following components.

Regulatory Setting: This subsection presents information on the laws, regulations, plans, and policies that relate to the issue area being discussed. Regulations originating from the federal, State, and local levels are each discussed as appropriate.

Environmental Setting: This subsection presents the existing environmental conditions on the project site and in the surrounding area as appropriate, in accordance with State CEQA Guidelines Section 15125. The discussions of the environmental setting focus on information relevant to the issue under evaluation. The extent of the environmental setting area evaluated (the project study area) differs among resources, depending on the locations where impacts would be expected. For example, traffic impacts resulting from the proposed project are assessed for the regional roadway network, whereas cultural-resource impacts from the proposed project are assessed for the project site only.

Environmental Impacts and Mitigation Measures: This subsection presents thresholds of significance and discusses potentially significant effects of the Corn Palace Residential Project on the existing environment, including the environment beyond the project boundaries, in accordance with State CEQA Guidelines Section 15126.2. The methodology for impact analysis is described, including technical studies upon which the analyses rely. The thresholds of significance are defined and thresholds for which the project would have no impact are disclosed and dismissed from further evaluation. Project impacts and mitigation measures are numbered sequentially in each subsection (Impact 4.2-1, Impact 4.2-2, Impact 4.2-3, etc.). A summary impact statement precedes a more detailed discussion of the environmental impact. The discussion includes the analysis, rationale, and substantial evidence upon which conclusions are drawn. The determination of level of significance of the impact is defined in bold text. A "less-than-significant" impact is one that would not result in a substantial adverse change in the physical environment. A "potentially significant" impact or "significant" impact is one that would result in a substantial adverse change in the physical environment; both are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation. Mitigation measures are identified, as feasible, to avoid, minimize, rectify, reduce, or compensate for significant or potentially significant impacts, in accordance with the State

CEQA Guidelines Section 15126.4. Unless otherwise noted, the mitigation measures presented are recommended in the EIR for consideration by the State to adopt as conditions of approval.

Where an existing law, regulation, or permit specifies mandatory and prescriptive actions about how to fulfill the regulatory requirement as part of the project definition, leaving little discretion in its implementation, and would avoid an impact or maintain it at a less-than-significant level, the environmental protection afforded by the regulation is considered before determining impact significance. Where existing laws or regulations specify a mandatory permit process for future projects, performance standards without prescriptive actions to accomplish them, or other requirements that allow substantial discretion in how the they are accomplished, or have a substantial compensatory component, the level of significance is determined before applying the influence of the regulatory requirements. In this circumstance, the impact would be potentially significant or significant, and the regulatory requirements would be included as a mitigation measure.

This subsection also describes whether mitigation measures would reduce project impacts to less- than-significant levels. Significant-and-unavoidable impacts are identified as appropriate in accordance with State CEQA Guidelines Section 15126.2(b). Significant-and-unavoidable impacts are also summarized in Chapter 6, "Other Section Required by Statute."

References: The full references associated with the parenthetical references found throughout Sections 4.1 through 4.9 can be found in Chapter 7, "References," organized by section number.

4.1 AESTHETICS

This section describes the existing visual characteristics of the project area and evaluates the potential for the project to result in substantial adverse visual impacts. The visual impact analysis considers existing scenic resources and the potential for public views to be affected by the project. Public views are defined as views from public locations, such as roadways, scenic vista areas, parks, schools, or other public buildings.

This section is based on field review of the project site that was conducted by Ascent Environmental, Inc. in July 2018; and review of aerial photographs of the project site and vicinity; and site plans of the project.

No comments related to aesthetics and visual resources were received in response to the Notice of Preparation (NOP).

4.1.1 Regulatory Setting

FEDERAL

There are no federal programs or policies addressing visual resources that pertain to the project.

STATE

California Scenic Highway Program

California's Scenic Highway Program was created by the California Legislature in 1963 and is managed by the California Department of Transportation (Caltrans). The goal of this program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. A highway may be designated "scenic" depending on how much of the natural landscape travelers can see, the scenic quality of the landscape, and the extent to which development intrudes on travelers' enjoyment of the view.

The program includes a list of eligible highways and officially designated scenic highways, and includes a process for the designation of official State or County Scenic Highways. The project site is not located within view of a state scenic highway. The nearest highway subject to this program is Interstate 280, an Eligible Designated State Scenic Highways, located approximately 2.4 miles south of the project site (Caltrans 2018).

LOCAL

City of Sunnyvale General Plan

The Land Use and Transportation Element (LUTE), Housing Element, and the Community Character Chapter of the Sunnyvale General Plan provides the City of Sunnyvale (City) with a comprehensive and long-range general plan for its physical development (City of Sunnyvale 2017a). The LUTE Update, adopted in April 2017, combines the required land use and circulation elements into a single chapter. The land use and transportation policies strive to preserve community qualities that are favorable to residents and businesses and contribute to the community's identity. Policies also provide guidance on visual quality and the character of new development and provide additional direction for a complete community. The following are General Plan policies and actions that are applicable to the project for aesthetics and community character.

Land Use and Transportation Element

- **Policy LT-2.3:** Accelerate the planting of large canopy trees to increase tree coverage in Sunnyvale in order to add to the scenic beauty and walkability of the community; provide environmental benefits such

as air quality improvements, wildlife habitat, and reduction of heat islands; and enhance the health, safety, and welfare of residents.

- **LT-2.3d:** Require tree replacement for any project that results in tree removal, or in cases of constrained space, require payment of an in-lieu fee. Fee revenues shall support urban forestry programs.

- **Policy LT-4.1:** Preserve and enhance an attractive community, with a positive image, a sense of place, landscaping, and a human scale.

- **Policy LT-4.3:** Enforce design review guidelines and zoning standards that ensure the mass and scale of new structures are compatible with adjacent structures, and also recognize the City's vision of the future for transition areas such as neighborhood Village Centers and El Camino Real nodes.

  - **LT-4.3c:** Enforce local design guidelines that ensure buildings and monuments respect the character, scale, and context of the surrounding area.

  - **LT-4.3d:** Ensure that new construction and renovation contribute to the quality and overall image of the community.

  - **LT-4.3e:** Use the development review and permitting processes to promote high-quality architecture and site design.

- **Policy LT-4.4:** Avoid monotony and maintain visual interest in newly developing neighborhoods, and promote appropriate architectural diversity and variety. Encourage appropriate variations in lot sizes, setbacks, orientation of homes, and other site features.

- **Policy LT-5.1:** Strengthen the image that the community is composed of cohesive residential neighborhoods, each with its own individual character and Village Center; allow change and reinvestment that reinforces positive neighborhood concepts and standards such as walkability, positive architectural character, site design, and proximity to supporting uses.

- **Policy LT-5.2:** Preserve and enhance the character of Sunnyvale's residential neighborhoods by promoting land use patterns and transportation opportunities that support a neighborhood concept as a place to live, work, shop, entertain, and enjoy public services, open space, and community near one's home and without significant travel.

- **Policy LT-5.3:** Require new development, renovation, and redevelopment to be compatible and well-integrated with existing residential neighborhoods.

- **Policy LT-6.1:** Improve and preserve the character and cohesiveness of existing residential neighborhoods.

Community Character Chapter

- **Policy CC-1.3:** Ensure that new development is compatible with the character of special districts and residential neighborhoods.

- **Policy CC-1.4:** Support measures which enhance the identify of special districts and residential neighborhoods to create more variety in the physical development.

- **Policy CC-1.2:** Maintain and provide attractive landscaping in the public right-of-way to identify the different types of roadways and districts, make motorists more comfortable, and improve the enjoyment of residential neighborhoods.

- **Policy CC-3.1:** Place a priority on quality architecture and site design which will enhance the image of Sunnyvale and create a vital and attractive environment for businesses, residents, and visitors, and be reasonably balanced with the need for economic development to assure Sunnyvale's economic prosperity.

- **Policy CC-3.2:** Ensure site design is compatible with the natural and surrounding built environment.

Housing Element

- **Policy F.1**: Continue efforts to balance the need for additional housing with other community values, including preserving the character of established neighborhoods, high quality design, and promoting a sense of identity in each neighborhood.

Lawrence Station Area Plan

The project site is within the 319-acre Lawrence Station Area Plan (LSAP) area. The LSAP was adopted in 2016 to promote greater use of this existing transit asset and guide the development of a diverse neighborhood of employment, residential, retail, other support services, and open space. The project site is located within the southern portion of the LSAP area that is intended to retain its existing single-family residential character. The LSAP includes Goal SRG1 that calls for the protection and enhancement of the character and quality of the existing residential neighborhoods with an emphasis on pedestrian and bicycle enhancements and the provision of a new neighborhood-serving local park or open space.

The following guidelines that are applicable to the project for aesthetics and community character:

- **POSP-UDG5:** Maintain neighborhood and street character by locating residential uses across the street from one another where possible.

Scenic Resources

Figure 4-1 of the Sunnyvale General Plan identifies City gateways and visual landmarks throughout the City (City of Sunnyvale 2017b: p. 4-6) and defines visual landmarks as visually prominent and outstanding structures or natural features that function as points of orientation and identification for individuals and areas of the City. As described in the General Plan, gateways are specific places along a boundary where people enter and leave the City. Gateways create a precedent for design standards that follow along the major City thoroughfares; thus, it is important to make these locations distinctive and attractive.

City of Sunnyvale Design Guidelines

The City of Sunnyvale Design Guidelines contains standards and guidance for development with the City of Sunnyvale. For example, the City has design guidelines in place to protect the unique character of Eichler residential neighborhoods and the Heritage Neighborhood on Frances Street and Taaffe Street near Downtown. Additionally, Citywide Design Guidelines, Industrial Design Guidelines, and Single-Family Home Design Techniques have been put into place in order to respond to the community's changing demand for increased neighborhood compatibility, higher quality architectural and site design standards (City of Sunnyvale 2013).

Sunnyvale Municipal Code

The Sunnyvale Municipal Code, organized by Title, Chapter, and Section, includes all the ordinances for the City. Title 19, Zoning, includes regulations that potentially affect visual resources relevant to the project as follows:

- Chapter 19.32, Building Heights, Lot Coverages and Floor Area Ratios. This chapter contains development standards for residential districts. Table 19.32.020 shows that in the R-1.5 zone, the maximum lot coverage is 40 percent for a two-story home, and the maximum floor area ratio is 50 percent.

- Chapter 19.34, Front, Side and Rear Yards. Setbacks not specifically identified in Section 19.26.170 are subject to the setback requirements contained in this chapter. As shown in Table 19.34.030, the required yards for properties in the R-1.5 zoning district are a minimum front yard of 20 feet, side yards must be at least 4 feet each side (7 feet for 2nd floor) and at least 12 feet combined (18 feet for 2nd floor), and the minimum rear yard is 20 feet.

- Chapter 19.80, Design Review. This chapter describes the design review process that was established in order to promote the health, safety and general welfare by establishing a site and architectural design review process to improve the design quality of development in Sunnyvale. Per Section 19.80.030(a), the design review for the project would be conducted as part of the review of Special Development Permit (SDP) described below.

- Chapter 19.90, Special Development Permits. This chapter describes the procedures and required findings for Special Development Permits (SDPs). In approving the SDP, the Planning Commission or City Council have the authority to allow deviations from standards related to lot area, lot width, setbacks, building height, bulk and open space. Deviations from these standards can result in different aesthetic qualities of the project site.

4.1.2 Environmental Setting

The project site is located within the City of Sunnyvale, which is located in the northwest portion of Santa Clara County, between the City of Mountain View and City of Santa Clara. The visual character of the project site is that of undeveloped, flat land. The project site's visual context is greatly influenced by surrounding development as it is primarily surrounded by suburban elements. The following sections further describe the visual character of the project site and its surroundings, as well as views of the project site within the project vicinity.

VISUAL CHARACTER OF THE PROJECT SITE

The project site is located along the eastern boundary of the City on an approximately 8.8-acre site north of Lily Avenue, south of Dahlia Drive and Dahlia Court, east of Toyon Avenue, and west of the Lawrence Expressway. The project site currently contains agricultural and residential uses. A farm stand is in the southeast corner of the project site and two, one-story homes (1142 Dahlia Court and 1150 Dahlia Court) with three outbuildings are in the northern portion of the project site. The remainder of the project site consists of flat, vacant, agricultural land that was last cultivated in 2015. There are several trees along the southern edge of the project site, along Lily Avenue, and surrounding the homes on Dahlia Court.

VISUAL CHARACTER OF THE SURROUNDING AREA

As previously indicated, the project site is bounded by Lily Avenue to the south, Toyon Avenue to the west, Dahlia Court to the north, and Lawrence Expressway to the west. West of Lawrence Expressway is the City of Santa Clara. The uses surrounding the project site mainly include single-family residential homes and neighborhood roadways, though there are some commercial uses within the project vicinity. In addition to the single-family residential homes, there are also several apartment complexes located north and south of the project site. These include the Riverdeck Apartments, Reed Square Apartments, and Riley Square, Klamath Gardens and Halford Gardens Apartments. Commercial uses within the project vicinity include a shell gas station and 7-Eleven convenience store are located approximately 950 feet northeast of the project site, at the corner of Lawrence Expressway and Monroe Street. Additionally, there are two churches, Bethel Church of San Jose, and the Hope Lutheran Church, located approximately 1,000 feet northwest of the project site. Adjacent to Lawrence Expressway, there is another location for 7-Eleven, approximately 490 feet south of the project site. The St. Lawrence Elementary and Middle School and Santa Clara Unified School District are also located south of the project site, approximately 1,600 feet from the southern border, and within the Santa Clara city limits.

VIEWS OF THE PROJECT SITE AND SURROUNDING AREA

Viewpoints 1 and 2 depict existing views of and views beyond the project site (Exhibit 4.1-1). Viewpoint 1 includes the generally vacant project and the two residential homes within the northern portion of site located on Dahlia Court. Beyond the project site, Viewpoint 1 includes existing single-family residential development west of the project site, located off of Toyon Road and Dahlia Drive. As previously described, the project site consists of flat, generally undeveloped land. The northern portion of project site includes two single-family residences on Dahlia Court, an extension of Dahlia Road. The residences include the homes and several other associated structures on the property. There are several trees surrounding the residences and the court.

Viewpoint 2 shows the vacant, flat project site, including the farm stand in the southeastern corner. Several mature trees surround the farm stand and southern border of the project site, along Lily Avenue. On the eastern border of the project site, adjacent to Lawrence Expressway, are several commercial/advertisement signs posted for passing motorists. The Lawrence Expressway is a major arterial route that travels north-south bound along the eastern Sunnyvale city limit and adjacent to the project site. East of the Lawrence Expressway, and within the City of Santa Clara, is additional single-family residential development.

4.1.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Evaluation of potential aesthetic and visual resource impacts are based on a review of development considerations and documents pertaining to the project site. In determining the level of significance, this analysis assumes that the project would comply with the identified relevant state and local ordinances and regulations, as well as the General Plan and LSAP policies presented above.

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact on visual resources if the project would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the project site and its surroundings; or
- create a new source of substantial light or glare that would adversely affect day or night-time views in the area.

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

Scenic Vista

A scenic vista is generally considered to be a location from which the public can experience unique and exemplary high-quality views—typically from elevated vantage points that offer panoramic views of great breadth and depth. The visual character of the project site is that of undeveloped flat lands. However, the project site's visual context is also greatly influenced by surrounding development as it is primarily surrounded by suburban elements. The project site consists of disturbed lands, some of which were previously used for agricultural uses. Views of the project site include an undeveloped, vacant infill lot, which is not unique to the City of Sunnyvale and does not constitute a scenic vista. Thus, the project would have **no impact** to scenic vistas and this issue is not discussed further in this EIR.

Viewpoint 1: 7697 Western Panoramic View of the Project Site

Viewpoint 2: 7698 Eastern Panoramic View of the Project Site

Source: Ascent Environmental 2018
X17010129 01 003

Exhibit 4.1-1 **Viewpoints of the Project Site and Surrounding Area**

ASCENT ENVIRONMENTAL

Scenic Roadways and Highways

The project site is not visible from a designated state scenic highway or county scenic road. Therefore, the project would not result in damage to scenic resources within view of a state scenic highway or locally designated roadways. Thus, the project would have **no impact** to state scenic highways or county scenic roads and this issue is not discussed further in this EIR.

Figure 4-1 of the Sunnyvale General Plan identifies City gateways and visual landmarks throughout the City (Sunnyvale 201 1: p. 4-6). The City's General Plan identifies a gateway located at the City's limit along El Camino Real south of the project site. However, substantial development already exists located between this City Gateway and the project site, and design plans would not affect the appearance of the El Camino Real corridor. Thus, the project would have **no impact** to designated City Gateways and are not discussed further in this EIR.

IMPACT ANALYSIS

Impact 4.1-1: Visual Character and Quality Impacts

The change in character of the project site, once developed, would be visually compatible with surrounding existing residential neighborhoods to the north, south, and east. Therefore, the project would not substantially degrade the existing visual character or quality of the project site and its surroundings. This impact would be **less than significant**.

As previously described the existing project site includes approximately 8.8 acres of vacant, flat, and generally undeveloped land within the City of Sunnyvale. Implementation of the project would result in the demolition of onsite structures and development of a residential community that would include 58 single-family residential homes and a public park. As discussed in Chapter 3, "Project Description," the project would also include public facilities and roadways associated with the new development. The residential housing proposed as part of the project would include two-story homes on 6.1 acres of the project site while the public park would occupy up to 2 acres. Landscaping would also be included as part of project implementation and would consists of tree planting and landscaping of the public park and residential units as shown in Exhibit 3-6a and 3-6b.

The project site is surrounded by residential development to the north, east, south and west. Though there are some commercial uses within the project site vicinity, this area of the City generally consists of single-family residential housing. Given the exiting visual character of the project site, implementation of the project would result in a more appealing and cohesive use with the surrounding area. Additionally, implementation of the project would be consistent with surrounding uses and General Plan LUTE policies 49, 51, 53, 54, 55, Community Character Chapter policies CC-1.3, and CC-3.2 and LSAP Design Guideline PQSP-UDG5 that encourage quality, attractiveness, and compatibility with existing development. Project tree removal would address through proposed project landscaping and retention of existing trees along Lily Avenue consistent with General Plan LUTE Policy 14. Construction activity associated with the project may result in visibility of both construction personnel and equipment, however, these activities would be temporary in nature and would not result in permanent visual impacts to the project site.

Because the project would result in improved visual character and quality from baseline conditions and would be consistent with the City of Sunnyvale General Plan policies and design guidelines, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.1-2: Light and Glare Impacts

Implementation of the project would include uses that would involve new sources of lighting and potential glare within the City of Sunnyvale. The project would be required to comply with City design guidelines and the City Municipal Code and any new sources of light and glare resulting from the project would be similar to that of existing uses surrounding the project site. This impact would be **less than significant**.

As described in Chapter 2, "Project Description," the project would include 58 single-family homes on 6.1 acres, a public park on 2 acres, and 0.7 acres of public utilities and roadways supporting the development. The residential homes, park, and roadways would all contain new sources of lighting compared to existing conditions.

As provided in the Single-Family Home Design Techniques and the Citywide Design Guidelines, homes should be designed to avoid privacy, noise, light and visual conflicts with adjacent uses. Additionally, the design guidelines include standards for exterior lighting, such as those that would be used at the proposed park, street lights, and exteriors of homes, should utilize shields to ensure that light is directed towards the ground surface and does not create spillover towards surrounding uses and/or neighbors (City of Sunnyvale 2003). Further, as provided in the City of Sunnyvale Municipal Code, Section 19.42.050, lights, spotlights, floodlights, reflectors, and other means of illumination shall be shielded or equipped with special lenses in such a manner as to prevent any glare or direct illumination on any public street or other property (City of Sunnyvale 2018).

New sources of light and/or glare that would result from the project would be similar to that of surrounding uses. Additionally, as part of project implementation, the project would be required to comply with light and glare regulations provided in the City of Sunnyvale Design Guidelines and municipal ordinance. Therefore, light and glare associated with the project would not result in a substantial adverse effect to neighboring uses and impacts are considered **less than significant**.

Mitigation Measures

No mitigation is required.

4.2 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable air quality regulations, and an analysis of potential short-term and long-term air quality impacts that could result from implementation of the Corn Palace Residential Project Development (project). The methods of analysis for short-term construction, long-term regional (operational), local mobile-source, and toxic air emissions are consistent with the recommendations of the Bay Area Air Quality Management District (BAAQMD), the California Air Resources Board (CARB), California Department of Toxic Substance Control (DTSC), and the U.S. Environmental Protection Agency (EPA). Mitigation is developed as necessary to reduce significant air quality impacts to the extent feasible.

No comments in response to the Notice of Preparation were received that identified concerns regarding air quality impacts.

4.2.1 Regulatory Setting

Air quality in the project site area is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work to improve air quality through legislation, planning, policy-making, education, and a variety of programs. Although EPA regulations may not be superseded, State and local regulations may be more stringent.

CRITERIA AIR POLLUTANTS

Federal

EPA has been charged with implementing national air quality programs. The EPA air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990.

The CAA required EPA to establish national ambient air quality standards (NAAQS) for six common air pollutants found all over the U.S. referred to as criteria air pollutants (CAPs). EPA has established primary and secondary NAAQS for the following CAPs: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with aerodynamic diameter of 10 micrometers or less (PM_{10}) and fine particulate matter with aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. The NAAQS are shown in Table 4.2-3, The primary standards protect public health and the secondary standards protect public welfare. The CAA also required 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 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation would achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

State

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). California law authorizes CARB to set ambient (outdoor) air pollution standards (California Health and Safety Code Section 39606) for CAPs in consideration of public health, safety, and welfare, as shown in Table 4.2-1.

Table 4.2-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[a,b]	National (NAAQS)[c]	
			Primary[b,d]	Secondary[b,e]
Ozone	1-hour	0.09 ppm (180 µg/m³)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m³)	0.070 ppm (147 µg/m³)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m³)	9 ppm (10 mg/m³)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 µg/m³)	53 ppb (100 µg/m³)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	–
Sulfur dioxide (SO_2)	1-hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–
	3-hour	–	–	0.5 ppm (1300 µg/m³)
	24-hour	0.04 ppm (105 µg/m³)	–	–
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m³	–	Same as primary standard
	24-hour	50 µg/m³	150 µg/m³	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
	24-hour	–	35 µg/m³	Same as primary standard
Lead[f]	30-Day average	1.5 µg/m³–	–	–
	Rolling 3-Month Average	–	0.15 µg/m³	Same as primary standard
	Calendar quarter	-	1.5 µg/m³	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m³)	No national standards	
Sulfates	24-hour	25 µg/m³		
Vinyl chloride[f]	24-hour	0.01 ppm (26 µg/m³)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m³ = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million (by volume).

[a] California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

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

[c] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

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

[f] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. This allows for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: CARB 2016a

CARB has established the above-mentioned CAPs, as well as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulate matter. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources. The CCAA also provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are oversight of local air district compliance with federal and state laws; approving local air quality plans; submitting SIPs to EPA: monitoring air quality; determining and updating area designations; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Local

Bay Area Air Quality Management District

BAAQMD maintains and manages air quality conditions in the San Francisco Bay Area Air Basin (SFBAAB), including Santa Clara County, through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of BAAQMD includes the preparation of plans and programs for the attainment of the NAAQS and CAAQS, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. BAAQMD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA and CCAA.

Projects located in the SFBAAB are subject to BAAQMD's rules and regulations. Specific rules applicable to the project may include:

- **Regulation 2, Rule 1, General Permit Requirements.** Includes criteria for issuance or denial of permits, exemptions, appeals against decisions of the Air Pollution Control Officer and BAAQMD actions on applications.

- **Regulation 2, Rule 2, New Source Review.** Applies to new or modified sources and contains requirements for Best Available Control Technology and emission offsets. Rule 2 implements federal New Source Review and Prevention of Significant Deterioration requirements.

- **Regulation 6, Rule 1, General Requirements.** Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions and opacity.

- **Regulation 7, Odorous Substances.** Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. A person (or facility) must meet all limitations of this regulation, but meeting such limitations shall not exempt such person from any other requirements of BAAQMD, state, or national law. The limitations of this regulation shall not be applicable until BAAQMD receives odor complaints from 10 or more complainants within a 90-day period, alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence. When the limits of this regulation become effective, as a result of citizen complaints described above, the limits shall remain effective until such time as no citizen complaints have been received by BAAQMD for 1 year. The limits of this Regulation shall become applicable again if BAAQMD receives odor complaints from five or more complainants within a 90-day period. BAAQMD staff investigate and track all odor complaints it receives and make attempts to visit the site and identify the source of the objectionable odor and assist the owner or facility in finding a way to reduce the odor.

- **Regulation 8, Rule 3, Architectural Coatings.** Limits the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within BAAQMD.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS in their region by the earliest practical date. The CCAA specifies that local air districts should focus attention on

reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources. To achieve the CAAQS, BAAQMD prepares and updates air quality plans on a regular basis. The air quality plans published by BAAQMD and other local air districts in the state are incorporated into California's SIP Strategy and meet CAA requirements.

For state air quality planning purposes, the SFBAAB is classified as a serious non-attainment area with respect to the 1-hour ozone standard. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that BAAQMD update its Clean Air Plan every three years to reflect progress in meeting the NAAQS and CAAQS and to incorporate new information regarding the feasibility of control measures and new emission inventory data. BAAQMD's record of progress in implementing previous measures must also be reviewed. BAAQMD prepared these plans in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments. On April 19, 2017 BAAQMD adopted the most recent revision to the Clean Air Plan, titled the *2017 Clean Air Plan: Spare the Air, Cool the Climate* (BAAQMD 2017a). This plan serves to:

- define a vision for transitioning the region to a post-carbon economy needed to achieve 2030 and 2050 greenhouse gas reduction targets;
- decrease emissions of air pollutants most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants;
- reduce emissions of methane and other potent climate pollutants; and
- decrease emissions of carbon dioxide by reducing fossil fuel combustion.

City of Sunnyvale General Plan

The *City of Sunnyvale General Plan* contains the following policies related to air quality that may be applicable to the project (City of Sunnyvale 2017):

- **Policy EM-11.1:** The City should actively participate in regional air quality planning.
- **Policy EM-11.2:** Utilize land use strategies to reduce air quality impact, including opportunities for citizens to live and work in close proximity.
- **Policy EM-11.3:** Require all new development to utilize site planning to protect citizens from unnecessary exposure to air pollutants.
- **Policy EM-11.4:** Apply the Indirect Source Rule to new development with significant air quality impacts. Indirect Source review would cover commercial and residential projects as well as other land uses that produce or attract motor vehicle traffic.
- **Policy EM-11.5:** Reduce automobile emissions through traffic and transportation improvements.
- **Policy EM-11.6:** Contribute to a reduction in Regional Vehicle Miles Traveled.
- **Policy EM-11.8:** Assist employers in meeting requirements of Transportation Demand Management (TDM) plans for existing and future large employers and participate in the development of TDM plans for employment centers in Sunnyvale.

TOXIC AIR CONTAMINANTS

EPA and CARB also regulate air toxics. EPA refers to this category of pollutants as hazardous air pollutants (HAPs) and CARB refers to them as toxic air contaminants (TACs). This report uses the terms "HAPs" and "TACs" interchangeably. TACs are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in

mortality or in 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.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. 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 (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with CAPs for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 4.2-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA and, in California, CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for air toxics to limit emissions.

Federal Hazardous Air Pollutant Programs

EPA has programs for identifying and regulating HAPs. Title III of the CAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The national emissions standards for HAPs may differ for major sources and for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two ways. First, EPA has technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. Second, EPA also has health risk–based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

The CAA also required EPA to issue vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, the CAA required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

State Programs for Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs, including particulate exhaust emitted by diesel engines (diesel PM), and adopted EPA's list of HAPs as TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe exposure level exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that exposure level. If no safe exposure level exists, the measure must incorporate best available control technology for TACs to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

Diesel Risk Reduction Plan

CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Recent milestones included the low-sulfur diesel fuel requirement and tighter emissions standards for heavy-duty diesel trucks (effective in 2007 and subsequent model years) and off-road diesel equipment (2011). Over time, replacing older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) in California have been reduced substantially over the last decade; such emissions will be reduced further through a progression of regulatory measures (e.g., low emission vehicle/clean fuels and Phase II reformulated-gasoline regulations) and control technologies.

Assembly Bill 617 of 2017

AB 617 of 2017 aims to help protect air quality and public health in communities around industries subject to the state's cap-and-trade program for GHG emissions. AB 617 imposes a new state-mandated local program to address non-vehicular sources (e.g., refineries, manufacturing facilities) of CAPs and TACs. The bill requires CARB to identify high-pollution areas and directs air districts to focus air quality improvement efforts through adoption of community emission reduction programs within these identified areas. Currently, air districts review individual sources and impose emissions limits on emitters based on best available control technology, pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring community-wide air quality assessment and emission reduction planning.

Regional and Local Regulations for Toxic Air Contaminants

Under BAAQMD Regulation 2, Rule 1, General Permit Requirements and Regulation 2, Rule 2, New Source Review, all sources that possess the potential to emit TACs are required to obtain permits from BAAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source-review standards and air-toxics control measures.

To implement the Hot Spots Information and Assessment Act in its jurisdiction, BAAQMD requires all stationary sources of TACs that are determined to generate an incremental increase in cancer risk that exceeds 10 in one million or a non-cancer chronic or acute risk level that exceeds a hazard index of 1.0 (using the conservative estimates of screening-level analysis) to perform a detailed, formal health risk assessment. A hazard index is the ratio of the average short term (generally 1 hour) ambient concentration of a toxic substance(s) divided by the reference exposure level set by the Office of Environmental Health Hazard Assessment (OEHHA). If the ratio exceeds 1.0, then adverse health effects may occur (CAPCOA 2009:iii).

The BAAQMD's Community Air Risk Evaluation (CARE) program estimates and reports both local and regional impacts of TACs in the SBBAAB. The CARE program identifies areas with high concentrations of air pollution and populations most vulnerable to air pollutions impacts. Sunnyvale, including the project area, is not listed as a location with high concentrations of TACs.

ODORS

Odors are generally regarded as an annoyance rather than a health hazard, and federal and state air quality regulations do not contain any requirements for their control. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, or headache).

BAAQMD identifies odor sources of concern to include wastewater treatment plants, stationary landfills, composting facilities, recycling facilities, petroleum refineries, manufacturing plants, painting operations, rendering plants, and food packaging plants (BAAQMD 2017b:3-4).

4.2.2 Environmental Setting

The project site is located in the SFBAAB within the City of Sunnyvale. The SFBAAB includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara Counties; the western portion of Solano County; and the southern portion of Sonoma County. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutants sources, as discussed separately below.

CLIMATE AND METEOROLOGY

Atmospheric conditions such as wind speed, wind direction and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The climate of the SFBAAB is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean. High-pressure systems are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, resulting in subsidence inversions. During summer and fall, locally generated emissions can, under the restraining influences of topography and subsidence inversions, cause conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates (e.g., nitrates and sulfates). In the winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the area (BAAQMD 2017b:C1 to C4).

The project site is located within the City of Sunnyvale in the Santa Clara Valley climatological subregion. The Santa Clara Valley is bounded by San Francisco Bay to the north and by mountains to the east, south, and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are mild. At the northern end of the valley, mean maximum temperatures are in the low-80s during the summer and high 50s in the winter, and mean minimum temperatures range from the high 50s in the summer to the low 40s in the winter (degrees Fahrenheit). Further inland, where the moderating effect of the San Francisco Bay is not as strong, temperature extremes are greater. Winds in the valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer the southern end of the valley sometimes becomes a "convergence zone," when air flowing from Monterey Bay gets channeled northward into the southern end of the valley and meets with the prevailing north-northwesterly winds. Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare, associated mostly with the occasional winter storm.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Western Regional Climate Center Palo Alto station. The normal annual precipitation is approximately 15 inches. January temperatures range from a normal minimum of 39 degrees Fahrenheit (°F) to a normal maximum of 57°F. July temperatures range from a normal minimum of 54°F to a normal maximum of 78°F (WRCC 2016). The prevailing wind direction is from the north (WRCC 2002).

CRITERIA AIR POLLUTANTS

A description of the sources and health effects for each criteria pollutant is summarized in Table 4.2-2.

Table 4.2-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Reduced capacity to pump oxygenated blood; headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen dioxide (NO_2)	Combustion devices (e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines), industrial processes, and fires	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; aggravation of existing heart disease leading to death	Chronic bronchitis, emphysema, decreased lung function
Sulfur dioxide (SO_2)	Combustion devices (e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines), industrial processes, and fires	Irritation of upper respiratory tract, increased asthma symptoms, aggravation of existing heart disease leading to death	Chronic bronchitis, emphysema
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	Alterations to the immune system, carcinogenesis
Lead	Metal processing, piston-engine aircraft or other vehicles operating on leaded fuel	Reproductive/developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Source: EPA 2016, CARB 2005a

Attainment Designations

Criteria air pollutant concentrations are measured at several monitoring stations in the SFBAAB and used by EPA and CARB to designate areas according to their attainment status for CAPs. The current attainment designations for Santa Clara County are shown in Table 4.2-3.

Table 4.2-3 Attainment Status Designations for Santa Clara County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Attainment (1-hour)[1]	Nonattainment (1-hour) Classification[2]
	Nonattainment (8-hour)[3] Classification=Marginal	Nonattainment (8-hour)
	Nonattainment (8-hour)[4] Classification=Marginal	
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
		Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Nonattainment (24-hour)	(No State Standard for 24-Hour)
	Nonattainment (Annual)	Nonattainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[5]	(Attainment) (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling average)	Attainment (30-day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24-hour)
Visibly Reducing Particles		Unclassified (8-hour)
Vinyl Chloride		Unclassified (24-hour)

Notes:
1 Air Quality meets federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply.
2 Per Health and Safety Code (HSC) § 40921.5(c), the classification is based on 1989 – 1991 data, and therefore does not change.
3 1997 Standard.
4 2008 Standard.
5 2010 Standard.

Source: CARB 2016b

TOXIC AIR CONTAMINANTS

According to the most recent version of the *California Almanac of Emissions and Air Quality* (CARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM 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 emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest level of risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Sources of these TACs vary considerably and include consumer products, gasoline dispensing stations, auto repair and auto body coating shops, dry cleaning establishments, chrome plating and anodizing shops, welding operations, and other stationary sources.

Diesel PM poses the greatest health risk among these 10 TACs (OEHHA 2015:6-8). CARB evaluates the health risk associated with exposure to TACs on a cumulative basis with a focus on cancer risk. The risk for an individual TAC is calculated by multiplying its unit risk factor with its average concentration during the exposure period. The unit risk factor is expressed as the probably, or risk, of contracting cancer due to consistent exposure to an ambient concentration of one microgram per cubic meter for 70 years (i.e., the risk of contracting cancer, or excess cancer cases, per one million people exposed over a 70-year period) (CARB 2009:5-3). Based on these receptor modeling techniques, CARB estimated diesel PM in the SFBAAB in 2000 to result in an incremental increase in cancer risk of 480 in one million, which, when coupled with the average cancer risk from airborne exposure (i.e., cancer risk unrelated to diesel PM exposure) within the SFBAAB of 179 per million, yields a combined cancer risk of 659 per million. Since 1990, emissions of diesel PM have decreased in the SFBAAB even though population and diesel vehicle miles traveled (VMT) have grown, because of adoption of more stringent emission standards for diesel engines. State and local programs have reduced the average level of cancer risk in the SFBAAB from TAC exposure by 83 percent over the last two decades (BAAQMD 2017c:50).

The predominant source of diesel PM near the project site is truck traffic on the Lawrence Expressway located immediately east of the project site.

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (BAAQMD 2017b:3-4). None of these odorous land uses are within proximity to the project site.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, including children and the elderly. Residential dwellings, schools, hospitals, daycare facilities, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants.

Sensitive uses in the project vicinity include single-family residential neighborhoods to the north, south, and west of the project site. Sensitive receptors, including single-family residential neighborhoods, also exist to the east of the project site, but are separated from the project site by Lawrence Expressway. The project would also result in new residential dwellings and parks located on the project site.

4.2.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Construction- and operation-related impacts were assessed in accordance with BAAQMD-recommended methodologies (BAAQMD 2017b).

Construction and Site Remediation

Short-term construction-related emissions of criteria air pollutants and precursors were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 computer program (CAPCOA 2016). Construction modeling was based on project-specific information (e.g., size, number of units being built, area to be graded), where available; reasonable assumptions based on typical construction activities, and default values in CalEEMod based on the project's location and land use type. The modeling assumed that project construction phases would begin in September 2019 and continue through January 2021. A detailed description of model input and output parameters and assumptions is provided in Appendix B.

Lead and pesticide soil contaminants were identified on the project site, requiring remediation. Remediation activities are anticipated to occur over a 10–6-week period. Approximately 20,000 tons of soil would be excavated and transported from the project site and replaced by a similar volume of soil to backfill the excavations (Trumark Homes 2018). All remediation activity would take place prior to other phases of construction.

Operation

Operational emissions of criteria air pollutants and precursors were estimated using project-specific information, where available, and default values in CalEEMod based on the project's location and land use. Mobile-source emissions were modeled in CalEEMod Version 2016.3.2 using the number of project-generated vehicle trips and VMT provided by the traffic operational analysis prepared by Wood Rodgers (City of Sunnyvale 2018). Emissions associated with on-site consumption of natural gas, the use of consumer projects, and landscape maintenance activities were estimated using the applicable modules in CalEEMod. Operational emissions from all sources were estimated for full buildout of the project which would become fully operational in 2021.

The potential for project-generated traffic to contribute to concentrations of CO that exceed the NAAQS and CAAQS for this pollutant was evaluated based on whether project-related vehicle trips would be consistent with applicable transportation plans, specifically the Plan Bay Area 2040.

Construction-related TACs were qualitatively analyzed based on the types and number of diesel-powered construction equipment that would be used, the duration in which activity would generated diesel PM exhaust in the same location, the size of the area in which construction activity would occur, and the proximity of construction activity to the nearest off-site sensitive receptors.

The assessment of odor-related impacts is based on the types of odor sources associated with the land uses that would be developed under the project and their location relative to existing off-site sensitive receptors.

THRESHOLDS OF SIGNIFICANCE

BAAQMD adopted thresholds of significance in 2010, but these thresholds were subject to a series of lawsuits, including whether the development of the thresholds was itself a project that should be subject to CEQA evaluation, and whether the thresholds could be used to determine if existing environmental hazards could result in significant impacts to projects exposed to these hazards. None of the lawsuits addressed the merits of the thresholds themselves. As stated on its website, www.baaqmd.gov, the BAAQMD "is no longer recommending that the Thresholds be used as a generally applicable measure of a project's significant air quality impacts...lead agencies may rely on the Air District's updated CEQA Guidelines (updated May 2012

[and later in 2017]) for assistance in calculation air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures..." (BAAQMD 2014). Although these thresholds remain unadopted, they provide the most current evidence upon which to base significance conclusions related to air quality and are used herein as the basis for determining significant impacts.

For the purpose of this project, the following thresholds of significance are used to determine if an air quality impact would be significant. The project would result in a significant impact to air quality if it would (BAAQMD 2017b:2-2 to 2-3):

- Cause daily average construction-generated criteria air pollutant or precursor emissions to exceed 54 pounds per day (lb/day) of ROG, 54 lb/day of NO_x, 82 lb/day of PM_{10} exhaust, or 54 lb/day of $PM_{2.5}$ exhaust, or substantially contribute to emissions concentrations (e.g., PM_{10}, $PM_{2.5}$) that exceed the applicable NAAQS or CAAQS;
- Cause daily long-term regional criteria air pollutant or precursor emissions to exceed 54 lb/day of ROG, 54 lb/day of NO_x, 82 lb/day of PM_{10} exhaust, or 54 lb/day of $PM_{2.5}$ exhaust; or substantially contribute to emissions concentrations (e.g. PM_{10}, $PM_{2.5}$) that exceed the applicable NAAQS or CAAQS.
- not implement BAAQMD's Basic Construction Mitigation Measures for dust emissions (e.g., PM_{10} and $PM_{2.5}$);
- result in, or contribute to, concentrations of CO that exceed 9.0 parts per million (ppm) over an 8-hour average or 20.0 ppm over a 1-hour average;
- generate TAC emissions that would expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million and/or a chronic or acute hazard index of 1; or
- create objectionable odors affecting a substantial number of people (i.e., one confirmed complaint per year averaged over 3 years).

IMPACT ANALYSIS

Impact 4.2-1: Short-Term Construction-Generated Emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$

Short-term, construction generated emissions would not exceed BAAQMD's thresholds for ROG, NO_x, PM_{10}, or $PM_{2.5}$. However, unless BAAQMD-Best Management Practices for dust emissions are implemented, construction emissions could contribute to local pollutant concentrations that exceed NAAQS and CAAQS. Therefore, the impact of short-term, construction-generated emissions of criteria pollutants and precursors as a result of project construction would be **potentially significant**.

Multiple activities during project construction would result in emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$, including bioremediation, demolition, grading, utilities installation, the use of off-road equipment, material delivery by haul trucks, worker commutes building construction, asphalt paving, application of architectural coatings, and other miscellaneous activities. Ozone precursor emissions of ROG and NO_x are associated primarily with exhaust from construction equipment, haul truck trips, and worker trips. ROG emissions are also generated during asphalt paving and the application of architectural coatings. Fugitive dust emissions are associated primarily with site preparation and grading and vary as a function of soil silt content, soil moisture, wind speed, and area of disturbance.

Project construction is anticipated to occur between 2019 and 2021. Construction activities associated with project development would include bioremediation of the soil on the project site, backfilling and compaction of soils, construction of wet and dry utilities and service systems.

Bioremediation of the project site would occur prior to any on-site construction activity. Construction activities would include demolition of the existing structures and associated parking lots, driveways, sidewalks, and landscaping; grading, including the export of approximately 11,160 cubic yards of soil and import of approximately 7,250 cubic yards of new concrete and 1,050 cubic yards of new asphalt; installation of utilities; off-site curb, gutter, paving, and street improvements; and vertical construction and landscaping. Vertical construction; curb, gutter, paving, and street improvement; and the application of architectural coatings could occur at the same time and this is accounted for in the estimation of maximum daily emission levels during project construction. It is known at this time, however, that construction of 58 single-family homes would not take place at the same time as construction of the public park.

Maximum daily construction emissions of criteria air pollutants and precursors are summarized by construction phase and year in Table 4.2-4. Please refer to Appendix B for air quality modeling input and output parameters, detailed assumptions, and daily construction emissions estimates.

Table 4.2-4 Summary of Maximum Daily Emissions of Criteria Air Pollutants and Precursors Associated with Bioremediation and Project Construction

Phase and Timeframe	Maximum Daily Emissions (lb/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Bioremediation (February 2019 - June 2019)	3	31	8	5
Construction (October 2019 - May 2021)	27	49	12	5
BAAQMD Threshold	54	54	82	54

Notes: lb/day = pounds per day; NO_x = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases.

[1] Higher daily emissions between the summer and winter seasons are shown.

See Appendix B for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2018

As shown in Table 4.2-4, exhaust emissions generated by bioremediation and construction activities would not exceed BAAQMD's applicable thresholds of significance for any criteria pollutants or precursors. However, fugitive PM_{10} and $PM_{2.5}$ dust emissions could contribute to localized pollutant concentrations that exceed applicable NAAQS and CAAQS if dust control measures are not implemented. For this reason, this would be a **potentially significant** impact.

Mitigation Measure 4.2-1: Implement Construction-Related Measures to Reduce Fugitive Dust Emissions

The applicant shall require its construction contractors to implement BAAQMD's Basic Construction Mitigation Measures (BAAQMD 2017b), including but not limited to the following:

- Water all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) two times per day.
- Cover all haul trucks transporting soil, sand, or other loose material off-site.
- Remove all visible mud or dirt track-out onto adjacent public roads using wet power vacuum street sweepers at least once per day (dry power sweeping is prohibited).
- Limit all vehicle speeds on unpaved roads to 15 miles per hour.
- Pave all roadways, driveways, and sidewalks as soon as possible, and lay building pads as soon as possible after grading (unless seeding or soil binders are used).

- Minimize idling times by shutting equipment off when not in use or reducing the maximum idling time to five minutes. The project will provide clear signage for construction workers at access points.
- Maintain and properly tune all construction equipment in accordance with manufacturers specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lea Agency regarding dust complaints. The person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Implementation of Mitigation Measure 4.2-1 would meet the BAAQMD's Best Management Practices threshold for fugitive PM_{10} and $PM_{2.5}$ dust emissions during project-related construction. Implementation of Mitigation Measure 4.2-1 would reduce this impact to a **less-than-significant** level.

Impact 4.2-2: Long-Term Operational (Regional) Emissions of Criteria Air Pollutants and Precursors

Implementation of the project would not result in long-term operational emissions of ROG, NO_X, PM_{10}, or $PM_{2.5}$ that exceed BAAQMD's thresholds of significance (54 lb/day for ROG, NO_X, and PM $_{2.5}$ exhaust; and 82 lb/day for PM_{10}). Thus, long-term operational emissions of criteria air pollutants and precursors would not violate or contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, and/or conflict with air quality planning efforts. This impact would be **less than significant.**

Mobile-source emissions of criteria air pollutants and precursors would result from vehicle trips to and from the project site by residents and visitors, as well as delivery and maintenance vehicles. Table 4.7-5 in Chapter 4.7 "Transportation and Circulation," shows the estimated number of vehicle trips that would be generated by the project. The project would generate up to 629 daily trips, with trips generally distributed to the surrounding roadway network based on existing travel patterns in the area and locations of nearby complimentary land uses (e.g., schools, commercial retail, places of employment).

Other sources of operational emissions would include natural gas-fueled equipment used for space and water heating, and landscape maintenance equipment such as mowers and leaf blowers. The application of architectural coatings, as part of regular maintenance, and the use of various consumer produce such as cleaning chemicals would also generate emissions of ROG.

Table 4.2-5 summarizes the maximum daily project-generated, operational emissions of criteria air pollutants and precursors in 2021, which is the earliest possible year when the residential units could be built out and fully operational.

As shown in Table 4.2-5, operation of the project would not result in long-term operational emissions of ROG, NO_X, PM_{10}, or $PM_{2.5}$ that exceed the mass emission thresholds recommended by BAAQMD. Thus, long-term operational emissions of criteria air pollutants and precursors associated with the project would not violate or contribute substantially to an existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentrations. Moreover, because the project would be consistent with the current land use designation and zoning, it would also be consistent with regional air quality planning that incorporated this zoning. For these reasons, this impact would be **less than significant.**

Mitigation Measures

No mitigation is required.

Table 4.2-5 Summary of Maximum Daily Operational Emissions of Criteria Air Pollutants and Precursors during Summer and Winter at Full Buildout (2021)

Emissions Source	lb/day			
	ROG	NO_X	PM_{10}	$PM_{2.5}$ Exhaust[2]
Area Sources[1]	3	1	<1	<1
Natural Gas Combustion[2]	<1	<1	<1	<1
Mobile Sources (Vehicle Trips)[3]	1	4	3	1
Total Maximum Daily Emissions	4	5	4	1
BAAQMD Thresholds of Significance	54	54	82	54

Notes: lb/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less;

Totals may not sum exactly due to rounding.

[1] Area-source emissions include emissions from landscape maintenance activity, the application of architectural coatings as part of regular maintenance, and consumer products.

[2] It was assumed that natural gas would be combusted in all of the residential units for space and water heating and that al the units would be equipped with natural gas fireplaces.

[3] Mobile-source emissions were estimated using VMT levels estimated by the traffic analysis prepared for the project and used to support the transportation analysis in Chapter 4.7, Transportation and Circulation (City of Sunnyvale 2018).

See Appendix B for detailed input parameters and modeling results.

Source: Modeling conducted by Ascent Environmental in 2018.

Impact 4.2-3: Mobile-Source CO Concentrations

The project would be consistent with Plan Bay Area 2040 as well as the local congestion management plan. Also, project-generated vehicle trips would not cause any operational deficiencies at nearby intersections, nor would the project add a substantial amount of traffic to any intersection operating at an unacceptable level of service. For these reasons, project-related vehicle trips would not result in, or contribute to, CO concentrations that exceed the NAAQS and CAAQS for CO. This would be a **less-than-significant** impact.

Local mobile-source CO emissions near roadway intersection are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because CO disperses rapidly with distance from the source under normal meteorological conditions. However, under certain specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels at nearby sensitive land uses, such as residential units, schools, and childcare facilities.

In accordance with BAAQMD guidance, a project that is consistent with applicable transportation plans and local congestion management plans would not result in, or contribute to, CO concentrations that exceed the NAAQS and CAAQS for CO (BAAQMD 2017b:3-3). As explained in Chapter 3.0, "Project Description" the project would be consistent with the City's General Plan and the Lawrence Station Area Plan, and therefore consistent with the Plan Bay Area 2040. Moreover, as described under Impact 4.7-1 in Chapter 4.7 "Transportation and Circulation," project-generated vehicle trips would not cause any operational deficiencies at any study area intersections, nor would the project add a substantial amount of traffic to any intersection operating at an unacceptable level of service. For these reasons, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.2-4: Exposure of Sensitive Receptors to TACs

Short-term construction activities associated with the project would not result in substantial emissions of diesel PM, would be temporary (i.e., 19 months), and would not be located immediately adjacent to off-site sensitive receptors. The nearest sensitive receptors are single-family residential neighborhoods surrounding the project site. TACs associated with long-term operation of the project would be intermittent, and include only diesel powered delivery trucks serving the residential buildings. Therefore, construction- and operation-related TACs would not result in an increase in health risk exposure at off-site sensitive receptors. This impact would be a **less than significant**.

The project would not result in the long-term operation of any TAC sources, such as backup diesel generators or regular and frequent visits by diesel-powered haul trucks. Project construction, however, would involve the use of diesel PM–emitting off-road construction equipment.

Construction-related activities would result in temporary, intermittent emissions of diesel PM from the exhaust of heavy-duty off-road diesel equipment used for bioremediation, demolition of the existing buildings, grading, utilities installation, paving, building construction, and the application of architectural coatings. On-road, diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at a single location for extended periods and, therefore, would not expose a single receptor to excessive diesel PM emissions. This analysis focuses primarily on heavy-duty construction equipment used on-site that may affect nearby off-site land uses.

Particulate exhaust from diesel-fueled engines (i.e., diesel PM) was identified as a TAC by CARB in 1998. The potential cancer risk from inhaling diesel PM outweighs the potential for all other diesel PM–related health impacts (i.e., noncancer chronic risk, short-term acute risk) and health impacts from other TACs (CARB 2003:K-1). Chronic and acute exposure to noncarcinogens is expressed as a hazard index, which is the ratio of expected exposure levels to an acceptable reference exposure level. As shown in Table 4.2-4 above, maximum daily exhaust emissions of PM_{10}, which is considered a surrogate for diesel PM, could reach up to 12 lb/day during construction.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC levels that exceed applicable standards). Dose is a function of the concentration of a substance in the environment and the duration of exposure to the substance. It is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if the exposure occurs over a longer period. According to OEHHA, health risk assessments, which determine the exposure of sensitive receptors to TACs, should be based on a 70- or 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015:5-23, 5-24). For this reason, it is important to consider that the use of heavy-duty off-road diesel equipment would be limited to the approximate 19-month construction period.

In addition, studies indicate that diesel PM is highly dispersive and that concentrations of diesel PM decline with distance from the source (e.g., 500 feet from a freeway, the concentration of diesel PM decreases by 70 percent) (Roorda-Knape et al. 1999; Zhu et al. 2002, cited in CARB 2005b:9). The nearest off-site sensitive receptors, single-family residential neighborhoods to the north, west, and south, are located immediately adjacent to the project site. Single-family residential neighborhoods are also located on the other side of Lawrence Expressway east of the project site.

Considering the highly dispersive properties of diesel PM, the relatively low mass of diesel PM emissions that would be generated during project construction, and the relatively short period during which PM–emitting construction activity would take place, construction-related TACs would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index of 1.0 or greater As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.2-5: Exposure of Sensitive Receptors to Odors

The project would introduce new odor sources into the area (e.g. diesel exhaust generated by delivery trucks). However, these types of odor sources would be limited and infrequent because of the types of uses proposed (i.e. residential and public park). Moreover, these types of odor sources already operate in and near the project area, are common in urban sittings, and do not result in odor complaints. This impact would be **less than significant**.

Odors from the use of heavy duty diesel equipment and the laying of asphalt during construction activities would be intermittent and temporary, and would dissipate rapidly from the source with an increase in distance. While buildings and facilities would be constructed over two phases throughout the buildout period, these types of odor generating activities would not occur at any single location or within close proximity to offsite receptors for an extended period of time. Diesel exhaust from the use of on-site construction equipment would be intermittent and temporary, and would dissipate rapidly from the source with an increase in distance.

The project would not propose any long-term uses that are considered to be sources of objectionable odors (e.g., landfill, wastewater treatment plant). Operation of the project may include a limited number of diesel-fueled trucks delivering material to the residential areas; however, these activities would be infrequent. Residential land uses and public park are not typically considered to be sources of objectional odors. This impact

For these reasons, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

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4.3 ARCHAEOLOGICAL, HISTORIC, AND TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts associated with implementation of the Corn Palace Residential Development Project (project) on known and unknown cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include pre-historic resources, historic-era resources, and "tribal cultural resources" (the latter as defined by Assembly Bill (AB) 52, Statutes of 2014, in Public Resources Code [PRC] Section 21074).

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-era physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or architectural) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources (TCRs) includes site features, places, cultural landscapes, sacred places or objects, which are of cultural value to a tribe.

One comment letter regarding cultural resources was received in response to the Notice of Preparation (NOP). The Native American Heritage Commission (NAHC) requested AB 52 and Senate Bill (SB) 18 compliance information; while SB 18 does not apply to the project because there is not a General Plan amendment associated with the project (which is the trigger for SB 18 compliance), SB 18 is not a California Environmental Quality Act (CEQA) requirement and, therefore, is not discussed in this section. AB 52 compliance is described below.

4.3.1 Regulatory Setting

FEDERAL

National Historic Preservation Act

Federal protection of cultural resources is legislated by (a) the National Historic Preservation Act (NHPA) of 1966 as amended by 16 U.S. Code 470, (b) the Archaeological Resource Protection Act of 1979, and (c) the Advisory Council on Historical Preservation. These laws and organizations maintain processes for determination of the effects on historical properties eligible for listing in the National Register of Historic Places (NRHP).

Section 106 of the NHPA and accompanying regulations (36 Code of Federal Regulations [CFR] Part 800) constitute the main federal regulatory framework guiding cultural resources investigations and requires consideration of effects on properties that are listed in, or may be eligible for listing in the NRHP. The NRHP is the nation's master inventory of known historic resources. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, and cultural districts that are considered significant at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

- The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
- It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and

- It possesses at least one of the following criteria:

  A. Association with events that have made a significant contribution to the broad patterns of history (events).

  B. Association with the lives of persons significant in the past (persons).

  C. Distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

  D. Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee recognition in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin also provides guidance in the evaluation of archaeological site significance. If a heritage property cannot be placed within a particular theme or time period, and thereby lacks "focus," it is considered not eligible for the NRHP. In further expanding upon the generalized National Register criteria, evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, flumes, etc.) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length; (2) presence of distinctive engineering features and associated properties; (3) structural integrity; and (4) setting. The highest probability for NRHP eligibility exists within the intact, longer segments, where multiple criteria coincide.

STATE

California Register of Historical Resources

The California Register of Historical Resources (CRHR) established a list of those properties which are to be protected from substantial adverse change (Public Resource Code [PRC] Section 5024.1). A historical resource may be listed in the CRHR if it meets any of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

2. It is associated with the lives of persons important in California's past.

3. It 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 value.

4. It has yielded or is likely to yield information important in prehistory or history.

The CRHR includes properties that are listed or have been formally determined to be eligible for listing in the NRHP, State Historical Landmarks, and eligible Points of Historical Interest. Other resources require nomination for inclusion in the Register. These may include resources contributing to the significance of a local historic district, individual historical resources, historical resources identified in historic resource surveys conducted in accordance with State Historic Preservation Office (SHPO) procedures, historic resources or districts designated under a local ordinance consistent with Commission procedures, and local landmarks or historic properties designated under local ordinance.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on both "historical resources," "unique archaeological resources," and "tribal cultural resources." Pursuant to PRC Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment" and PRC Section 21084.2, a "project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources.

Historical Resources

"Historical resource" is a term with a defined statutory meaning (PRC, Section 21084.1; determining significant impacts to historical and archaeological resources is described in the State CEQA Guidelines, Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR (PRC, Section 5024.1).
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, will 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.
- 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 a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR (PRC, Section 5024.1), including the following:
  - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
  - Is associated with the lives of persons important in our past;
  - 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; or
  - Has yielded, or may be likely to yield, information important in prehistory or history.
- The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the PRC), or identified in a historical resources survey (meeting the criteria in Section 5024.1(g) of the PRC) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Section 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects will affect unique archaeological resources. PRC, Section 21083.2, subdivision (g), states that unique archaeological resource means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resources

CEQA also requires lead agencies to consider whether projects will affect tribal cultural resources. PRC, Section 21074 states the following:

- Tribal cultural resources" are either of the following:
  - Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    - Included or determined to be eligible for inclusion in the CRHR.
    - Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
  - 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.
- 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.
- 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).

Health and Safety Code, Section 7052 and 7050.5

Section 7052 of the Health and Safety Code states that the disturbance of Native American cemeteries is a felony. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the NAHC.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural and Sacred Sites Act applies to both State and private lands. The Act requires that upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are of a Native American, the coroner must notify the NAHC. The NAHC then notifies those persons most likely to be descended from the Native American's remains. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Public Resource Code, Section 5097

PRC, Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American burial falls within the jurisdiction of the NAHC. Section 5097.5 of the Code states the following:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate pale ontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological,

paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Assembly Bill 52

AB 52, signed by Governor Edmund G. Brown, Jr., in September of 2014, establishes a new class of resources under CEQA: "tribal cultural resources." AB 52, as codified in PRC Sections 21080.3.1, 21080.3.2, and 21082.3, requires that lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation once the lead agency determines that the application for the project is complete, before the issuance of an NOP of an Environmental Impact Report (EIR) or notice of intent to adopt a negative declaration or mitigated negative declaration. AB 52 also requires revision to CEQA Appendix G, the environmental checklist. This revision would create a new category for TCRs. As defined in PRC Section 21074, to be considered a TCR, a resource must be either:

- listed or determined to be eligible for listing, on the national, state, or local register of historic resources; or
- a resource that the lead agency determines, in its discretion and supported by substantial evidence, to treat as a tribal cultural resource pursuant to the criteria in PRC Section 50241(c). PRC Section 5024.1(c) provides that a resource meets criteria for listing as an historic resource in the CRHR if any of the following apply:
  - It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
  - It is associated with the lives of persons important in our past.
  - It 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.
  - It has yielded, or may be likely to yield, information important in prehistory or history.

LOCAL

City of Sunnyvale General Plan

The Community Character Chapter of the City of Sunnyvale General Plan includes the following policies related to historical, archaeological, and tribal cultural resources relevant to the project:

- **Policy CC-5.1**: Preserve existing landmarks and cultural resources and their environmental settings.
- **Policy CC-5.2:** Enhance the visual character of the City by preserving diverse as well as harmonious architectural styles, reflecting various phases of the City's historical development and the cultural traditions of past and present residents.
- **Policy CC-5.3:** Identify and work to resolve conflicts between the preservation of heritage resources and alternative land uses.
- **Policy CC-5.4:** Seek out, catalog and evaluate heritage resources which may be significant.
- **Policy CC-5.5:** Archeological resources should be preserved whenever possible.
- **Policy HE-6.5:** Promote the preservation of historically and architecturally significant buildings and neighborhoods through land use, design and housing policies.

City of Sunnyvale Municipal Code

The City of Sunnyvale's Municipal Code provides the criteria for evaluation and nomination of heritage resources in Section 19.96.050 of Title 19:

> Any improvement, building, portion of buildings, structures, signs, features, sites, scenic areas, views, vistas, places, areas, landscapes, trees, or other natural objects or objects of scientific, aesthetic, educational, political, social, cultural, architectural, or historical significance can be designated a heritage resource by the city council and any area within the city may be designated a heritage resource district by the city council if it meets the Criteria of the National Register of Historic Places, or one or more of the following:
>
> - (a) It exemplifies or reflects special elements of the city's cultural, social, economic, political, aesthetic engineering, architectural, or natural history;
> - (b) It is identified with persons or events significant in local, state, or national history;
> - (c) It embodies distinctive characteristics of a style, type, period, or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship;
> - (d) It is representative of the work of a notable builder, designer, or architect;
> - (e) It contributes to the significance of an historic area, being a geographically definable area possessing a concentration of historic or scenic properties or thematically related grouping of properties which contribute to each other and are unified aesthetically or by plan or physical development;
> - (f) It has a unique location or singular physical characteristic or is a view or vista representing an established and familiar visual feature of a neighborhood, community, or the city of Sunnyvale;
> - (g) It embodies elements of architectural design, detail, materials, or craftsmanship that represents a significant structural or architectural achievement or innovation;
> - (h) It is similar to other distinctive properties, sites, areas, or objects based on a historic, cultural, or architectural motif;
> - (i) It reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of park or community planning;
> - (j) It is one of the few remaining examples in the city, region, state, or nation possessing distinguishing characteristics of an architectural or historic type or specimen;
> - (k) With respect to a local landmark, it is significant in that the resource materially benefits the historical character of a neighborhood or area, or the resource in its location represents an established and familiar visual feature of the community or city;
> - (l) With respect to a local landmark district, a collective high integrity of the district is essential to the sustained value of the separate individual resources;
> - (m) With respect to a designated landmark and designated landmark district, the heritage resource shall meet Criteria of the National Register of Historical Places. (Ord. 262399 § 1; prior zoning code §19.80.060).20.

4.3.2 Environmental Setting

PREHISTORIC SETTING

Three temporal periods have been defined for archaeological resources in the Bay Area. The Early, Middle, and Late periods are marked by changes in distinct artifact types, subsistence orientation, and settlement patterns. The generalized periods are associated with regionally based cultural patterns. As employed by researchers in the South Bay Area, these periods and associated patterns are outlined in Table 4.3-1 (NIC 2018:8).

Table 4.3-1 Archeological Time Periods and Patterns in the South Bay Area

Period	Calibrated (Cal) anno Domini (A.D.)/ Before Current Era (B.C.E)	Cal Before Present (B.P.)	Cultural Pattern
Early Period	8000-3500 B.C. 3500-500 B.C.	11,000-5500 5500-2450	Millingstone Windmiller*
Early/Middle Transition	500-200 B.C.	2450-2150	Berkeley
Early Middle	200 B.C.-A.D. 430	2150-1520	
Middle	A.D. 430-600	1520-1350	
Late Middle	A.D. 600-800	1350-1150	
Terminal Middle	A.D. 800-1050	1150-900	
Middle/Late Transition	A.D. 1050-1250	900-700	
Late - Phase 1	A.D. 1250-1550	700-400	Augustine
Late - Phase 2	A.D. 1550-1777	400-250	

* The presence of the Windmiller Pattern during the Early Period in the Bay Area is controversial and may be referred to elsewhere as the Lower Berkeley Pattern (NIC 2018:9).

Early Period (11,000-2500 cal B.P.)

Archaeological evidence is rare of occupation in the Bay Area dating earlier than 6,000 years ago during the Early Holocene when sea levels were dramatically lower than today. It is likely that sea-level rise and Holocene alluvial deposits, which are up to 10 meters thick in some locations around the Bay region, buried many prehistoric sites in this area At a South Bay Millingstone site in Santa Clara County, two flexed burials were found beneath cairns of millingstones dating between 7,500 and 7,000 years ago.(NIC 2018:9).

Artifact assemblages from the South Bay peninsula, such as in the Los Altos foothills, including Olivella rectangular beads and Rossi square-stemmed and large side-notched projectile points, imply that characteristics of Windmiller assemblages were present (NIC 2018:9).

Middle Period (2500-1000 cal B.P.)

The Berkeley Pattern is found throughout the Bay region during the Late Holocene. Artifacts typical of the Berkeley Pattern include spire-lopped Olivella shell beads, bone tubes and beads, bird-bone whistles, quartz crystals, serrated mammal scapulas, and ground bone awls. Projectile points are commonly contracting stemmed and lanceolate types, some of which are made from obsidian. Burials are variable flexed and semi-flexed with inconsistent orientation, and there is an increase in mortuary items, particularly during the late Middle Period, compared to few mortuary items identified during the Early Period in Bay Area sites (NIC 2018:9-10).

The well-known Emeryville shellmound and Ellis Landing site, as well as University Village, San Bruno Mountain, and the Yñigo Mound, date to this period. Although no longer visible on the surface, cultural material and human remains have been recovered from the basal portions of the shellmounds, such as from

the intact Early and Middle Period occupation components found at depths up to 1.8 meters below the surface (NIC 2018:10).

Late Period (1000 cal B.P. to Historic Contact)

In the Bay Area, the Augustine Pattern follows the "golden age of shell mound communities" of the Berkeley Pattern. A number of changes in subsistence, foraging, and land use patterns that begin to reflect the use pattern known from Historic Period Native American groups in the area is evident. The pattern is identified by the introduction of bow and arrow technology, the use of harpoons, and tubular tobacco pipes. There is an increase in the intensity of subsistence exploitation that correlates directly with population growth, and greater emphasis is placed on the procurement and processing of vegetal foods, especially acorns, as evidenced in the increase of milling tools, especially the mortar and pestle (NIC 2018:10).

Population size and the number of settlements increased during this period, although the large shellmound villages of the Berkeley Pattern were apparently no longer favored residential places and many were abandoned. Settlement strategies were apparently reorganized and focused on a dispersed pattern, with the establishment of both coastal and interior habitation areas, coinciding with the exploitation of seasonally available resources (NIC 2018:10-11).

The Augustine Pattern ushers in a time of status differentiation and the rise of secret societies and cults and associated traits. Exchange networks, with the use of clamshell disk beads as a form of currency, expanded during this period. Exchange items included magnesite, steatite, Olivella beads, and obsidian. Compared to the Middle Period, the use and occurrence of shell beads with burials blossomed. Haliotis banjo pendants may represent the introduction and spread of the Kuksu cult, beginning during the transition from the Middle to Late Period in the Bay Area. The magnitude of non-dietary Olivella shells in coastal sites during the Late Period, coupled with a concomitant increase of the shells in mortuary contexts throughout central California during this period, attests to the rise of both exchange networks and status differentiation, with coastal peoples supplying the shells to the interior groups (NIC 2018:11).

ETHNOGRAPHIC SETTING

The project is within an area historically occupied by the tribelets of the Costonoan linguistic group, who are also known today as the Ohlone. Costonoan territory extended between the Carquinez Strait and San Pablo Bay on the north, southward along the coast beyond Monterey Bay to Carmel Valley, and inland to the coast range. Neighboring groups included the Coast Miwok north across the Carquinez Strait, the Miwok and Northern Valley Yokuts to the east, and the Salinan and Esselen to the south. Linguistically, the tribelets belong to the Utian, or Miwok-Costonoan language family, part of a hypothesized larger Penutian linguistic stock. The project lies within the Tamyen linguistic territory. In 1770, there were approximately 1,200 Tamyen speakers inhabiting the southern end of San Francisco Bay and the lower Santa Clara Valley. There was an estimated pre-contact population of 7,000 Ohlone (NIC 2018:11).

Spanish mission records, diaries, and journals provide most of the information about the Costanoans, as little ethnographical research has been conducted in the twentieth century. The most thorough study used mission records and reconstructed Native American life in the Bay Area. Through detailed examination of mission records, marriage patterns, and dialect variation seen in personal names, 43 separate political entities (tribelets) were identified in the San Francisco Bay, Santa Cruz, and inland area, with another six or so tribelets in the south Monterey Bay and Carmel Valley region. Descendants of Costonoan speakers prefer to be called by the name of the tribelet from which they are descended, such as Mutsun or Rumsen (NIC 2018:11).

Each of the numerous Ohlone tribelets occupied one or more villages plus a number of seasonal camps. Tribelets were also political units that were structured by similarities in language and ethnicity, each holding claim to a designated portion of territory. Topographic features, such as rivers, watersheds, and ridgelines, defined tribelet territories and the boundaries were strictly respected. Inland villages were typically situated along a river or stream while coastal villages were situated on high ground away from the shoreline.

Dwellings were domed structures thatched with tule or grass over a pole framework; coastal groups constructed conical houses from redwood. The deceased were either buried or cremated (NIC 2018:11-12).

A wide array of tools, implements, and enclosures were used by the Ohlone for hunting, gathering and processing natural resources. The Ohlone traded actively with neighboring groups. The Ohlone traded mussels, abalone shells, dried abalone, and salt to the Yokuts and Olivella shells to the Miwok. From the groups to the east, they obtained pine nuts, feather blankets, basketry materials, paints, and obsidian. Historic records also indicate Ohlone triblets engaged in warfare with the Esselen, Salinan, and Northern Valley Yokuts over territorial disputes (NIC 2018:12).

Traditional Ohlone lifeways were altered drastically beginning in the late 1700s and early 1800s with the establishment of presidios at Monterey and San Francisco by the Spanish military and of seven Franciscan missions within Ohlone territory. Following the movement by many Ohlone to the missions, large-scale epidemics decimated the mission population and those who had remained in their villages. It is estimated that the combined Ohlone population fell from a pre-contact total of 10,000 down to 2,000 by the end of the Mission period in 1834. During the mission period, the dwindling Ohlone population also intermarried with other interior tribes at the missions, mixing their cultural identities (NIC 2018:12).

Today, descendants of Costonoan tribelets are concerned with revitalizing aspects of their culture, learning the language through notes collected by anthropologist John Harrington, and preserving the natural resources that played a vital role in traditional culture. Several groups have petitioned the Bureau of Indian Affairs for federal recognition, including the Amah-Mutsun Band of Ohlone/Costonoan Indians, Costonoan Band of Carmel Mission Indians, Costonoan Ohlone Rumsen-Mutsen Tribe, Costonoan Rumsen Carmel Tribe, Indian Canyon Band of Costonoan/Mutsun, Ohlone/Costonoan Esselen Nation, and the Ohlone/Costonoan Muwekma Tribe (NIC 2018:12).

HISTORIC SETTING

Post-contact history for California generally is divided into three specific periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848–present). Between 1769 and 1823, 21 missions were established by the Spanish and the Franciscan Order along the coast between San Diego and San Francisco. After the end of the Mexican Revolution (1810–1821) against the Spanish crown, the Mexican Period is marked by an extensive era of land grants. The American Period was initiated in 1848 with the signing of the Treaty of Guadalupe Hidalgo, which ended the Mexican–American War (1846–1848), and California became a territory of the United States. Gold was discovered at Sutter's Mill on the American River in Coloma the same year, and by 1849, nearly 90,000 people had journeyed to the gold fields. In 1850, largely as a result of the Gold Rush, California became the thirty-first state.

City of Sunnyvale

Sunnyvale's earlier history and economy was based on agriculture initiated by the Castro and Murphy families in the 1840s. The San Francisco and San Jose Railroad arrived in 1864 with "Lawrence Station" in Santa Clara and "Murphy Station" in what would become Sunnyvale. The railroad provided easy access to the San Francisco market and paved the way for greater settlement and broader agricultural development in the Santa Clara Valley. More farmers came to the Sunnyvale area during the second half of the 19th century.

The city continued to grow through the first decades of the 20th century. The earliest industries arrived in Sunnyvale were Joshua Hendy Iron Works as well as food processing and canning industries. Despite industrial growth, agriculture remained the mainstay of Sunnyvale. During World War I and postwar era Sunnyvale's development pattern started to shape: industrial plants and the railroad ran east-west, the' Murphy Avenue business district ran north-south, with single family homes in between. The 1930s' depression did not affect Sunnyvale as adversely since factory workers who lost their jobs were able to find work in agriculture.

World War II brought the business and building boom but also tipped the balance between agriculture and industry. Both high wages and available work created an agricultural labor shortage. Orchards were still profitable but secondary to industrial development. Larger industrial firms moved into the community and Sunnyvale became the industrial economic center of the Peninsula.

By 1950 Sunnyvale's population had grown to approximately 9,800. Taxes on farmland rose rapidly, making agricultural use impracticable and urging land owners to sell or develop residential subdivisions and shopping centers. The city continued to grow through the 1960s and 1970s, becoming the second largest city in Santa Clara Valley. Transportation corridors and street patterns changed to accommodate steadily increasing automobile traffic while agricultural land was converted to urban uses (Carey & Co. 2017:7).

Project Site

The project site is located west of Lawrence Expressway in the City of Sunnyvale. The project site consists of 8.8-acre lot that has two dwellings and three outbuildings at the northeast corner and a farm stand, known as the Corn Palace, located in the southeast corner. The remainder of the project site includes farmland that is not currently being cultivated.

In 1926, Michael Francia purchased 20 acres along Lawrence Station Road, including the project site (NIC 2018:15). In 1948 the project site consisted of dense orchards with one or two structures. By 1956, the project site was cleared and crops were planted for produce. The Francia brothers grew corn, bell peppers, green peas, cucumbers, tomatoes, and squash (Carey & Co. 2017:5).

The first residential development appeared during the mid-1950s. The single-family houses on the south side of Lily Avenue were constructed and the lots to the southeast towards El Camino Real were developed during this period (NIC 2018:15). The dwelling units in the northeast corner were built in the late 1950s while the Corn Palace farm stand was constructed around 1965. Though the surrounding area, including the project site remained largely agricultural until after the 1960s, by 1980, the Francia property was among the few remaining agricultural parcels in the area. In 2013 the western portion of the property was developed into single family homes. The remaining portion of the property (the project site) was partially cultivated and the produce stand operated until late 2015 (Carey & Co. 2017:5-6).

The Corn Palace property is associated with the agricultural history of Sunnyvale and Santa Clara County. Converted from an orchard to a farmland sometime between 1948 and 1956, the property was cultivated continuously by the Francia family until around 2015. The property was not the only family farm in the area, nor was it the largest, nor does it appear to have been associated with groundbreaking trends or unique developments in Sunnyvale's or Santa Clara County's farming history. However, it is one of a very few remaining agricultural lands in Sunnyvale, and a rare survivor of a family farm from the period when agriculture dominated the local economy. The farm stand, known as the Corn Palace, may be the last original farm stand in the City of Sunnyvale (Carey & Co. 2017:10).

RECORDS SEARCHES, SURVEYS, AND CONSULTATION

Records Searches

A cultural resources literature search was completed on August 21, 2018, by the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University in Rohnert Park. The records search was conducted to determine if prehistoric or historic cultural resources were previously recorded within the project area, the extent to which the Project area had been previously surveyed, and the number and type of cultural resources within a 0.25-mile radius of the Project. The archival search by the NWIC of the archaeological and historical records, national and state databases, and historic maps included:

- NRHP: listed properties;
- CRHR: listed resources;

- Historic Property Data File and Archaeological Determinations of Eligibility for Santa Clara County (2012);
- California Inventory of Historic Resources (1976);
- California Historical Landmarks (1996 and updates);
- California Points of Historical Interest (1992 and updates);
- 1866 Government Land Office (GLO) Plat for Township 6 South, Range 1 West;
- 1861 Tract of Land Map; and
- 1897, 1961 San Jose West 7.5-minute USGS.

Archival research also included review of material at the Santa Clara County Clerk Recorders Office, all available building permits, the Sunnyvale Historical Society, the San Jose Public Library History Room Collections, and local newspaper indexes. In addition to the material provided by NWIC, the series of historic maps listed below were also reviewed.

- 1897 and 1961 San Jose USGS 15-minute quadrangles;
- 1899, 1943, and 1961 Palo Alto USGS 15-minute quadrangles; and
- 1953 and 1961 San Jose West USGS 7.5-minute quadrangles.

Archaeological Survey

An intensive-level pedestrian survey within the 8.8-acre project site was conducted on August 7, 2018. Survey transects were spaced apart at intervals no greater than 15 meters, and followed a north-south pattern. During the survey, the entire project area was carefully examined for the presence of cultural resources. All visible ground surface outside the extant buildings within the project area was carefully examined for cultural material (e.g., flaked stone tools, tool-making debris, stone milling tools, or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Ground disturbances (e.g., dirt roads, animal burrows, etc.) were visually inspected.

KNOWN CULTURAL RESOURCES WITHIN PROJECT SITE

The records search by the NWIC indicated that one historic resource, the Corn Palace property, has been previously recorded within the project area and no additional historic-era resources are within the 0.25-mile search radius. No prehistoric or historic- era archaeological, or ethnohistoric resources were mapped within the search radius.

Corn Palace Property

The Corn Palace was evaluated for CRHR-eligibility in 2017. The relative rarity of this once ubiquitous local property type means that the Corn Palace farm appears eligible for the CRHR under Criterion 1 based on its association with Sunnyvale's agricultural past. The property was owned and operated by the Francia family since the 1920s, however the brothers do not appear to have played a significant role in the development of Sunnyvale, Santa Clara County, or the State. Therefore, the building does not appear eligible for listing in the CRHR under Criterion 2. The dwellings and outbuildings on the subject property appear to be of common construction and materials with no notable or special attributes. Therefore, the property does not appear eligible for listing under Criterion 3. Archival research provided no indication that the subject property has the potential to yield information important to the prehistory or history of the local area, California, or the nation. Therefore, it does not appear eligible for listing in the CRHR under Criterion 4 (Carey & Co. 2017:11).

As described in Section 4.3.1, "Regulatory Setting," to be considered significant for local listing, the property must meet at least one of the thirteen criteria for nomination of heritage resources defined in the City of Sunnyvale's Municipal Code Section 19.96.050. The subject property appears eligible to be listed as a heritage resource on the City of Sunnyvale's Heritage Resource Inventory since it meets criteria a, f, and j (Carey & Co. 2017). These criteria are described above, under the City of Sunnyvale Municipal Code.

NATIVE AMERICAN OUTREACH AND CONSULTATION

Sacred Lands File Outreach

The NAHC was contacted to request a search of their Sacred Lands File for traditional cultural resources within or near the project area. The reply from the NAHC, dated July 25, 2018, states that the search failed to indicate the presence of Native American sacred lands or traditional cultural properties in the immediate project vicinity.

Assembly Bill 52 Consultation

On August 14, 2018, 16 tribes were contacted by the City of Sunnyvale for AB 52 consultation. Letters sent to the tribes included the location of the project, background information about the project, and project objectives. The following tribes and chairpersons that were contacted are listed below.

- Amah Mutsun Band of Mission San Juan Bautista, Irene Zwierlein, Chairperson;
- Amah Mutsun Tribal Band, Valentin Lopez, Chairperson;
- Cahto Tribe, Aimie R. Lucas, Chairperson;
- Coyote Valley Band of Pomo Indians, Michael Hunter, Chairperson;
- Guidiville Rancheria of California, Merlene Sanchez, Chairperson;
- Hopland Band of Pomo Indians, Ivesha Miller, Chairperson;
- Indian Canyon Mutsun Band of Costanoan, Ann Marie Sayers, Chairperson;
- Kashia Band of Pomo Indians of the Stewarts Point Rancheria, Reno Keoni Franklin, Chairperson;
- Manchester Band of Pomo Indians, Jaime Cobarrubia, Chairperson;
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, Rosemary Cambra, Chairperson;
- Novo River Indian Community;
- Pinoleville Pomo Nation, Leona L. Williams, Chairperson;
- Potter Valley Tribe, Salvador Rosales, Chairperson;
- Redwood Valley or Little River Band of Pomo, Debra Ramirez, Chairperson;
- Sherwood Valley Band of Pomo Indians, Michael Knight, Chairperson; and
- The Ohlone Indian Tribe, Andrew Galvan, Chairperson.

No responses were received from the above listed tribes.

4.3.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

The impact analysis for archaeological and historical resources is based on the findings and recommendations of the 2017 *Corn Palace, 1142-1050 Dahlia Court Historic Resource Evaluation* and the 2018 *Cultural Resources Inventory Report* prepared for the Corn Palace Residential Development Project. Additionally, information related to TCRs is based on findings reported in the NAHC database search as well as Native American consultation under AB 52. The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact on cultural resources if it would:

- cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5;

- cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5;
- disturb any human remains, including those interred outside of dedicated cemeteries; or
- cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074.

IMPACT ANALYSIS

Impact 4.3-1: Impacts to Historic Resources

Implementation of the Corn Palace Residential project would result in the demolition of existing site structures that appear eligible for CRHR and local listing. Demolition of these on-site structures would result in a **significant** impact because the historic resources would no longer exist.

The project site was evaluated in 2017 by Carey & Co. to determine if the Corn Palace property retained any historical significance. The evaluation of the property included the two dwelling units and associated structures in the northeastern portion of the project site in addition to the Corn Palace farmstand, located in the southern portion of the project site. The evaluation concluded that the property appeared eligible under CRHR Criterion 1, as it is associated with the agricultural history of Sunnyvale and Santa Clara County; is one of a very few remaining agricultural lands in Sunnyvale; and is a rare survivor of a family farm from the period when agriculture dominated the local economy. The property is also eligible for listing as a heritage resource on the City of Sunnyvale's Heritage Resource Inventory (Carey & Co. 2017:12). Therefore, this property is considered a resource under CEQA Guidelines Section 15064.5.

The project includes demolition of the existing buildings on the Corn Palace property and construction of a residential community and public park. Because the property appears eligible for CRHR and local listing, demolition of the on-site structures and the loss of a family-owned farmland that had association with Sunnvyale's agricultural past with the construction of the project would result in a **significant** impact because these historical resources would no longer exist.

Mitigation Measure 4.3-1a: Document Historic Buildings Before Removal

The project applicant shall complete documentation of the buildings present on the Corn Palace property before any construction/demolition work is conducted at the project site. Documentation shall consist of a written history of the property and photographs, as described below.

- Written History. The Carey & Co. report, *Historic Resource Evaluation Report, Corn Palace*, shall be used for the written history of each building. The report shall be reproduced on archival bond paper.
- Photographs. Digital photographs shall be taken of the dwelling units and the Corn Palace following the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation Digital Photography Standards.

The documentation shall be prepared by an architectural historian, or historical architect as appropriate, meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualification Standards. The documentation shall be submitted to the City of Sunnyvale.

Mitigation Measure 4.3-1b: Create an Interpretive Program, Exhibit, or Display

The project applicant shall prepare a permanent exhibit/display of the history of the Corn Palace property including, but not limited to, historic and current photographs, interpretive text, drawings, video, interactive media, and oral histories. The exhibit/display shall be developed in consultation with the City of Sunnyvale, local historical organizations, and those with an interest in the history of the Corn Palace property and/or

agricultural historic within the City of Sunnyvale. The exhibit/display shall be displayed in a location at the proposed park, adjacent to the housing development, that is accessible to the public and may be incorporated into the interpretive exhibit.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-1a and 4.3-1b would lessen the impacts related to the loss of the existing dwelling units and the Corn Palace farmstand located on the project site, but not to a level of less than significant because the historic resources would no longer exist. Consequently, mitigation is available to only partially mitigate the impacts of the project on this historic property. Therefore, the impact would remain **significant and unavoidable** after implementation of all feasible mitigation measures.

Impact 4.3-2: Potential Impacts to Unique Archaeological Resources

Results of the records search and pedestrian survey did not indicate any known archaeological sites within the project site. However, project related ground disturbing activities could result in discovery or damage of yet undiscovered subsurface unique archaeological resources. This would be a **potentially significant** impact.

As indicated through the records search and pedestrian surveys, no known prehistoric or historic-period archaeological sites are present within the project site. Because cultural resources surveys and archival review did not result in the identification of any prehistoric or historic period archaeological resources within the project site or a half-mile radius and the project site has been continually disturbed for agricultural production, the archaeological sensitivity of the project site is considered low. No archaeological monitoring or additional research is recommended before project implementation.

The project would result in demolition of existing site structures and construction of 58 residential units, a park, and associated public facilities and roadways. Implementation of the project would include preconstruction or construction-related ground disturbing activities and could result in encountering previously undiscovered or unrecorded archaeological sites and materials. These activities could damage or destroy previously undiscovered unique archaeological resources. This would be a **potentially significant** impact.

Mitigation Measure 4.3-2: Halt Ground-Disturbing Activity Upon Discovery of Subsurface Archaeological Features

In the event that any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100 feet of the resources shall be halted and a professional archaeologist, qualified under the Secretary of the Interior's Professional Qualification Standards, shall be retained to assess the significance of the find. Specifically, the archaeologist shall determine whether the find qualifies as an historical resource, a unique archaeological resource, or a tribal cultural resource. If the find does fall within one of these three categories, the qualified archaeologist shall then make recommendations to the City of Sunnyvale regarding appropriate procedures that could be used to protect the integrity of the resource and to ensure that no additional resources are affected. Procedures could include but would not necessarily be limited to, preservation in place, archival research, subsurface testing, or contiguous block unit excavation and data recovery, with preservation in place being the preferred option if feasible. If the find is a tribal cultural resource, the City of Sunnyvale shall provide a reasonable opportunity for input from representatives of any tribe or tribes the professional archaeologist believes may be associated with the resource. The City shall implement such recommended measures if it determines that they are feasible in light of project design, logistics, and cost considerations.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-2 would reduce impacts associated with archaeological resources to a **less-than-significant** level because it would require the performance of feasible, professionally accepted, and legally compliant procedures for the protection of discovered previously undocumented archaeological resources.

Impact 4.3-3: Impacts to Known Tribal Cultural Resources

The City of Sunnyvale sent notification for consultation to 16 tribes on August 14, 2018. No responses from tribes contacted were received during the 30-day response period for AB 52 as defined in PRC Section 21074. Because no responses were received, no resources were identified as TCRs. Because no resources meet the criteria for a TCR under PRC Section 21074, there would be **no impact** to tribal cultural resources.

As part of the 2013/2014 legislative session, AB 52 established a new class of resources under CEQA, TCRs, and requires that lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation once the lead agency determines that the application for the project is complete. As detailed above, the City of Sunnyvale sent letters to tribal representatives at the following tribes:

- Amah Mutsun Band of Mission San Juan Bautista, Irene Zwlerlein, Chairperson;
- Amah Mutsun Tribal Band, Valentin Lopez, Chairperson;
- Cahto Tribe, Aimie R. Lucas, Chairperson;
- Coyote Valley Band of Pomo Indians, Michael Hunter, Chairperson;
- Guidiville Rancheria of California, Merlene Sanchez, Chairperson;
- Hopland Band of Pomo Indians, Ivesha Miller, Chairperson;
- Indian Canyon Mutsun Band of Costanoan, Ann Marie Sayers, Chairperson;
- Kashia Band of Pomo Indians of the Stewarts Point Rancheria, Reno Keoni Franklin, Chairperson;
- Manchester Band of Pomo Indians, Jaime Cobarrubia, Chairperson;
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, Rosemary Cambra, Chairperson;
- Novo River Indian Community;
- Pinoleville Pomo Nation, Leona L. Williams, Chairperson;
- Potter Valley Tribe, Salvador Rosales, Chairperson;
- Redwood Valley or Little River Band of Pomo, Debra Ramirez, Chairperson;
- Sherwood Valley Band of Pomo Indians, Michael Knight, Chairperson; and
- The Ohlone Indian Tribe, Andrew Galvan, Chairperson.

No responses were received at the end of the 30-day response period for AB 52. Neither the records search at NWIC nor the pedestrian survey revealed any pre-historic archaeologic or ethnographic sites. In addition, the NAHC Sacred Lands database search was negative. For these reasons, no part of the project site meets any of the PRC 5024.1(c) criteria for TCRs. Therefore, the project would have **no impact** to known TRCs as defined in PRC Section 21074.

Mitigation Measures

No mitigation is required.

Impact 4.3-4: Discovery of Human Remains

Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the project site. However, ground-disturbing construction activities could uncover previously unknown human remains. Compliance with California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097 would make this impact **less than significant**.

Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the project site. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project site and could be uncovered by project-related construction activities.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Sections 7050.5 and 7052 and PRC Section 5097.

These statutes require that, if human remains are discovered during any construction activities, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the Santa Clara County coroner and NAHC shall be notified immediately, in accordance with to PRC Section 5097.98 and Section 7050.5 of California's Health and Safety Code. If the remains are determined by NAHC to be Native American, the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the archaeologist, the NAHC-designated Most Likely Descendant, and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Sections 7050.5 and 7052 and PRC Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

4.4 BIOLOGICAL RESOURCES

This section addresses biological resources known or with potential to occur in the project vicinity and describes potential effects of project implementation on those resources. Biological resources include common vegetation and habitat types, sensitive plant communities, and special-status plant and animal species. The analysis includes a description of the existing environmental conditions, the methods used for assessment, the potential direct and indirect impacts of project implementation, and mitigation measures recommended to address impacts determined to be significant or potentially significant.

One comment letter in response to the notice of preparation for this EIR addressed impacts to nesting birds on the project site. This issue is addressed below.

4.4.1 Regulatory Setting

FEDERAL

Federal Endangered Species Act

USFWS and National Marine Fisheries Service (NMFS) regulate the taking of terrestrial and inland species and anadromous and marine species listed as threatened or endangered under the ESA. In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private property, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take. If a project would result in take of a federally-listed species, either the project applicant must acquire an incidental-take permit, under Section 10(a) of ESA, or if a federal discretionary action is involved, the federal agency consult with USFWS or NMFS under Section 7 of the ESA.

STATE

California Endangered Species Act

CESA prohibits the taking of state-listed endangered or threatened species, as well as candidate species being considered for listing. Project proponents may obtain a Section 2081 incidental take permit if the impacts of the take are minimized and fully mitigated, and the take would not jeopardize the continued existence of the species. "Take" of a species is defined under CESA as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include "harm" or "harass" as is included in the federal ESA. As a result, the threshold for take under CESA may be higher than under ESA.

Fully Protected Species

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the FGC. These statutes prohibit take or possession of fully protected species and do not provide for authorization of incidental take. CDFW has informed nonfederal agencies and private parties that their actions must avoid take of any fully protected species unless the take is covered under a Natural Community Conservation Plan that is approved by CDFW.

Protection for Bird Nests and Raptors

Section 3503 of the FGC states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. Section 3513 of the FGC codifies the federal

MBTA. Violations of these codes include destroying active nests by removing the vegetation in which the nests are located and disturbance of nesting pairs that results in the failure of active raptor nests.

LOCAL

City of Sunnyvale General Plan

The City of Sunnyvale General Plan does not contain any policies applicable to biological resources.

City of Sunnyvale Tree Preservation Ordinance

The City of Sunnyvale Tree Preservation Ordinance (Sunnyvale Municipal Code Chapter 19.94) states that it is unlawful to remove any protected tree (defined as any tree with a trunk circumference of 38 inches or greater measured 4-feet and 6 inches above ground) from public or private property without a tree removal permit from the department of community development. At the discretion of the director of community development, replacement trees may be required as a condition of issuance of a protected tree removal permit, or as a condition of any discretionary permit for development or redevelopment. Other mitigation measures may be required where either it is not feasible to plant any replacement trees on a site, or where the replacement trees to be planted are deemed inadequate by the director to sufficiently mitigate the effects of the removal of the trees. Mitigation measures could include but would not be limited to paying for the planting of additional trees in offsite public areas.

Santa Clara Valley Habitat Plan

The Santa Clara Valley Habitat Plan, a joint Habitat Conservation Plan/Natural Community Conservation Plan, was pursued by six local partners (the Santa Clara Valley Water District, the County of Santa Clara, the Santa Clara Valley Transportation Authority, and the cities of San Jose, Gilroy, and Morgan Hill) and two resource agencies (CDFW and USFWS). The VHP is "intended to provide an effective framework to protect, enhance, and restore natural resources in specific areas of Santa Clara County, while improving and streamlining the environmental permitting process for impacts on threatened and endangered species." The final plan was approved and adopted by the six local partners in 2013. The City of Sunnyvale is outside of the Santa Clara Valley Habitat Plan area.

4.4.2 Environmental Setting

The data reviewed in preparation of this analysis included:

- records search and GIS query of the California Natural Diversity Database (CNDDB) (2018);
- California Native Plant Society (CNPS), Rare Plant Program database search of the Cupertino, Mountain View, San Jose West, and Milpitas U.S. Geological Service 7.5-minute quadrangles (CNPS 2018);
- eBird online database of bird observations (eBird 2018); and
- reconnaissance-level survey for biological resources of project site on July 9, 2018.

PROJECT SITE DESCRIPTION AND LOCATION

The approximately 8.8-acre project site ranges from 70-80 feet in elevation and is surrounded on all sides by extensive urban and suburban development, including houses and roads to the north, west, and south, and the 8-lane Lawrence Expressway to the east (Exhibit 3-1).

HABITATS

Developed/Landscaped

Approximately 1.2 acres of the 8.8-acre project site contain human-made structures, including the Corn Palace Farm Stand in the southeastern corner of the project site, and two homes with several associated outbuildings in the northeastern corner of the project site (Exhibit 4.4-1).

Agricultural/Ruderal Grassland

The remaining approximately 7.6 acres of the project site was formerly used for agricultural purposes and was last cultivated in 2015. The grassland area is currently disked two to five times per year, depending on the weather, and contained no vegetation during the July 9, 2018 site visit.

Trees

Four large walnut (*Juglans* sp.) trees are present on the southern border of the project site along Lily Avenue. Several additional walnut trees are present adjacent to the houses in the northeastern portion of the project site. Landscape and ornamental trees were also associated with the developed areas on the project site, including ornamental palm trees.

SENSITIVE BIOLOGICAL RESOURCES

Special-Status Species

Special-status species are plants and animals that are legally protected under CESA (Fish and Game Code, Section 2050 et seq.), ESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. For this EIR, special-status species are defined as:

- species listed or proposed for listing as threatened or endangered under ESA (50 Code Fed. Regs., Section 17.12) for listed plants, (50 Code Fed. Regs., Section 17.11) for listed animals, and various notices in the Federal Register for proposed species;
- species that are candidates for possible future listing as threatened or endangered under ESA (75 Code Fed. Regs., Section 69222);
- species that are listed or proposed for listing by the State of California as threatened or endangered under CESA of 1984 (14 Cal. Code Regs., Section 670.5);
- plants considered by CDFW to be "rare, threatened, or endangered in California" (Rare Plant Ranks 1A, 1B, 2A, and 2B; CNDDB 2018; CNPS 2018);
- species that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) Guidelines, Section 15380;
- animals fully protected in California (Fish and Game Code, Section 3511 for birds, Section 4700 for mammals, and Section 5050 for reptiles and amphibians); or
- animal species of special concern to CDFW.

Special-Status Plants

Table 4.4-1 provides a list of the special-status plant species that have been documented at the project site or the CNDDB five-mile search area, and describes their regulatory status, habitat, and potential for occurrence within the project site. One special-status plant species has potential to occur within the project site: Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*; Table 4.4-1).

Exhibit 4.4-1

Habitat

ASCENT ENVIRONMENTAL

Table 4.4-1 Special Status Plant Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Site

Species	Listing Status[1]			Habitat	Potential for Occurrence[2]
	Federal	State	CRPR		
alkali milk-vetch *Astragalus tener* var. *tener*			1B.2	Wetland. Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 0 to 551 ft in elevation. Blooms March-June.	Not expected to occur. The project site does not contain wetland habitat.
brittlescale *Atriplex depressa*			1B.2	Alkali playa, wetland. Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools. Usually in alkali scalds or alkaline clay in meadows or annual grassland; rarely associated with riparian, marshes, or vernal pools. 3 to 1,066 ft in elevation. Blooms April-October.	Not expected to occur. The project site does not contain wetland or alkali playa habitat.
lesser saltscale *Atriplex minuscula*			1B.1	Alkali playa. Chenopod scrub, playas, valley and foothill grassland. In alkali sink and grassland in sandy, alkaline soils. 0 to 738 ft in elevation. Blooms May-October.	Not expected to occur. The project site does not contain alkali playa habitat.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*			1B.1	Valley and foothill grassland. Alkaline soils sometimes described as heavy white clay. 0 to 755 ft in elevation. Blooms May-November.	May occur. The nearest known occurrence of Congdon's tarplant is approximately 3.5 miles north of the project site (CNDDB 2018, CNPS 2018). While the project site is routinely disked, potentially suitable grassland habitat for this species is present between disking, and this species is known to occur in areas where disking or mowing occurs.
Point Reyes salty bird's-beak *Chloropyron maritimum* ssp. *palustre*			1B.2	Salt marsh, Wetland. Coastal salt marsh. Usually in coastal salt marsh with *Salicornia*, *Distichlis*, *Jaumea*, *Spartina*, etc. 0 to 377 ft in elevation. Blooms June-October.	Not expected to occur. The project site does not contain marsh or wetland habitat.
robust spineflower *Chorizanthe robusta* var. *robusta*	FE		1B.1	Cismontane woodland, coastal dunes, coastal scrub, chaparral. Sandy terraces and bluffs or in loose sand. 30 to 804 ft in elevation. Blooms April-September.	Not expected to occur. The project site does not contain woodland, dune, scrub, or chaparral habitat.
western leatherwood *Dirca occidentalis*			1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 82 to 1,394 ft in elevation. Blooms January-April.	Not expected to occur. The project site does not contain forest or chaparral habitat.
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*			1B.1	Vernal pools, wetland. Alkaline depressions, vernal pools, roadside ditches and other wet places near the coast. 3 to 164 ft in elevation. Blooms June-August.	Not expected to occur. The project site does not contain vernal pool or wetland habitat.
San Joaquin spearscale *Extriplex joaquinana*			1B.2	Alkali playa. Chenopod scrub, alkali meadow, playas, valley and foothill grassland. In seasonal alkali wetlands or alkali sink scrub with *Distichlis spicata*, *Frankenia*, etc. 3 to 2,740 ft in elevation. Blooms April-October.	Not expected to occur. The project site does not contain alkali playa habitat.
Loma Prieta hoita *Hoita strobilina*			1B.1	Ultramafic. Chaparral, cismontane woodland, riparian woodland. Serpentine; mesic sites. 197 to 3,199 ft in elevation. Blooms May-October.	Not expected to occur. The project site does not contain serpentine soil, woodland, or chaparral habitat.
Contra Costa goldfields *Lasthenia conjugens*	FE		1B.1	Alkali playa, wetland. Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland. Vernal pools, swales, low depressions, in open grassy areas. 3 to 1,476 ft in elevation. Blooms March-June.	Not expected to occur. The project site does not contain alkali playa, vernal pool, or wetland habitat.

Table 4.4-1 Special Status Plant Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Site

Species	Listing Status[1]			Habitat	Potential for Occurrence[2]
	Federal	State	CRPR		
arcuate bush-mallow *Malacothamnus arcuatus*			1B.2	Chaparral, cismontane woodland. Gravelly alluvium. 3 to 2,411 ft in elevation. Blooms April-September.	Not expected to occur. The project site does not contain chaparral or woodland habitat.
Hall's bush-mallow *Malacothamnus hallii*			1B.2	Ultramafic. Chaparral, coastal scrub. Some populations on serpentine. 33 to 2,395 ft in elevation. Blooms May-October.	Not expected to occur. The project site does not contain serpentine soil, chaparral, or coastal scrub habitat.
woodland woollythreads *Monolopia gracilens*			1B.2	Ultramafic. Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, north coast coniferous forest. Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns but may have only weak affinity to serpentine. 328 to 3,937 ft in elevation. Blooms February-July.	Not expected to occur. The project site does not contain serpentine soil, chaparral, grassland, or woodland habitat.
prostrate vernal pool navarretia *Navarretia prostrata*			1B.1	Wetland. Coastal scrub, valley and foothill grassland, vernal pools, meadows and seeps. Alkaline soils in grassland, or in vernal pools. Mesic, alkaline sites. 10 to 4,052 ft in elevation. Blooms April-July.	Not expected to occur. The project site does not contain wetland or vernal pool habitat.
hairless popcornflower *Plagiobothrys glaber*			1A	Salt marsh, vernal pool, wetland. Meadows and seeps, marshes and swamps. Coastal salt marshes and alkaline meadows. 16 to 591 ft in elevation. Blooms March-May.	Not expected to occur. The project site does not contain marsh, vernal pool, or wetland habitat.
California alkali grass *Puccinellia simplex*			1B.2	Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools. Alkaline, vernally mesic. Sinks, flats, and lake margins. 3 to 3,002 ft in elevation. Blooms March-May.	Not expected to occur. The project site does not contain meadow, seep, wetland, or vernal pool habitat.
slender-leaved pondweed *Stuckenia filiformis* ssp. *alpina*			2B.2	Wetland. Marshes and swamps. Shallow, clear water of lakes and drainage channels. 984 to 7,054 ft in elevation. Blooms May-July.	Not expected to occur. The project site does not contain wetland, marsh, or swamp habitat.
California seablite *Suaeda californica*	FE		1B.1	Wetland. Marshes and swamps. Margins of coastal salt marshes. 0 to 16 ft in elevation. Blooms July-October.	Not expected to occur. The project site does not contain wetland, marsh, or swamp habitat.
saline clover *Trifolium hydrophilum*			1B.2	Wetland. Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0 to 984 ft in elevation. Blooms April-June.	Not expected to occur. The project site does not contain wetland, marsh, or swamp habitat.
caper-fruited tropidocarpum *Tropidocarpum capparideum*			1B.1	Valley and foothill grassland. Alkaline clay. 0 to 1,181 ft in elevation. Blooms March-April.	Not expected to occur. This species is believed to be extirpated from Santa Clara County.

Notes: USFWS = CRPR = California Rare Plant Rank; CNDDB = California Natural Diversity Database

1. Legal Status Definitions

Federal:

FE Endangered (legally protected by ESA)

California Rare Plant Ranks:

1A Plant species presumed extirpated or extinct in California because they have not been seen or collected in the wild in the state for many years.

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

Threat Ranks

0.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

0.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

2. Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present on the project site due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

May occur: Suitable habitat is available at the project site; however, there are little to no other indicators that the species might be present.

Likely to occur: The species, or evidence of its presence, was observed at the project site during reconnaissance surveys, or was reported by others.

Sources: CNDDB 2018; CNPS 2018

Special-Status Animals

Table 4.4-2 provides a list of the special-status wildlife species that have been documented at the project site, or within the CNDDB five-mile search area, and describes their regulatory status, habitat, and potential for occurrence within the project site. Two special-status wildlife species have potential to occur within the project site, including burrowing owl (*Athene cunicularia*) and white-tailed kite (*Elanus leucurus*; Table 4.4-2).

Table 4.4-2 Special Status Animal Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Site

Species	Listing Status[1]		Habitat	Potential for Occurrence[2]
	Federal	State		
Amphibians and Reptiles				
California tiger salamander *Ambystoma californiense*	FT	ST	Cismontane woodland, meadow and seep, riparian woodland, valley and foothill grassland, vernal pool, and wetlands. Central Valley DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Not expected to occur. The project site does not contain wetland, vernal pool, or grassland habitat.
northern California legless lizard *Anniella pulchra*		SSC	Chaparral. Coastal dunes. Coastal scrub. Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Not expected to occur. The project site does not contain chaparral, dune, or scrub habitat, and overall does not contain any low-lying vegetation.
western pond turtle *Actinemys marmorata*		SSC	Aquatic, artificial flowing waters, Klamath/north coast flowing waters, Klamath/north coast standing waters, marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing and standing waters. A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Not expected to occur. The project site does not contain aquatic habitat and is not within 0.5 km of any surrounding aquatic habitat.
Birds				
Alameda song sparrow *Melospiza melodia pusillula*		SSC	Salt marsh. Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits Salicornia marshes; nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*.	Not expected to occur. The project site does not contain salt marsh habitat.
American peregrine falcon *Falco peregrinus anatum*	FD	SD FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Not expected to occur. The project site does not contain suitable cliff or human-made nesting habitat for this species.
burrowing owl *Athene cunicularia*		SSC	Coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, and valley and foothill grassland. Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	May occur. There are several known occurrences of burrowing owl within 5 miles of the project site (CNDDB 2018). While the project site is routinely disked, potentially suitable grassland breeding habitat for this species is present between disking. Additionally, several California ground squirrels (*Otospermophilus beecheyi*) were observed within the project site during the July 9, 2018 site visit.
California (Ridgway's) clapper rail *Rallus obsoletus obsoletus*	FE	SE FP	Brackish marsh, marsh and swamp, salt marsh, wetlands. Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not expected to occur. The project site does not contain marsh, swamp, or wetland habitat.

Table 4.4-2 Special Status Animal Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Site

Species	Listing Status[1]		Habitat	Potential for Occurrence[2]
	Federal	State		
California black rail *Laterallus jamaicensis coturniculus*		ST FP	Brackish marsh, freshwater marsh, marsh and swamp, salt marsh, wetland. Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not expected to occur. The project site does not contain marsh, swamp, or wetland habitat.
Northern harrier *Circus cyaneus*		SCC	Coastal scrub, Great Basin grassland, marsh and swamp, riparian scrub, valley and foothill grassland, and wetlands. Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Not expected to occur. There are no known nesting occurrences of northern harrier within 5 miles of the project site (CNDDB 2018). While there are many recent observations of the species near the project site (eBird 2018), the project site is routinely disked and therefore does not provide suitable nesting or foraging habitat for this species.
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*		SSC	Marsh and swamp. Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Not expected to occur. The project site does not contain marsh or swamp habitat.
Swainson's hawk *Buteo swainsoni*		ST	Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Not expected to occur. The project site is surrounded by extensive suburban development and there is no adjacent suitable grassland or agricultural habitat for this species.
tricolored blackbird *Agelaius tricolor*		ST SSC	Freshwater marsh, marsh and swamp, swamp, wetland. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Not expected to occur. The project site does not contain suitable marsh, swamp, or wetland nesting habitat for this species.
western snowy plover *Charadrius alexandrinus nivosus*	FT	SSC	Great Basin standing waters, sand shore, wetland. Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Not expected to occur. The project site does not contain sandy beach, levee, or lake habitat for this species.
white-tailed kite *Elanus leucurus*		FP	Cismontane woodland, marsh and swamp, riparian woodland, valley and foothill grassland, and wetlands. Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	May occur. The nearest known nesting occurrence of white-tailed kite is approximately 4.3 miles northeast of the project site (CNDDB 2018). The project site contains several large walnut trees and the surrounding suburban area contains large landscape trees, that could provide suitable nesting habitat for this species. Additionally, there have been many recent observations of the species within approximately 5 miles of the project site (eBird 2018).
yellow rail *Coturnicops noveboracensis*		SSC	Freshwater marsh, meadow, and seep. Summer resident in eastern Sierra Nevada in Mono County. Fresh-water marshlands.	Not expected to occur. The project site does not contain marsh, meadow, or seep habitat.

Table 4.4-2 Special Status Animal Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Site

Species	Listing Status[1]		Habitat	Potential for Occurrence[2]
	Federal	State		
Fish				
steelhead - central California coast DPS *Oncorhynchus mykiss irideus* pop. 8	FT		Aquatic. Sacramento/San Joaquin flowing waters. From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins.	Not expected to occur. The project site does not contain aquatic habitat.
Mammals				
pallid bat *Antrozous pallidus*		SSC	Chaparral, coastal scrub, desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, riparian woodland, Sonoran desert scrub, upper montane coniferous forest, valley and foothill grassland. Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not expected to occur. The project site is surrounded by extensive urban and suburban development and disturbance sources like vehicle traffic. While potentially suitable roosting habitat may be present within large walnut trees on the project site, pallid bats typically do not tolerate developed urban and suburban environments.
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE	SE FP	Marsh and swamp, wetland. Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow, build loosely organized nests. Requires higher areas for flood escape.	Not expected to occur. The project site does not contain marsh, swamp, or wetland habitat.
salt-marsh wandering shrew *Sorex vagrans halicoetes*		SSC	Marsh and swamp, wetland. Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6-8 feet above sea level where abundant driftwood is scattered among *Salicornia*.	Not expected to occur. The project site does not contain marsh, swamp, or wetland habitat.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*		SSC	Chaparral, redwood. Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	Not expected to occur. The project site does not contain chaparral or forest habitat, and overall does not contain any low-lying vegetation.
Townsend's big-eared bat *Corynorhinus townsendii*		SSC	Broadleaved upland forest, chaparral, chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, meadow & seep, Mojavean desert scrub, riparian forest, riparian woodland, Sonoran desert scrub. Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Not expected to occur. The project site is surrounded by extensive urban and suburban development and disturbance sources like vehicle traffic. While potentially suitable roosting habitat may be present within barns and buildings on the project site, Townsend's big-eared bats typically do not tolerate developed urban and suburban environments.

Note: CNDDB = California Natural Diversity Database

1. Legal Status Definitions

Federal:

FE Endangered (legally protected)

FT Threatened (legally protected)

FD Delisted

State:

SD Delisted

FP Fully protected (legally protected)

SSC Species of special concern (no formal protection other than CEQA consideration)

SE Endangered (legally protected)

ST Threatened (legally protected)

2. Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present in the project area due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

May occur: Suitable habitat is available in the project area; however, there are little to no other indicators that the species might be present.

Likely to occur: The species, or evidence of its presence, was observed in the project area during reconnaissance surveys, or was reported by others.

Source: CNDDB 2018; eBird 2018

SENSITIVE NATURAL COMMUNITIES

Sensitive natural communities include those that are of special concern to resource agencies or are afforded specific consideration through CEQA or other federal or state laws. Sensitive natural communities may be of special concern to regulatory agencies and conservation organizations for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species. Many of these communities are tracked in CDFW's CNDDB. There is one sensitive natural community within 5 miles of the project site; northern coastal saltmarsh.

Northern Coastal Saltmarsh

Northern coastal saltmarsh is present in the upper intertidal zone of protected shallow bays, lagoons, and estuaries. Vegetation associated with northern coastal saltmarsh includes pickleweed (*Salicornia* sp.), saltgrass (*Distichlis spicata*), jaumea (*Jaumea carnosa*), rush (*Juncus* sp.), and cordgrass (*Spartina* sp.). Northern coastal saltmarsh is present along the edges of San Francisco Bay north of the project site. The project site does not contain northern coastal saltmarsh habitat.

Waters of the United States, Waters of the State, and Riparian Habitat

The project site is surrounded by extensive urban and suburban development. The project site does not contain any aquatic habitat, including wetlands, ponds, or irrigation ditches. There is no aquatic habitat adjacent to the project site, and the nearest aquatic habitat includes Calabazas Creek (approximately 1.3 miles east of the project site) and San Francisco Bay (approximately 3.7 miles north of the project site).

WILDLIFE MOVEMENT CORRIDORS

The California Essential Habitat Connectivity Project was commissioned by the California Department of Transportation (Caltrans) to identify areas mapped at Essential Connectivity Areas (ECA) or natural landscape blocks with the purpose of making transportation and land use planning more efficient and less costly, while helping reduce dangerous wildlife-vehicle collisions (Spencer et al. 2010). No ECAs or natural landscape blocks have been identified within the project site.

4.4.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

This impact evaluation is based on a reconnaissance-level field survey conducted on July 9, 2018, as well as review of existing databases and reports regarding natural resources at the project site as described previously in Section 4.4.2, "Environmental Setting."

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact on biological resources if it would:

- result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species (as defined above) in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number of restrict the range of an endangered, rare, or threatened species;
- result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;

- result in a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA or state protected wetlands as defined by the Porter-Cologne Act (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local applicable policies protecting biological resources; or
- conflict with the provisions of an adopted HCP, NCCP, or other applicable HCP.

ISSUES NOT DISCUSSED FURTHER

Sensitive Natural Communities

The only designated sensitive natural community within 5 miles of the project site is northern coastal saltmarsh. The project site does not contain northern coastal saltmarsh habitat. Thus, the project would have **no impact** sensitive communities and are not discussed further in this EIR.

Waters of the Unites States, Waters of the State, and Riparian Habitat

The project site does not contain any aquatic habitat, any portion of a water of the United States or state, or any riparian habitat. Thus, the project would have **no impact** to wetland or riparian habitats and are not discussed further in this EIR.

Wildlife Movement Corridors and Nursery Sites

The project site is surrounded by extensive urban and suburban development and does not contain any portion of an essential connectivity area, natural landscape block, other wildlife movement corridor, or wildlife nursery sites. Thus, the project would have **no impact** to wildlife movement and is not discussed further in this EIR.

Consistency with Santa Clara Valley Habitat Plan

The project site is outside of the Santa Clara Valley Habitat Plan area. Thus, the project would have **no impact** to the Santa Clara Valley Habitat Plan and is not discussed further in this EIR.

IMPACT ANALYSIS

Impact 4.4-1: Disturbance to or Loss of Special-Status Plant Species and Habitat

Project implementation could result in the disturbance or loss of one special-status plant species – Congdon's tarplant. Because the loss of special-status plants could substantially affect the abundance, distribution, and viability of local and regional populations, this would be a **potentially significant** impact.

One special status plant was identified as having potential to occur on the project site; Congdon's tarplant (Table 4.4-1). Congdon's tarplant occurs primarily within grassland habitat. Approximately 7.6 acres of ruderal grassland habitat within the project site would be developed and converted for residential use. Ground disturbing activities within the project sites during construction of residences, including grading, trenching, or vegetation removal, could result in the direct loss of Congdon's tarplant and its habitat if the species is present. The loss of special-status plants and their habitat could substantially affect the abundance, distribution, and viability of local and regional populations of the species. Therefore, this would be a **potentially significant** impact.

Mitigation Measure 4.4-1: Congdon's Tarplant Survey and Avoidance

Before commencing of any ground disturbance or vegetation removal activities, the project applicant shall implement the following measures to reduce potential impacts to Congdon's tarplant.

- Before ground disturbance and during the May to November blooming period for Congdon's tarplant, a qualified botanist shall conduct a focused survey for Congdon's tarplant on the project site. This shall include visiting a reference population near the project site to confirm whether the species is blooming or otherwise identifiable in advance of the focused survey.
- If Congdon's tarplant is not found, the botanist shall document the findings in a letter report to the City of Sunnyvale and the project applicant and no further mitigation will be required.
- If Congdon's tarplant is found and it located outside of the permanent project footprint and can be avoided, the applicant will establish and maintain a protective buffer of sufficient size around the plant to be retained to ensure avoidance.
- If individual Congdon's tarplant specimens are found that cannot be avoided during construction, the project applicant shall consult with CDFW to determine the appropriate mitigation measures for direct and indirect impacts that could occur as a result of project construction. The project applicant shall implement measures to achieve no net loss of occupied habitat or individuals. Mitigation measures may include creation of offsite populations on project mitigation sites through seed collection or transplantation, and/or restoring or creating suitable habitat in sufficient quantities to achieve no net loss of occupied habitat and/or individuals.

Significance Conclusion

Implementation of Mitigation Measure 4.4-1 would reduce significant impacts on special-status plants to a **less-than-significant** level because it would require surveys and avoidance of Congdon's tarplant or provide compensation for loss of Congdon's tarplant through enhancement of existing populations, creation and management of offsite populations, conservation easements, or other appropriate measures.

Impact 4.4-2: Disturbance to or Loss of Burrowing Owl

Project implementation could result in the disturbance or loss of burrowing owls and their burrows, if present, through disturbance to grassland habitat during ground disturbance activities, such as grading, trenching, or vegetation removal. This would be a **potentially significant** impact.

Burrowing owl is a CDFW species of special concern. The project site contains ruderal grassland habitat that may provide suitable breeding habitat for this species. Additionally, as observed during the July 9, 2018 site visit, the project site supports a population of California ground squirrels which are a primary prey item for burrowing owls. Burrowing owls are known to occur within 5 miles of the project site within a similar urban setting (CNDDB 2018). Ground disturbing activities within the project site, including grading, trenching, or vegetation removal, could result in the disturbance or direct loss of burrowing owl, if present. This would be a **potentially significant** impact.

Mitigation Measure 4.4-2: Protection of Burrowing Owl

The applicant shall implement the following conditions before, and during, grading activities:

- The applicant shall retain a qualified biologist to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on the project site and accessible areas of suitable habitat on the project site. Surveys shall be conducted before the start of construction activities and in accordance with Appendix D of CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).
- If no occupied burrows are found, a letter report documenting the survey methods and results shall be submitted to the City of Sunnyvale and CDFW and no further mitigation would be required.

- If an active burrow is found during the nonbreeding season (September 1 through January 31), the applicant shall consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan shall be developed, as described in Appendix E of CDFW's 2012 Staff Report. Burrowing owls shall not be excluded from occupied burrows until the project's burrowing owl exclusion plan is approved by CDFW. The exclusion plan shall include a plan for creation, maintenance, and monitoring of artificial burrows in suitable habitat proximate to the burrows to be destroyed, that provide substitute burrows for displaced owls.

- If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer shall depend on the time of year and level disturbance as outlined in the CDFW Staff Report (CDFW 2012). The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented to prevent burrowing owls from being detrimentally affected. Once the fledglings are capable of independent survival, the owls can be evicted and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW's 2012 Staff Report.

- If active burrowing owl nests are found on the project site and are destroyed by project implementation, the project applicant shall mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW 2012 Staff Report, which states that permanent impacts to nesting, occupied and satellite burrows, and burrowing owl habitat shall be mitigated such that habitat acreage, number of burrows, and burrowing owls adversely affected are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The applicant shall retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards:

  - Mitigation lands shall be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species range wide.

  - If feasible, mitigation lands shall be provided adjacent or proximate to the project site so that displaced owls can relocate with reduced risk of take. Feasibility of providing mitigation adjacent or proximate to the project site depends on availability of sufficient suitable habitat to support displaced owls that may be preserved in perpetuity.

  - If suitable habitat is not available for conservation adjacent or proximate to the project site, mitigation lands shall be focused on consolidating and enlarging conservation areas outside of urban and planned growth areas and within foraging distance of other conservation lands. Mitigation may be accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. If mitigation credits are not available from an approved bank and mitigation lands are not available adjacent to other conservation lands, alternative mitigation sites and acreage shall be determined in consultation with CDFW.

  - If mitigation is not available through an approved mitigation bank and will be completed through permittee-responsible conservation lands, the mitigation plan shall include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success shall be based on the number of adult burrowing owls and pairs using the project site and if the numbers are maintained over time. Measures of success, as suggested in the 2012 Staff Report, shall include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors.

Significance Conclusion

Implementing Mitigation Measure 4.4-2 would reduce potential impacts on burrowing owl to a **less-than-significant** level because burrowing owls would be avoided and protected from construction activities, or the project applicant would compensate for project-related loss of suitable occupied habitat.

Impact 4.4-3: Disturbance to or Loss of White-Tailed Kite, Nesting Raptors, and Other Birds

Project implementation could result in the disturbance or loss of nesting raptors, special-status birds, and other birds, if present, through removal of trees and vegetation. This would be a **potentially significant** impact.

White-tailed kite is fully protected under California Fish and Game Code. The project site contains isolated large trees (e.g., walnut) and other large landscape trees are present in the neighborhoods surrounding the project site. These trees may provide suitable nesting habitat for white-tailed kite and other tree-nesting raptors (e.g., red-tailed hawk [*Buteo jamaicensis*], red-shouldered hawk [*Buteo lineatus*]). Other non-special-status birds could nest within trees on the project site as well.

Tree removal and ground disturbing activities, including grading, trenching, or vegetation removal within the project site, could result in the disturbance or direct loss of white-tailed kite, and other nesting raptors and birds if present on the project site, potentially resulting in nest abandonment, nest failure, or mortality of chicks or eggs. This would be a **potentially significant** impact.

Mitigation Measure 4.4-3: Protection Measures for Nesting Raptors and Other Birds

The applicant shall impose the following conditions before, and during, construction:

- To minimize the potential for loss of nesting raptors and other birds, tree removal activities will only occur during the nonbreeding season (September 1-January 31). If all suitable nesting habitat is removed during the nonbreeding season, no further mitigation will be required.
- Before removal of any trees or other vegetation, or ground disturbing activities between February 1 and August 31, a qualified biologist will conduct preconstruction surveys for nesting raptors and other birds and will identify active nests within 500 feet of the project site. The surveys will be conducted before the beginning of any construction activities between February 1 and August 31.
- Impacts to nesting raptors will be avoided by establishing appropriate buffers around active nest sites identified during preconstruction surveys. Activity will not commence within the buffer areas until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer will not likely result in nest abandonment. Typical buffers are 500 feet for raptors, but the size of the buffer may be adjusted if a qualified biologist, in consultation with CDFW, determines that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during construction activities may be required if the activity has potential to adversely affect the nest.
- Trees will not be removed during the breeding season for nesting raptors unless a survey by a qualified biologist verifies that there is not an active nest in the tree.

Significance Conclusion

Implementation of Mitigation Measure 4.4-3 would reduce impacts on white-tailed kite, nesting raptors, and other birds to a **less-than-significant** level because preconstruction surveys would be conducted, and active raptor and other bird nests would be protected from construction activities.

Impact 4.4-4: Consistency with City of Sunnyvale Tree Preservation Ordinance

Project implementation could result in the removal of or damage to trees, including those considered "protected trees" under the City of Sunnyvale Tree Preservation Ordinance. Activities such as ground disturbance and vegetation removal could result in direct tree removal and indirect impacts to root systems which would conflict with the ordinance. Direct loss or damage to trees protected under the ordinance would be a **potentially significant** impact.

Activities associated with project implementation, including ground disturbance, vegetation removal, and home construction, could result in tree removal or indirect impacts to tree root systems. The City of Sunnyvale Tree Preservation Ordinance provides protection for all trees on public or private land with a trunk circumference of 38 inches or more measured at 4-feet and 6 inches above ground. Approximately eight trees with a circumference greater than 38 inches would be removed from the project site. Removal of any trees considered protected under the City of Sunnyvale Tree Preservation Ordinance would be a **potentially significant** impact.

Mitigation Measure 4.4-4: Tree Protection Requirements

- The applicant will prepare and submit an arborist report to the director of community development showing the location, size, and species of all trees (protected and unprotected) on the project site. The report must indicate which, if any, protected trees are planned for removal and explain why the trees cannot be relocated or the project design altered to maintain the trees. An application for a protected tree removal permit will also be submitted to the director of community development. Removal of protected trees may be permitted at the discretion of the director.

- Protected trees designated for preservation shall be protected during project construction using the following methods:

  - Protective fencing shall be installed no closer to the trunk than the dripline, and far enough from the trunk to protect the integrity of the tree. The fence shall be a minimum of 4 feet in height and shall be set securely in place. The fence shall be made of sturdy but open material (e.g., chain link) to allow visibility to the trunk for inspections and safety.

  - The existing grade level around a tree shall normally be maintained out to the dripline of the tree. Alternate grade levels, as described in the tree protection plan, may be approved by the director of community development.

  - Drain wells shall be installed whenever impervious surfaces will be placed over the root system of a tree.

  - Pruning that is necessary to accommodate a project feature, such as a building, road, or walkway, shall be reviewed and approved by the department of community development and the department of public works.

  - New landscaping installed within the dripline of an existing tree shall be designed to reproduce a similar environment to that which existed before construction.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-4 would reduce impacts to a **less-than-significant** level by requiring protection of protected trees or mitigation following removal of protected trees, and by maintaining compliance with the City of Sunnyvale Tree Preservation Ordinance.

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4.5 ENERGY

This section was prepared pursuant to CEQA Guidelines Section 15126 and Appendix F of the State CEQA Guidelines, which require that EIRs include a discussion of the potential energy impacts of projects. The analysis considers whether the project would result in inefficient, wasteful, and unnecessary consumption of energy.

Energy related to the project would include energy directly consumed for space heating and cooling, and electric facilities and lighting at residential units. Indirect energy consumption would be associated with the generation of electricity at power plants. Transportation-related energy consumption includes the use of fuels and electricity to power cars, trucks, and public transportation. Energy would also be consumed by equipment and vehicles used during project construction and routine maintenance activities.

No comments in response to the NOP were received that identified concerns regarding energy impacts.

4.5.1 Regulatory Setting

Federal and state agencies regulate energy consumption through various policies, standards, and programs. At the federal level, energy standards apply to numerous products (e.g., the U.S. Environmental Protection Agency's [EPA's] EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Code of Regulations sets forth energy standards for buildings. Further, the State provides rebates/tax credits for installation of renewable energy systems and offers the Flex Your Power program that promotes conservation in multiple areas. At the local level, individual cities and counties establish policies in their general plans and climate action plans (CAPs) related to the energy efficiency of new development and land use planning and to the use of renewable energy sources. Applicable federal, state, and local regulations are discussed in further detail below.

FEDERAL

Energy Policy and Conservation Act, and CAFE Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic and Safety Administration (NHTSA), part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance. Under the Energy Independence and Security Act of 2007 (described below), the CAFE standards were revised for the first time in 30 years.

Energy Policy Act of 1992

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally-fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax

deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by EPAct to consider a variety of incentive programs to help promote AFVs.

Energy Policy Act of 2005

The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent. By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 will build on progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

STATE

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

State of California Energy Plan

CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 1997 California Energy Plan. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access.

Integrated Energy Policy Report

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) required CEC to: "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (Public Resources Code Section 25301(a)). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every two years and an update every other year. The 2017 IEPR is the most recent IEPR, which was adopted March 16, 2018. The 2017 IEPR provides a summary of priority energy issues currently facing the State, outlining strategies and recommendations to further the State's goal of ensuring reliable, affordable, and environmentally-responsible energy sources. Energy topics covered in the report include

progress toward statewide renewable energy targets and issues facing future renewable development; efforts to increase energy efficiency in existing and new buildings; progress by utilities in achieving energy efficiency targets and potential; improving coordination among the State's energy agencies; streamlining power plant licensing processes; results of preliminary forecasts of electricity, natural gas, and transportation fuel supply and demand; future energy infrastructure needs; the need for research and development efforts to statewide energy policies; and issues facing California's nuclear power plants.

Senate Bill 1078: California Renewables Portfolio Standard Program

SB 1078 (Chapter 516, Statutes of 2002) establishes a renewable portfolio standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. This target date was moved forward by SB 1078 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1 percent each year. The outcome of this legislation will impact regional transportation powered by electricity. As of 2017, the State has reported that 32 percent of retail electricity sales were served by renewable energy facilities (CEC 2018b).

Senate Bill X1-2: California Renewable Energy Resources Act

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently-owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California. SB X1-2 mandates that renewables from these sources make up at least 50 percent of the total renewable energy for the 2011-2013 compliance period, at least 65 percent for the 2014–2016 compliance period, and at least 75 percent for 2016 and beyond.

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. This act also requires doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

Senate Bill 100: California Renewables Portfolio Standard Program

SB 100, approved on September 10, 2018, amends the California Renewable Portfolio Standard. This bill revises the legislative findings and declarations of the statewide goal of achieving 50 percent renewable resources by December 31, 2030 as mandated by the Renewables Portfolio Standard Program, to achieving a target of 52 percent renewable by 2027, a target of 60 percent renewable by 2030, and a target of 100 renewable by 2045. The bill would require that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources to achieve these targets.

Energy Action Plan

The first Energy Action Plan (EAP) emerged in 2003 from a crisis atmosphere in California's energy markets. The State's three major energy policy agencies (CEC, CPUC, and the Consumer Power and Conservation Financing Authority [established under deregulation and now defunct]) came together to develop one high-level, coherent approach to meeting California's electricity and natural gas needs. It was the first time that energy policy agencies formally collaborated to define a common vision and set of strategies to address California's future energy needs and emphasize the importance of the impacts of energy policy on the California environment.

In the October 2005 *Energy Action Plan II*, CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of

climate change, transportation-related energy issues, and research and development activities. CEC recently adopted an update to the EAP II in February 2008 that supplements the earlier EAPs and examines the State's ongoing actions in the context of global climate change.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statues of 2005) required CEC to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan (SAF Plan) in partnership with the California Air Resources Board (CARB) and in consultation with other State, federal, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce greenhouse gas (GHG) emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

California Energy Efficiency Building Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the state's Title 24, Part 6, Building Energy Efficiency Standards (Energy Code). CEC updates the Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions. The current (2016) Energy Code is scheduled to be replaced by the 2019 Energy Code on January 1, 2020. The 2019 Energy Code will require builders to use more energy-efficient building technologies for compliance with increased restrictions on allowable energy use. Additionally, new residential units will be required to include solar panels, sized to offset the estimated electrical requirements of each unit (CCR, Title 24, Part 6, Section 150.1[c]14). CEC estimates that the combination of required energy-efficiency features and mandatory solar panels in the 2019 Energy Code will result in new residential buildings that use 53 percent less energy than those designed to meet the 2016 Energy Code. CEC also estimates that the 2019 Energy Code will result in new commercial buildings that use 30 percent less energy than those designed to meet the 2016 Energy Code, primarily through the transition to high-efficiency lighting (CEC 2018a).

Assembly Bill 32, Climate Change Scoping Plan and Update

Reducing GHG emissions in California has been the focus of the state government for approximately two decades (State of California 2018). GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected (United Nations 2015).

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). In 2015, electricity generation accounted for 11 percent of the State's GHG emissions. California plans to significantly reduce GHG emissions from the energy sector through the development of renewable electricity generation in the form of solar, wind, geothermal, hydraulic, and biomass generation. The State is on target to meet the SB X1-2-mandated 33 percent renewable energy target by 2020 and will continue to increase statewide renewable energy to 50 percent by 2030, as directed by SB 350. Additionally, the State will further its climate goals through improving the energy efficiency of residential and non-residential buildings by continual updates (i.e., every three years) to the Title 24 Energy Code, which contains mandatory and prescriptive energy efficiency standards for all new construction.

LOCAL

City of Sunnyvale General Plan

The following goals and policies pertaining to energy consumption contained in the City of Sunnyvale General Plan are relevant to the project:

- **Policy LT-2.1** Enhance the public's health and welfare by promoting the city's environmental and economic health through sustainable practices for the design, construction, maintenance, operation, and deconstruction of buildings, including measures in the Climate Action Plan.
- **Policy LT-2.2** Reduce greenhouse gas emissions that affect climate and the environment though land use and transportation planning and development.

Sunnyvale Climate Action Plan

The City of Sunnyvale adopted its first CAP in May 2014. The CAP includes a goal to reduce the City's GHG emissions to 15 percent below 2008 levels by 2020 and ultimately progress towards the goal of reducing GHG emissions to 80 percent below 1990 levels by 2050. The CAP includes a series of measures related to reducing energy use in the City including building energy use and transportation energy use. For more information related to the City's CAP, see the regulatory discussion in Section 4.8, "Greenhouse Gas Emissions", of this document. The City Council approved an update to the City's first CAP in 2017 and development of "CAP 2.0" is underway and expected to be approved by the City Council in Spring 2019.

Silicon Valley Clean Energy

The City of Sunnyvale as well as the cities of Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Saratoga, and the unincorporated areas of Santa Clara County are members of Silicon Valley Clean Energy (SVCE), which serves as the Community Choice Aggregation provider for its member agencies. SVCE was established in March 2016 following the adoption of the 2014 CAP and works in partnership with Pacific Gas and Electric (PG&E) to deliver direct, renewable electricity to customers within its member jurisdictions. Consistent with State law, all electricity accounts in the City of Sunnyvale were automatically enrolled in SVCE; however, customers can choose to opt out if they wish to remain with PG&E. According to the Sunnyvale Climate Action Plan Biennial Progress Report released in 2018, 98 percent of residential and commercial accounts received carbon-free electricity from SVCE (City of Sunnyvale 2018). SVCE currently provides 100 percent carbon-free energy to its customers.

4.5.2 Environmental Setting

PHYSICAL SETTING

Energy Facilities and Services in the Project Area

PG&E supplies electricity and natural gas services to the City of Sunnyvale through state-regulated public utility contacts. Electricity and natural gas service is available to the project site via PG&E infrastructure.

Energy Types and Sources

In 2017, the total energy consumption in the U.S. was about 97.7 quadrillion British thermal units (Btu), 18 percent of which occurred within the U.S. Fossil fuels provide approximately 80 percent of the energy used in the U.S., nuclear power provides about 8.5 percent, and renewable energy provides approximately 9.8 percent (EIA 2018, Barr 2001). California is the most populous state in the U.S., and its energy consumption is second only to Texas; however, California has the lowest per capita energy consumption rate in the U.S. California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources.

In 2008, residential, commercial, and industrial building energy consumption was approximately 4.3 quadrillion Btu in the City (City of Sunnyvale 2014). PG&E-owned generation and power purchases is comprised of a largely renewable mix of generation sources. Renewable energy (including biomass, geothermal, small hydroelectric, solar, and wind) accounts for 33 percent of the company's energy generation, large hydroelectric and nuclear account for an additional 36 percent, and natural gas accounts for 17 percent. The remaining 14 percent of the company's energy generation comes from coal burning or other unspecified sources (i.e. energy purchased from separate generation companies for which generation source is untraceable) (PG&E 2016). SVCE-owned generation and power is comprised entirely of renewable and zero-carbon generation sources. Renewable energy accounts for 55 percent of SVCE's energy generation, while large hydroelectric accounts for the remaining 45 percent (SVCE 2018)

Alternative Fuels

A variety of alternative fuels are used to reduce demand for petroleum-based fuel. The use of these fuels is encouraged through various statewide regulations and plans. Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many transportation fuels, including:

- biodiesel,
- electricity,
- ethanol (E-10 and E-85),
- hydrogen,
- natural gas (methane in the form of compressed and liquefied natural gas),
- propane,
- renewable diesel (including biomass-to-liquid),
- synthetic fuels, and
- gas-to-liquid and coal-to-liquid fuels.

California has a growing number of alternative fuel vehicles through the joint efforts of CEC, CARB, local air districts, federal government, transit agencies, utilities, and other public and private entities. As of September 2016, California contained nearly 14,000 alternative fueling stations (AFDC 2017).

COMMERCIAL AND RESIDENTIAL ENERGY USE

Homes built between 2000 and 2015 used 14 percent less energy per square foot than homes built in the 1980s, and 40 percent less energy per square foot than homes built before 1950. However, the increase size of newer homes has offset these efficiency improvements. Primary energy consumption in the residential sector totaled 21 quadrillion Btu in 2009 (the latest year the U.S. Energy Information Administration's [EIA's] *Residential Energy Consumption Survey* was completed), equal to 54 percent of consumption in the buildings sector and 22 percent of the U.S.'s total primary energy consumption. Energy consumption increased 24 percent from 1990 to 2009. However, because of projected improvements in building and appliance efficiency, the EIA 2012 Annual Energy Outlook forecast a 13 percent increase in energy consumption from 2009 to 2035 (EIA 2016).

Commercial buildings represent just under one-fifth of U.S. energy consumption with office space, retail, and educational facilities representing about half of commercial sector energy consumption. In aggregate, commercial buildings consumed 46 percent of building energy consumption and approximately 19 percent of U.S. energy consumption. In comparison, the residential sector accounted for approximately 22 percent of U.S. energy consumption (U.S. Department of Energy 2012). Commercial and industrial buildings represent 82 percent of the building energy consumption in the City of Sunnyvale, while residential energy consumption accounts for the remaining 18 percent (City of Sunnyvale 2018)

ENERGY USE FOR TRANSPORTATION

Transportation is the second largest energy consumer nationwide, accounting for 27 percent of the total national energy use (EIA 2018). On-road vehicles are estimated to consume approximately 80 percent of

California's transportation energy demand, with cars, trucks, and buses accounting for nearly all of the on-road fuel consumption. Petroleum products (e.g., gasoline, diesel, jet fuel) account for almost 99 percent of the energy used in California by the transportation sector, with the rest provided by ethanol, natural gas, and electricity (BTS 2017).

On-road vehicles use about 90 percent of the petroleum consumed in California. The California Department of Transportation projected 19,427 million gallons of gasoline and diesel were consumed in Santa Clara County in 2015, an increase of approximately 2,342 million gallons of fuel from 2010 levels (Caltrans 2008).

Vehicle Miles Traveled and Gasoline Consumption

Though California's population and economy are expected to grow, gasoline demand is projected to decline from roughly 15.8 billion gallons in 2017 to less than 12.7 billion gallons in 2030. This decline comes in response to both increasing vehicle electrification and higher fuel economy for new vehicles (CEC 2017). Between 2008 and 2013, the total VMT in California increased; however, during the same period of time VMT per capita decreased (BTS 2015). As noted in the regulatory setting of Section 4.9, "Greenhouse Gas Emissions and Climate Change," several state mandates and efforts, such as SB 375, seek to reduce VMT. Additional information on VMT and other travel-related data is included in Section 4.7 "Transportation and Circulation".

Total gasoline consumption in California varies from year to year due to a variety of factors such as gas prices, periods of economic growth and decline, and fuel economy of vehicles. Between January 2007 and May 2016, an average of approximately 672 billion gallons of gasoline were purchased in California. During this time, the volume of gasoline purchased ranged from a minimum of approximately 1.1 billion gallons in February 2013 to a maximum of approximately 1.37 billion gallons in August 2007 (California State Board of Equalization 2016).

Energy Used by Private and Commercial Vehicles

Commercial vehicles, generally composed of light-, medium-, and heavy-duty trucks, are typically fueled by diesel or gasoline and are part of the general fleet mix of vehicles present within the Santa Clara County region transportation system.

Average fuel economy is expected to increase for automobiles and all types of trucks. The federal CAFE is the required average fuel economy for a vehicle manufacturer's entire fleet of passenger cars and light-duty trucks for each model year. Beyond improving average fuel economy for vehicle fleets, these standards are also intended to reduce petroleum consumption, increase the availability of alternative fuel vehicles, promote the advancement of innovative technologies, and reduce vehicle related greenhouse gas emissions. CAFE standards are regulated by the DOT NHTSA, with the assistance of EPA (DOT 2014).

ENERGY USE AND CLIMATE CHANGE

Scientists and climatologists have produced evidence that the burning of fossil fuels by vehicles, power plants, industrial facilities, residences, and commercial facilities has led to an increase of the earth's temperature. For an analysis of GHG production and the project's impacts on climate change, refer to Section 4.9, "Greenhouse Gas Emissions and Climate Change."

4.5.3 Impacts and Mitigation Measures

METHODOLOGY

Levels of construction- and operation-related energy consumption by the project, measured in megawatt-hours of electricity, therms of natural gas, gallons of gasoline, and gallons of diesel fuel. Energy consumption estimates were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2

computer program. Where project-specific information was not known, CalEEMod default values based on the project's location were used. Table 4.5-1 summarizes the levels of energy consumption for each year of construction and Table 4.5-2 summarizes the levels of energy consumption for the first year of operation during the buildout year of 2021. Table 4.5-3 summarizes the gasoline and diesel consumption estimated for the project in 2021. Fuel estimates were calculated from the combination of fuel consumption rates and fuel mix by vehicle class from the CARB EMFAC 2017 model with overall VMT and mode share by vehicle class modeled for the project in CalEEMod (see Appendix B).

Table 4.5-1 Construction Energy Consumption

Year	Diesel (Gallons)	Gasoline (Gallons)
2019	406,281	897
2020	145,232	4,231
2021	12,452	1,840
Total	563,966	6,969

Notes: Gasoline gallons include on-road gallons from worker trips. Diesel gallons include off-road equipment and on-road gallons from worker and vendor trips.
Source: Calculations by Ascent Environmental in 2018

Table 4.5-2 Operational Energy Consumption

Land Use/Energy Type	Energy Consumption	Units
Single Family Residential		
Electricity	0[1]	MWh/year
Natural Gas	1,581	MMBtu/year

Notes: MWh/year = megawatt-hours per year; MMBtu/year = million British thermal units per year.
[1] The project is committed to Zero Net Electricity residential buildings.
Source: Calculations by Ascent Environmental in 2017

Table 4.5-3 Gasoline and Diesel Consumption in 2021

Vehicle Category	Diesel (gal/year)	Gasoline (gal/year)
Passenger Vehicles	234	27,768
Trucks	10,091	27,028
Buses	560	347
Other Vehicles	18	92
Total (All Vehicle Types)	10,903	55,235

Notes: gal/year = gallons per year.
Source: Calculations by Ascent Environmental in 2018

THRESHOLDS OF SIGNIFICANCE

The following significance criteria area based on CEQA Guidelines Appendix F (energy), under which implementation of the project would have a potentially significant adverse impact if the project would:

- result in wasteful, inefficient, or unnecessary consumption of energy, during project construction or operation, as evidenced by a failure to decrease overall per capita energy consumption or decrease reliance on fossil fuels such as coal, natural gas, and oil;

- fail to incorporate feasible renewable energy or energy efficiency measures into building design, equipment use, transportation, or other project features, or otherwise fail to increase reliance on renewable energy sources; or
- exceed the available capacities of energy supplies that require the construction of facilities.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 4.5-1: Result In Inefficient and Wasteful Consumption of Energy

The project would increase electricity and natural gas consumption at the project site relative to existing conditions; however, the project would be constructed in compliance with the 2019 Title 24 Building Code which requires that renewable energy sources such as solar photovoltaic systems offset the electricity demand of new residential buildings. Additionally, the project is committed to zero net electricity residential units through the installation of photovoltaic systems and high efficiency appliances and lighting. Furthermore, the project would include GHG Reduction Measures developed using Appendix B, Local Action, of the 2017 Scoping Plan, many of which would have direct and indirect benefits to energy consumption associated with improved efficiency and decreased gasoline and diesel fuel consumption. Construction energy consumption would be temporary and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. For these reasons, the project would not result in wasteful, inefficient, or unnecessary consumption of energy. This impact would be **less than significant.**

Appendix F of the State CEQA Guidelines requires the consideration of the energy implication of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient and unnecessary" energy usages (Public Resources Code Section 21100, subdivision [b][3]). Neither the law nor the State CEQA Guidelines establish criteria that define wasteful, inefficient, or unnecessary use. Compliance with the California Code of Regulations 2019 Title 24 Part 6 Building Code would result in highly energy-efficient buildings. However, compliance with building codes does not adequately address all potential energy impacts during construction and operation. It can be expected that energy consumption, outside of the building code regulations, would occur through the transport of construction materials to and from the project site during the construction phase, the use of personal vehicles by residents, and the operation of delivery vehicles to service the new residential units.

Energy would be required to construct the project, operate, and maintain construction equipment, as well as produce and transport construction materials. Most energy consumption would result from operation of construction equipment and vehicle trips associated with commuting by construction workers and haul trucks supplying materials. An estimated 6,969 gallons of gasoline and 563,996 gallons of diesel fuel would be consumed to enable project construction. The energy needs for project construction would be temporary and is not anticipated to require additional capacity or increase peak or base period demands for electricity or other forms of energy. Construction equipment use and associated energy consumption would be typical of that associated with the construction of residential projects of this size in an urban setting.

Operation of the project would be typical of residential land uses requiring natural gas for space and water heating, and landscape maintenance activities. Indirect energy use would include wastewater treatment and solid waste removal at offsite facilities. The project is committed to zero net electricity residential buildings, and is expected to generate 100 percent of the project's electricity consumption on-site. Additionally, the project would provide numerous sustainability features that would improve indoor environmental quality, reduce transportation and building energy consumption, and increase the efficient use of water. A list of these features is included in Chapter 3, "Project Description." Specific features that would improve the energy efficiency of the project include the installation of high-efficiency appliances, lighting, and water systems, and improving bicycle and pedestrian connectivity to reduce vehicle use by residents. The project would result in an overall increase in electricity demand relative to existing conditions, but would not increase the overall electricity consumption from existing utilities on-site. The project would require the construction of new utility connections to existing electrical and natural gas facilities supplied by either PG&E or SVCE.

The project would meet the California Code of Regulations Title 24 Standards for energy efficiency that are in effect at the time of construction. As the standards are updated on a triennial basis, building energy efficiency will continue to improve throughout the project's buildout.

Fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary. The project would generate an estimated daily increase in VMT of 1,488,837 annual VMT and would consume 55,235 gallons of gasoline and 10,903 gallons of diesel fuel per year. The project is located in an urban area with access to existing pedestrian, bicycle, and transit services. The Caltrain Lawrence Station is located near the project site, which provides access to commuter rail service along the Peninsula between San Francisco and San Jose. Due to this proximity and accesses to non-automobile transportation modes, it is expected that the vehicle trips generated by the project would be less than a standard development of this type. Additionally, State and federal regulations regarding standards for vehicles in California are designed to reduce wasteful, unnecessary, and inefficient use of energy for transportation.

According to Appendix F of the CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall per capita energy consumption, decreasing reliance on natural gas and oil, and increasing reliable on renewable energy sources. The project would include the use of solar photovoltaics, cool roofs, and would be connected to SVCA. The project's buildings would be required to meet the 2019 Energy Code standards at the time of construction. Further, the project is committed to zero net electricity residential buildings. These actions would reduce building energy consumption and would reduce per capita energy use compared to other similar projects.

The project's energy consumption from construction, building operation, and transportation would not be considered wasteful, inefficient, or unnecessary. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 4.5-2: Demand for Energy Services and Facilities

The project is committed to zero net electricity residential buildings. Adequate infrastructure and capacity exists adjacent to the project area that could meet the project's energy needs. Thus, this impact is **less than significant**.

The project would require the consumption of natural gas and electricity; however, the project is committed to zero net energy residential and would produce all energy consumed on-site through the installation of photovoltaic solar panels. The project would connect to the existing natural gas and electricity lines adjacent to the project site. PG&E services are funded by developers who pay design and construction costs based on PG&E's existing rates, rules, and regulations. The project's impact to energy services and facilities would be **less than significant** because there are adequate facilities adjacent to the project area to supply energy to the project site.

Mitigation Measures

No mitigation measures are required.

4.6 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential impacts of the project-related hazards and hazardous materials. The evaluation provided in this section is based review of hazardous materials databases and documents provided by the applicant. No comment letters, in response to the notice of preparation for the EIR, addressed issues pertaining to hazards and hazardous materials.

4.6.1 Regulatory Setting

FEDERAL

U.S. Environmental Protection Agency

Various federal laws address the proper handling, use, storage, and disposal of hazardous materials, as well as require measures to prevent or mitigate injury to health or the environment if such materials are accidentally released. The U.S. Environmental Protection Agency (EPA) is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are primarily contained in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the Code, are listed in 49 CFR 172.101.

- The Clean Water Act (33 U.S. Code [USC] Section 1251 et seq.) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating surface water quality. The EPA implements pollution control programs for all contaminants in surface waters.

- The Clean Air Act (42 USC Section 7401 et seq.) regulates hazardous air pollutants from stationary and mobile sources via national ambient air quality standards. Section 112 requires issuance of technology-based standards for major and area sources of air pollutants. For a detailed description of the regulatory environment related to air quality and air pollutants, see Section 3.2, "Air Quality."

- The Toxic Substances Control Act of 1976 (TSCA) (15 USC Section 2601 et seq.) regulates the production, importation, use, and disposal of specific chemicals, including polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint.

- The Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) is the law under which EPA regulates hazardous waste from the time the waste is generated until its final disposal ("cradle to grave").

- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA) (42 USC 9601 et seq.) gives EPA authority to seek out parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.

- The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499; USC Title 42, Chapter 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

- The Spill Prevention, Control, and Countermeasure (SPCC) rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans. The SPCC rule is part of the Oil Pollution Prevention regulation, which also includes the Facility Response Plan rule.

U.S. Department of Transportation

The U.S. Department of Transportation regulates the transportation of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law, 49 USC 5101 et seq. (formerly the Hazardous Materials Transportation Act 49 USC 1801 et seq.) is the basic statute regulating the transportation of hazardous materials in the United States. Hazardous materials transportation regulations are enforced by the Federal Highway Administration, the U.S. Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration.

Occupational Safety and Health Administration

The federal Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for excavation and trenching.

Federal Aviation Administration

The Federal Aviation Administration is the agency responsible for regulating development near airports and heliports to minimize potential hazards to people and property on the ground and prevent flight obstructions or other hazards to flight. The Federal Aviation Regulations (FAR) provide criteria for evaluating the potential effects of obstructions on the safe and efficient use of navigable airspace within approximately 1 mile of a heliport, approximately 2 to 3 miles of airport runways, and approximately 9.5 miles from the end of high traffic runways that have a precision instrument approach.

STATE

California Environmental Protection Agency

The California Environmental Protection Agency (CalEPA) mission is to restore, protect, and enhance the environment to ensure public health, environmental quality, and economic vitality. The agency administers the Unified Program, which consolidates and coordinates the activities of the following environmental and emergency response programs:

- The Hazardous Waste Generator program and Hazardous Waste On-site Treatment activities.
- The Aboveground Storage Tank program and Spill Prevention Control and Countermeasure Plan requirements.
- The Underground Storage Tank program.
- The Hazardous Materials Release Response Plans and Inventory program.
- The California Accidental Release Prevention program.
- The Hazardous Materials Management Plans and the Hazardous Materials Inventory Statement requirements.

The Unified Program requires all counties to apply to the CalEPA for the certification of a local unified program agency. Qualified cities are also permitted to apply for certification.

California Office of Emergency Services

In California, both federal and state community right-to-know laws are coordinated through the Governor's Office of Emergency Services. The federal law, SARA Title III or EPCRA, described above, encourages and supports emergency planning efforts at the state and local levels and to provide local governments and the

public with information about potential chemical hazards in their communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials above certain quantities. The provisions of EPCRA apply to four major categories:

- emergency planning,
- emergency release notification,
- reporting of hazardous chemical storage, and
- inventory of toxic chemical releases.

The corresponding state law is Chapter 6.95 of the California Health and Safety Code (Hazardous Materials Release Response Plans and Inventory). Under this law, qualifying businesses are required to prepare a Hazardous Materials Business Plan, which would include hazardous materials and hazardous waste management procedures and emergency response procedures, including emergency spill cleanup supplies and equipment. When the applicant begins to use hazardous materials at levels that reach applicable state and/or federal thresholds, the plan is submitted to the administering agency.

California Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC), a division of the California Environmental Protection Agency, has primary regulatory responsibility over hazardous materials in California, working in conjunction with EPA to enforce and implement hazardous materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the State, known as the Cortese List. Individual regional water quality control boards (RWQCBs) are the lead agencies responsible for identifying, monitoring, and cleaning up leaking underground storage tanks (USTs).

California Department of Transportation

The State of California has adopted U.S. Department of Transportation regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in 26 California Code of Regulations (CCR). State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Department of Transportation (Caltrans) and the California Highway Patrol. Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by the Governor's Office of Emergency Services, which coordinates the responses of other agencies in the project area.

State Water Resources Control Board

The State Water Resources Control Board regulates water quality in California along with nine RWQCBs and has the primary responsibility for implementing the National Pollution Discharge Elimination System (NPDES) program and the state's Porter-Cologne Water Quality Act.

The project is located within the San Francisco Bay RWQCB's (SFRWQCB's) jurisdiction. The SFRWQCB requires proper management of hazardous materials during project construction and provides oversight of sites where the quality of groundwater or surface waters is threatened and has the authority to require investigations and remedial actions. The project site currently has an open file with the SFRWQCB related to cleanup oversight and site assessment activities (Geotracker ID# T10000009363; SFRWQCB Case #43S1205). An application to enter into a voluntary oversight agreement (VOA) covering the project site was submitted to the RWQCB in 2016 and 2017.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices. Section 1532.1 addresses construction work where an employee may be occupationally exposed to lead.

Title 8 of the CCR also includes regulations that provide for worker safety when blasting and explosives are utilized during construction activities. These regulations identify licensing, safety, storage, and transportation requirements related to the use of explosives in construction.

California Fire Code

The California Fire Code (CFC) is Chapter 9 of CCR Title 24. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The CFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The CFC and the California Building Code use a hazard classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the CFC employs a permit system based on hazard classification. The CFC is updated every 3 years.

LOCAL

Santa Clara County Airport Land Use Commission

The Santa Clara County Airport Land Use Commission prepares and maintains a Comprehensive Land Use Plan (CLUP) for areas surrounding Santa Clara County public-use airports. The plan incorporates the airspace protection criteria provided in the FAR.

Santa Clara County Department of Environmental Health

The Santa Clara County Department of Environmental Health (DEH) Site Mitigation Program administers the Local Oversight Program to oversee the investigation and remediation of leaking USTs within the City of Sunnyvale. The Site Mitigation Program also oversees remediation of certain other contaminated sites within the City as part of the State Voluntary Cleanup Program (VCP).

City of Sunnyvale General Plan

The Safety and Noise Chapter of the General Plan contains the following policies that are relevant to the analysis of hazardous materials impacts:

- **Policy SN-1.1:** Evaluate and consider existing and potential hazards in developing land use policies. Make land use decisions based on an awareness of the hazards and potential hazards for the specific parcel of land.
- **Policy SN-1.5:** Promote a living and working environment safe from exposure to hazardous materials.

City of Sunnyvale Municipal Code

The City of Sunnyvale's Municipal Code Title 16.52 contains hazardous material regulations adopted to safeguard life and property arising from the storage, handling and use of hazardous substances, materials, and devices, including from conditions arising from the use or occupancy of buildings or structures. The Municipal Code requires permits for certain activities and operations and requires inspections to determine whether such activities or operations can be conducted in a manner that complies with the state's hazardous materials regulation standards.

City of Sunnyvale Department of Public Safety

The City of Sunnyvale Department of Public Safety (DPS) Hazardous Materials Unit manages the routine use of hazardous materials in the City under the Unified Program. These include programs for registration of hazardous waste generators and underground storage tanks. The CalEPA has granted responsibilities to DPS for implementation and enforcement of hazardous material regulations under the Unified Program as a Certified Unified Program Agency (CUPA). DPS is also responsible for building inspections and other local requirements related to hazardous materials contained in Title 20 of the Municipal Code.

Bay Area Air Quality Management District

The Bay Area Are Quality Management District (BAAQMD), Regulation 11, Rule 2 addresses control of emissions of asbestos to the atmosphere during demolition, renovation, milling, and manufacturing and establishes appropriate waste disposal procedures. These rules address testing of demolition and renovation sites, excavation procedures, and monitoring and reporting requirements.

4.6.2 Environmental Setting

For purposes of this section, the term "hazardous materials" refers to both hazardous substances and hazardous wastes. A "hazardous material" is defined in the CFR as "a substance or material that ... is capable of posing an unreasonable risk to health, safety, and property when transported in commerce" (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> "Hazardous material" means 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 into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

"Hazardous wastes" are defined in California Health and Safety Code Section 25141(b) as wastes that:

> ... because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

EXISTING SITE CONDITIONS

The project site is listed as a Cleanup Program Site on the State Water Resources Control Board's Geotracker website (T10000010280), as under remediation as of March 28, 2018 (SWRCB 2018). The project site is also listed on the Department of Toxic Substances Control EnviroStor website (43010010) showing last completed actions related to DDT cleanup in April 1990 (DTSC 2018). Additional information related to history and cleanup of this site are discussed below.

Historical Site Usage

Based on information included in the Phase 1 Environmental Site Assessment (ESA), the project site was undeveloped land until the 1930s when orchards were planted. Several structures were built on the project site between then and 1948, and by the mid-1950s the orchard was replaced with row crops. Due to the age of the on-site structure, building materials may contain asbestos and lead-based paint. In addition, there are two wells located on the project site and there may be two septic tanks near the existing structures (Cornerstone 2017).

Historic Soil Quality Evaluations

Soil sampling was conducted in July 1989 indicated the presence of dichlorodiphenyltricholoethane (DDT) from previous applications. A Preliminary Endangerment Assessment Report and Request for Approval of Mitigation Plan was prepared by a developer in 1990 to manage the contaminated soil. This mitigation plan proposed the excavation of the DDT-contaminated soil and burial beneath the planned streets of the residential development. This plan presented nine distinct grading steps to manage the impacted soil. After completion of the nine steps, all impacted soil reportedly would be removed and consolidated beneath the planed streets (Terrax 2017).

CURRENT REGULATORY ACTIONS RELATED TO SOIL CONTAMINATION

Cornerstone Earth Group prepared a Phase I ESA in January 2017 (Cornerstone 2017). Soil sampling associated with the Phase I ESA indicated the presence of pesticides on the project site, including DDT, chlordance, and dieldrin. Concentrations of these pesticides exceeded either the residential Regional Screen Level, established by EPA or the California Human Health Screen Levels developed by CalEPA in cooperation with DTSC, the State Water Resources Control Board (SWRCB), and the Office of Environmental Health Hazard Assessment. In addition, lead, possibly associated with paint flaking, was detected in the soil (Terrax 2017).

The project applicant entered a VCP agreement with the DEH, on March 27, 2017, to remediate the project site (DEH 2017). As part of the VCP agreement, a Feasibility Study/Remedial Action Workplan (FSRAWP) was developed and approved by DEH in March 2018. The FSRAWP contains a series of activities, consisting of both design and pre-field work tasks and remedial actions that include excavation of contaminated soils. Remedial cleanup goals are consistent with the San Francisco Regional Water Quality Control Board's Environmental Screening Levels for residential use (Terrax 2018). The FSRWAP was approved by the County of Santa Clara Department of Environmental Health in March 2018. Per the DEH approval of the FSRAWP, the Remedial Action Completion Report is due December 30, 2018 (DEH 2018).

EMERGENCY RESPONSE PLANS

The City of Sunnyvale's Department of Public Safety's Office of Emergency Services provides training and services to ensure the City is prepared to respond to and recover from the effects of major emergencies. The City of Sunnyvale coordinates emergency planning with the County of Santa Clara Office of Emergency Services, which maintains the Countywide Emergency Operations Plan (EOP) and provides a comprehensive, single-source of guidance and procedure for the County to prepare for, respond to, and manage significant or catastrophic natural or man-made threats, crises, incidents, or events that produce situations requiring a coordinated response (Santa Clara County 2017). The EOP conforms to the requirements of the National Incident Management System, Standardized Emergency Management System, Incident Command System, and the California State Emergency Plan for managing response to multi-agency and multijurisdictional incidents and is consistent with federal and state emergency plans and guidance documents.

4.6.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The following reports and data sources document potential hazardous conditions at the project site and were reviewed for this analysis:

- review of applicable online databases related to the Cortese List;
- available literature, including documents published by federal, State, County, and City agencies;
- Phase I Environmental Site Assessment for the project site; and
- documents related to remedial actions to remove contaminated soil, including the FSRAWP (Terrax 2018).

Project construction and operation were evaluated against the hazardous materials information gathered from these sources to determine whether any risks to public health and safety or other conflicts would occur.

THRESHOLDS OF SIGNIFICANCE

An impact related to hazardous materials and public health is considered significant if implementation of the Corn Palace Project would do any of the following:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site that is included on a list of hazardous-materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- for a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; and
- expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

ISSUES NOT DISCUSSED FURTHER

Public Airport and Private Airstrip Hazards

The project site is not located within 2 miles of any active airport or airstrip and is not located within any airport safety zones or airport influence areas identified in CLUP's of airports nearest to the project site. The project site is located 3 miles west of the San Jose International Airport, and outside of its airport land use plan. There are no active private airstrips located in the vicinity. As a result, impacts related to safety hazards associated with the operation of a public airport or private airstrip would not occur. Thus, the project would have **no impact** associated with airport hazards and this issue is not discussed further in this EIR.

Hazardous Materials Near Schools

The project site is not located within 0.25 mile of any schools. The nearest school to the project site is located 0.4 mile to the west. As a result, impacts related to hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school would not occur. Thus, the project would have **no impact** associated with hazardous materials near schools and this issue is not discussed further in this EIR.

Wildfire Risk

The project site is located on within an urban area that includes other residences, parks, restaurants, and shops. The project site is not adjacent to or intermixed with wildlands. New construction is subject to the City Municipal Code and the California Fire Code, which includes safety measures to minimize the threat of fire. Thus, the project would have **no impact** related to wildlife risk and this issue is not discussed further in this EIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 4.6-1: Create a Significant Hazard Through Transport, Use, or Disposal of Common Hazardous Materials

Development of the project site could create a significant hazard to the public or the environment through the routine transport, use, or disposal of commonly used hazardous materials during construction and operation activities. Project operation activities associated with hazardous materials at the project site would be required to comply with all applicable federal, state, and local regulations related to hazardous materials. In addition, development contractors would be required to comply with federal and state health and safety regulations during construction activities, including OSHA requirements pertaining to worker safety. Because construction and operation of the project would be required to occur in accordance with project conditions of approval and OSHA requirements, the creation of a significant hazard to the public through routine, transport, use, and disposal of hazardous materials would be **less than significant.**

Construction activities associated with development of the project site would involve regional transport, use, storage, and disposal of hazardous materials and petroleum products (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals) that are commonly used at construction sites. Hazardous waste generated during construction may consist of welding materials, fuel and lubricant containers, paint and solvent containers, and cement products containing strong basic or acidic chemicals.

Hazardous materials transported by truck use many of the same freeways, arterials, and local streets as other traffic. This creates a risk of accidents and associated release of hazardous materials for other drivers and for people along these routes. Although the transportation of hazardous materials could result in accidental spills, leaks, toxic releases, fire, or explosion, the U.S. Department of Transportation, Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the CFR. These standard accident and hazardous materials recovery training and procedures are enforced by the State and followed by private State-licensed, certified, and bonded transportation companies and contractors.

Further, pursuant to 40 CFR 112, the project contractors would be required to prepare a spill prevention and treatment plan for rapidly, effectively, and safely cleaning up and disposing of any spills or releases that may occur during construction at the project site. As required under state and federal law, notification and evacuation procedures for site workers and residents would be included as part of the plan in the event of a hazardous materials release during on-site construction.

In addition to 40 CFR 112, SWRCB Construction General Permit (2009-0009 DWQ) requires spill prevention and containment plans to avoid spills and releases of hazardous materials and wastes into the environment. Inspections would be conducted to verify consistent implementation of general construction permit conditions and best management practices (BMPs) to avoid and minimize the potential for spills and releases, and of the immediate cleanup and response thereto. BMPs include, for example, the designation of special storage areas and labeling, containment berms, coverage from rain, and concrete washout areas. Compliance with the regulations would minimize the potential risk of a spill or accidental release of hazardous materials during construction.

The City of Sunnyvale's Municipal Code Title 16.52 contains hazardous material regulations that require permits for certain activities and operations and requires inspections to determine whether such activities or operations can be conducted in a manner that complies with the state's hazardous materials regulation standards. The City of Sunnyvale Department of Public Safety (DPS) Hazardous Materials Unit manages the routine use of hazardous materials in the City, including programs for registration of hazardous waste generators and underground storage tanks, implementation and enforcement of hazardous material regulations under the Unified Program as a CUPA, building inspections, and enforcement of other local requirements related to hazardous materials contained in Title 20 of the City's Municipal Code.

With enforcement of existing hazardous materials regulations and the application of relevant City of Sunnyvale code requirements, development of the project would be designed to minimize potential impacts from the release of commonly used hazardous materials and to minimize both the frequency and the magnitude if such a release occurs. The impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.6-2: Create Potential Human Health Hazards From Exposure to Existing On-Site Hazardous Materials

Elevated concentrations of DDT, chlordane, and dieldrin in soil were found above residential screening values in samples recently collected on-site. In addition, historical structures may contain asbestos and lead-based paint and wells and septic tanks. Demolition, grading, and other construction-related activities could disturb these hazardous materials and become detrimental to the health of construction workers and other people who come into contact with contaminated materials. This impact would be **potentially significant**.

As discussed above under Section 4.6.2, "Environmental Setting," a Phase I ESA was prepared in 2017 to evaluate potential hazardous environmental conditions on the project site. The Phase I ESA indicated that the soil is contaminated with DDT, chlordane, and dieldrin due to past pesticide application. In addition, historic structures may contain asbestos and lead-based paint associated building materials, as well as accompanying septic and well systems.

Due to the age of on-site buildings, proposed demolition of existing structures may pose a risk of exposure of workers to asbestos and lead-based paint, present in building materials. Consistent with BAAQMD requirements, all structures will be tested for the presence of asbestos-containing materials. Any asbestos would be removed and disposed of by an accredited contractor in compliance with federal, state, and local regulations (including the Toxic Substances Control Act and the National Emission Standard for Hazardous Air Pollutants). In compliance with Cal/OSHA regulations, surveys for indicators of lead-based coatings, and flakes in soil, would be conducted before demolition to further characterize the presence of lead on the project site. Loose or peeling paint may be classified as a hazardous waste if concentrations exceed total threshold limits. Cal/OSHA regulations require air monitoring, special work practices, and respiratory protection during demolition and paint removal where even small amounts of lead have been detected

In addition, existing septic systems may be encountered during earth-moving activities and disturbance could result in contamination of soils and groundwater. On-site wells may act as vertical pathways, allowing chemicals and pathogens on the surface or in shallow aquifers, to migrate into drinking water aquifers and or soils that may be encountered by construction workers and future residents. Septic systems and water wells would be located and removed in accordance with Santa Clara County regulations. The project applicants shall obtain well destruction and abandonment activities permits from the Santa Clara Valley Water District and a septic tank abandonment permit from Santa Clara County Department of Environmental Health. A qualified contractor shall be retained to perform all activities related to destruction and abandonment of septic systems and water wells.

Construction workers and other nearby people (e.g., residents) may become exposed to pesticides and lead particles through accidental ingestion of contaminated soils and building materials, absorption through the skin, and/or inhalation or particles created during demolition activities. A FSRAWP has been developed and approved. However, remedial activities on the project site have not been completed at the time of release of this Draft EIR. Thus, because development of the project may create potential human health hazards from exposure to existing on-site hazardous materials, this impact would be **potentially significant**.

Mitigation Measure 4.6-2: Complete Excavation, Validation Testing, and Case Closure Activities Associated with the FSRAWP

The project applicant shall direct that all activities listed in the FSRAWP are completed by the contractor before the start of construction. These activities include the following and will be noted in the project's improvement plans.

Design and pre-field work tasks:

- pre-sampling surveys;
- attainment of necessary permits (e.g., BAAQMD fugitive dust emission and City grading plan);
- preparation of a human health risk assessment and site-specific Health and Safety Plan to be approved by DEH; and
- pre-fieldwork activities, such as securing site access, delineation of exclusion zones, and placement of temporary construction fences.

Remedial actions consist of:

- excavation of contaminated soils,
- soil grading to backfill excavation areas to match surrounding,
- confirmation sampling to ensure that contaminant levels meet SFRWQCB requirements, and
- completion of closure procedures through DEH approval process.

During the excavation activities discussed in the FSRAWP, a field engineer or geologist under the supervision of a California Professional Geologist or Engineer will document field observations. The field notes will contain pertinent observations about excavation dimensions, equipment operation, unusual conditions encountered during excavation, date and time of arrival, general site conditions, and other field observations relating to the project site. Field documentation will also include photographs, written logs, information about site meetings, health and safety training, and chain-of-custody records.

Following attainment of Remedial Action Objectives, as validated by soil sampling and testing, a closure request report will be developed and submitted to DEH. The report will include any changes to the proposed design and will provide the results of the validation testing along with a request for unrestricted site case closure. Construction of the project will not begin until case closure has been granted by DEH.

Significance after Mitigation

With implementation of the above mitigation measures the potential for soil and groundwater contamination would be reduced to a **less-than-significant** level because contaminated soils and hazardous building materials would be properly removed and septic tanks and wells would be abandoned according to applicable standards.

Impact 4.6-3: Impair Emergency Response or Evacuation Plans

In the event of an emergency that would require citizens to evacuate, including those citizens who live in the City of Sunnyvale, Santa Clara County would implement its Countywide EOP. The Countywide EOP provides a comprehensive, single-source of guidance and procedure for the County to prepare for, respond to, and manage significant or catastrophic natural or man-made threats, crises, incidents, or events that produce situations requiring a coordinated response. Construction of the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. This impact would be **less than significant**.

In the event of an emergency that would require citizens to evacuate, including those citizens who live in the City of Sunnyvale, Santa Clara County would implement its Countywide EOP. The Countywide EOP provides a comprehensive, single-source of guidance and procedure for the County to prepare for, respond to, and manage significant or catastrophic natural or man-made threats, crises, incidents, or events that produce situations requiring a coordinated response. In addition, the City of Sunnyvale's Department of Public Safety's Office of Emergency Services provides training and services to ensure the City is prepared to respond to and recover from the effects of major emergencies. The City of Sunnyvale coordinates on emergency planning with the County of Santa Clara Office of Emergency Services, who maintains the Countywide EOP.

Construction activities could result in temporary lane closures, increased truck traffic, and other roadway effects that could slow or stop emergency vehicles, temporarily increasing response times and impeding existing services. Construction activities at the project site do not, however, have the potential to substantially hinder emergency response activities or physically interfere with established evacuation routes because construction activities would not result in blockage of any existing roads. In addition, projects requiring encroachment permits for temporary construction activities in public roadways (e.g., any improvements to site entrances and associated intersections) that could be used for emergency response or evacuation are required to prepare traffic mitigation plans that address traffic control during the period the project is occurring within public right of way. The project would also comply with City Municipal Code Section 16.52.3311.1.1, which requires that access be maintained for fire and emergency responders. The reader is referred to Section 4.7, "Transportation and Circulation," for a further discussion of construction traffic impacts.

The potential for construction activities or development to impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan would be **less than significant**.

Mitigation Measures

No mitigation is required.

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4.7 TRANSPORTATION AND CIRCULATION

This section describes the existing transportation system in the vicinity of the project site and evaluates the potential impacts on the system associated with implementation of the project. Roadway, transit, bicycle, and pedestrian components of the overall transportation system are included in the analysis.

Impacts are evaluated under existing conditions with and without the project, and background conditions with and without the project. The traffic analysis focuses on a specific project study area for transportation and circulation, which is defined below.

This section summarizes information presented in the *1142 Dahlia Court Final Transportation Operation Analysis* (TOA) prepared by Wood Rodgers in 2018. The full TOA is included as Appendix C in this DEIR and provides additional detailed information related to the transportation and traffic analysis.

The following scenarios are analyzed in this EIR:

- Existing Conditions – the baseline condition against which project impacts are measured.
- Existing Plus Project Conditions – reflects changes in travel conditions associated with implementation of the project under Existing Conditions.
- Background Conditions - represents existing conditions plus approved but not yet constructed or occupied within an in the vicinity of the project site. This scenario reflects a near-term future condition could reasonably represent study area conditions at the time of project completion.
- Background Plus Project Conditions - reflects the transportation and traffic effects associated with implementation of the project under Background Conditions.

Comment letters related to transportation and circulation were received in response to the Notice of Preparation. One letter included concerns related to the project converting Dahlia Court from a cul-de-sac into a through street. Additionally, letters received also commented on transportation analysis guidelines used to analyze the project, making sure City of Santa Clara intersections were included in the analysis, and to be sure to consider the Lawrence Expressway Grade Separation Concept Study in the transportation analysis for the project. These comments considered in the analysis provided below.

4.7.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to transportation and circulation are applicable to the proposed project. However, federal regulations relating to the Americans with Disabilities Act, Title VI, and Environmental Justice relate to transit service.

STATE

No state plans, policies, regulations, or laws related to transportation and circulation are applicable to the proposed project.

LOCAL

Santa Clara County Congestion Management Program

Santa Clara Valley Transportation Authority (VTA) is the County's Congestion Management Agency (CMA) and is responsible for managing the county's blueprint to reduce congestion and improve air quality. For the purpose of congestion monitoring and management, the Congestion Management Program (CMP) statute requires that CMAs develop a minimum auto level of service (LOS) standard for CMP network roadways. The LOS standards for Santa Clara County were established in October 1991. The minimum LOS is LOS E, except for facilities grandfathered in at LOS F. The performance of the CMP facilities is monitored at a minimum every two years. If the minimum LOS cannot be maintained on a CMP roadway, member agencies must develop multimodal improvement plans to remain in conformance with the CMP.

The City of Sunnyvale and VTA currently utilize LOS E as the minimum acceptable LOS threshold for signalized intersections that have been designated as regionally significant by cities, that have been designated as part of the CMP, or which are County intersections.

VTA Traffic Level of Service Analysis Guidelines

VTA Traffic Level of Service Analysis Guidelines presents the LOS analysis methodologies that must be used to evaluate LOS on CMP roadway facilities within Santa Clara County. The document describes the methodologies that must be used to evaluate traffic LOS for urban arterials, freeways and rural highways that are part of the CMP roadway network in Santa Clara County; describes the software (TRAFFIX) approved by VTA as the standard traffic LOS analysis software package for CMP signalized intersections; and describes types of traffic and related situations that are excluded from the requirements of the CMA legislation.

County of Santa Clara

Streets in unincorporated areas, as well as all of the county expressways (including Central Expressway and Lawrence Expressway in Sunnyvale), are under the auspices of the Santa Clara County Roads and Airports Department. Roads and airports staff is responsible for maintaining and operating all of the expressways and all of the streets on County property.

City of Sunnyvale

The Land Use and Transportation Element of the City of Sunnyvale General Plan (City of Sunnyvale 2017), includes goals policies, and strategic actions that are relevant to transportation and circulation in the City of Sunnyvale. The following policies of the City of Sunnyvale's General Plan would be applicable to the project:

- **Policy LT-3.5:** Follow California Environmental Quality Act requirements, Congestion Management Program requirements, and additional City requirements when analyzing the transportation impacts of proposed projects and assessing the need for offsetting transportation system improvements or limiting transportation demand.

- **Policy LT-3.8:** Prioritize safe accommodation for all transportation users over non-transport uses. As City streets are public spaces dedicated to the movement of vehicles, bicycles, and pedestrians, facilities that meet minimum appropriate safety standards for transport uses shall be considered before non-transport uses are considered.

- **Policy LT-3.11:** As they become available, use multimodal measures of effectiveness to assess the transportation system in order to minimize the adverse effect of congestion. Continue to use LOS to describe congestion levels. Use vehicle miles traveled (VMT) analysis to describe potential environmental effects and impacts to the regional transportation system.

- **Policy LT-3.14:** Require roadway and signal improvements for development projects to improve multimodal transportation system efficiency.

- **Policy LT-3.27:** Require appropriate roadway design practice for private development consistent with City standards and the intended use of the roadway.

The City of Sunnyvale currently utilizes LOS D as the minimum acceptable LOS threshold for signalized intersections within the City of Sunnyvale during the a.m. and p.m. peak periods, except for intersections that have been designated as regionally significant. Additionally, the City of Sunnyvale currently utilizes LOS D as the minimum acceptable LOS threshold for unsignalized intersections within the City of Sunnyvale. Per City of Sunnyvale Unsignalized Intersection LOS Guidelines, for determining the LOS for unsignalized intersections, the average intersection delay is used for all-way stop controlled intersections, and the worst movement delay is used for side-street stop-controlled intersections.

4.7.2 Environmental Setting

This section describes existing regional and local environmental conditions relevant to transportation and circulation.

PROJECT STUDY AREA

The project site is generally located west of Lawrence Expressway between Poinciana Drive and Reed Avenue on the easternmost edge of the City of Sunnyvale. The site is bound by Lawrence Expressway to the east, Lily Avenue to the south, Toyon Avenue to the west, and Dahlia Drive and Dahlia Court to the north. Lawrence Expressway forms the border between the City of Sunnyvale and the City of Santa Clara along the eastern side of the project site.

Identification of the study area considered the project's expected travel characteristics, including number of vehicle trips, the directionality of those vehicle trips, and primary travel routes to/from the project area. Exhibit 4.7-1 shows the study area.

STUDY AREA INTERSECTIONS

Study intersections were selected for analysis based on the *VTA Transportation Impact Analysis (TIA) Guidelines*, professional engineering judgement, and coordination with City of Sunnyvale staff. Based on a preliminary trip generation, distribution, and proximity to the project site, intersections that could potentially experience operational deficiencies as a result of the addition of project-generated traffic to the study area were included as study area intersections. Per Section 2.2.1 of the VTA TIA Guidelines, an intersection that has been designated as part of the VTA CMP shall be included in a traffic study if the proposed development is expected to add 10 or more peak-hour vehicles per lane to any movement at that intersection. The list of study intersections was reviewed and approved by City of Sunnyvale staff.

The following 11 existing and proposed study intersections were included in the analysis for this project and include intersections located in the City of Santa Clara:

1. El Camino Real/Halford Avenue
2. El Camino Real/Lawrence Expressway Ramps
3. Poinciana Drive/Klamath Avenue-White Oak Lane
4. Poinciana Drive-Cabrillo Avenue/Lawrence Expressway
5. Lily Avenue/Toyon Avenue
6. Dahlia Drive-Dahlia Court/West Project Driveway-Vinemaple Avenue
7. Dahlia Drive/Toyon Avenue
8. Dahlia Court/East Project Driveway
9. Columbine Avenue/Timberpine Avenue
10. Reed Avenue/Timberpine Avenue
11. Reed Avenue-Monroe Street/Lawrence Expressway

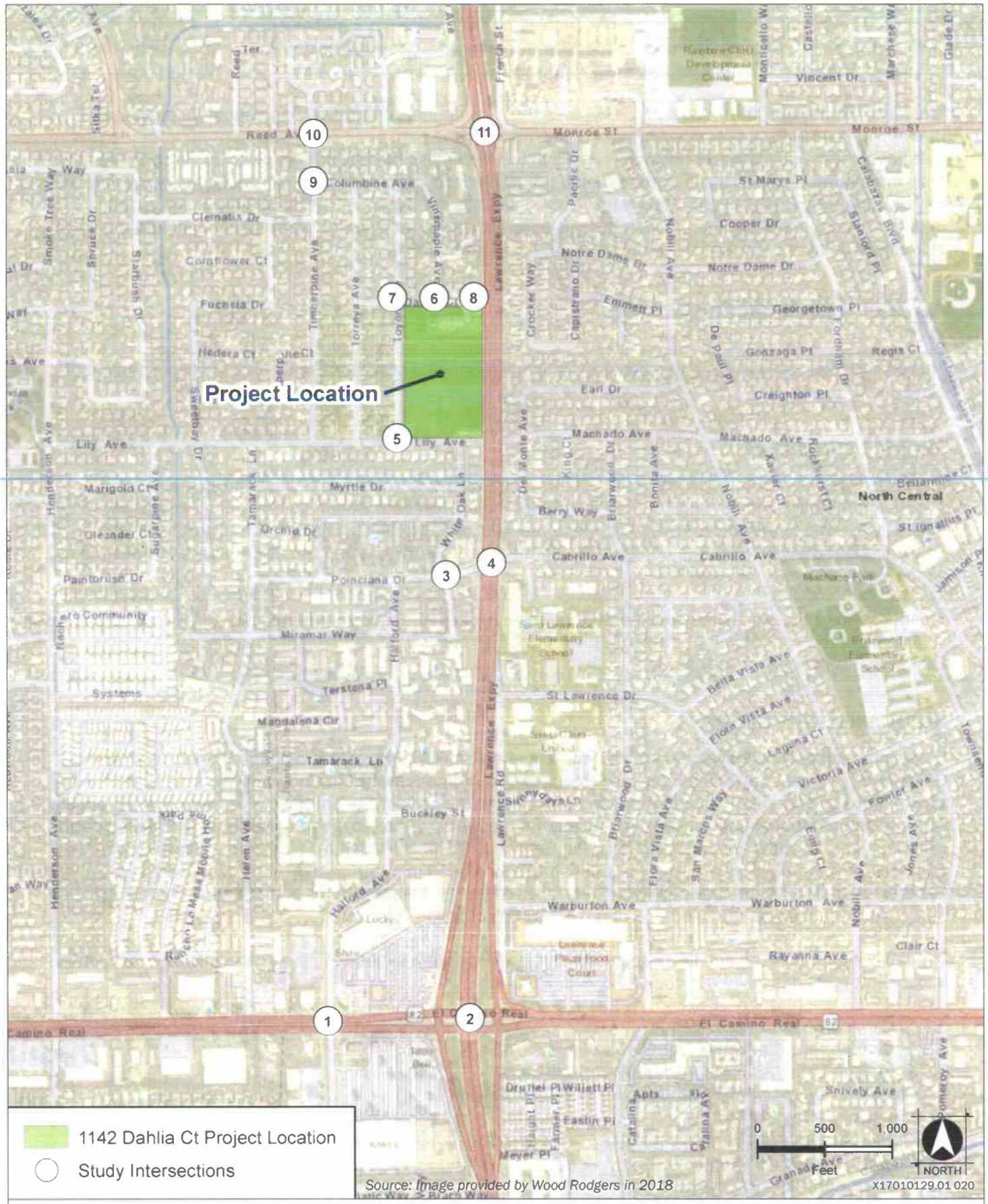


Exhibit 4.7-1 **Project Location and Study Facilities**

ROADWAY NETWORK

The study area is served by a roadway network which includes the following key roadways:

Lawrence Expressway (County Route G2) is a six- to eight-lane north-south county expressway that runs from Saratoga Avenue (where it becomes Quito Road) to State Route (SR) 237 (where it becomes Caribbean Drive). It has six-lanes between Saratoga Avenue and Stevens Creek Boulevard, while it has eight total lanes (three mixed-flow lanes and one HOV lane in both the northbound and southbound directions) between Stevens Creek Boulevard and SR 237. Lawrence Expressway has a posted speed limit of 50 miles per hour (mph) through the study area. Lawrence Expressway is considered a regionally significant roadway. Lawrence Expressway forms a diamond interchange with El Camino Real resulting in two separate but closely spaced ramp intersections.

El Camino Real (SR 82) is a six-lane Class I arterial that runs northwest-southeast between A Street in Daly City (where it becomes Mission Street) and The Alameda in Santa Clara (where it becomes The Alameda), running through San Mateo, Palo Alto, Mountain View, and Sunnyvale along the way. El Camino Real has been designated as a regionally significant roadway by the City of Sunnyvale. The posted speed limit is 40 mph west of Lawrence Expressway and 35 mph east of Lawrence Expressway.

Monroe Street is a four-lane collector located in Santa Clara that runs east-west from Lawrence Expressway, where it becomes Reed Avenue, to Williams Road in San Jose. Monroe Street forms the east leg of a signalized intersection with Lawrence Expressway. The posted speed limit on Monroe Street is 35 mph within the project study area.

Reed Avenue is a four-lane residential collector that runs east-west from Wolfe Road, where it becomes Old San Francisco Road, to Lawrence Expressway, where it turns into Monroe Street. Reed Avenue forms signalized intersections with Timberpine Avenue and Lawrence Expressway. The posted speed limit on Reed Avenue is 35 mph within the project study area.

Lily Avenue is a two-lane residential collector that runs east-west between Henderson Avenue and dead-ends before Lawrence Expressway. Lily Avenue forms one-way stop-controlled intersections with White Oak Lane and Toyon Avenue. The posted speed limit on Lily Avenue is 25 mph.

Timberpine Avenue is a two-lane residential collector that runs north-south between Lily Avenue and Reed Avenue. Timberpine Avenue forms a signalized intersection with Reed Avenue and forms the uncontrolled north-south legs of an uncontrolled three-legged intersection with Columbine Avenue. The posted speed limit on Timberpine Avenue is 25 mph.

Cabrillo Avenue is a two-lane local roadway that runs east-west between Main Street and Lawrence Expressway, where it turns into Poinciana Drive. Cabrillo Avenue forms a signalized intersection with Lawrence Expressway and contains Class II bike lanes within the City of Santa Clara. The posted speed limit on Cabrillo Avenue is 25 mph.

Columbine Avenue is a two-lane local roadway that extends east from Timberpine Avenue and ends in front of the Riverdeck Apartment complex where it turns into Vinemaple Avenue. Columbine Avenue forms the east leg of an uncontrolled three-legged intersection with Timberpine Avenue. There is currently a "No Outlet" sign visible when turning onto Columbine Avenue from Timberpine Avenue that should be removed, according to City of Sunnyvale staff. The posted speed limit on Columbine Avenue is 25 mph.

Dahlia Court/Dahlia Drive is a two-lane local roadway that extends east from Torreya Avenue ending in a cul-de-sac after Vinemaple Avenue. Dahlia Drive turns into Dahlia Court east of Vinemaple Avenue. Dahlia Drive forms a two-way stop-controlled intersection with Toyon Avenue. There is no posted speed limit on Dahlia Court; however, as it is a residential street, the prima facie speed limit is 25 mph.

Halford Avenue is a two-lane local roadway that runs north-south between Peacock Court and Poinciana Drive. Halford Avenue forms a signalized intersection with El Camino Real and contains a two-way left-turn median south of El Camino Real. The posted speed limit on Halford Avenue within the City of Santa Clara is 25 mph.

Klamath Avenue is a two-lane local roadway that extends south from Poinciana Drive, ending in a cul-de-sac in front of the Halford Gardens Apartment complex. Klamath Avenue forms the south leg of a two-way stop-controlled intersection with Poinciana Drive and White Oak Lane. There is no posted speed limit on Klamath Avenue; however, as it is a local road, the prima facie speed limit is 25 mph.

Poinciana Drive is a two-lane local roadway that runs east-west between Tamarack Lane and Lawrence Expressway, where it turns into Cabrillo Avenue. Poinciana Drive forms a signalized intersection with Lawrence Expressway and a two-way stop-controlled intersection with White Oak Lane-Klamath Avenue. The posted speed limit on Poinciana Drive is 25 mph.

Toyon Avenue is a two-lane local roadway that runs north-south between Lily Avenue and Columbine Avenue. Toyon Avenue forms a one-way stop-controlled intersection with Lily Avenue and a two-way stop-controlled intersection with Dahlia Drive. There is no posted speed limit on Toyon Avenue; however, as it is a residential street, the prima facie speed limit is 25 mph.

Vinemaple Avenue is a two-lane local roadway that generally runs north-south between Dahlia Court/Dahlia Drive and Columbine Avenue. Vinemaple Avenue forms an uncontrolled intersection with Dahlia Court/Dahlia Drive. There is no posted speed limit on Vinemaple Avenue; however, as it is a residential street, the prima facie speed limit is 25 mph.

White Oak Lane is a two-lane local roadway that extends south from Lily Avenue to Poinciana Drive, where it turns into Klamath Avenue. White Oak Lane forms a one-way stop-controlled intersection with Lily Avenue and a two-way stop-controlled intersection with Poinciana Drive. There is no posted speed limit on White Oak Lane; however, as it is a residential street the prima facie speed limit is 25 mph.

STUDY PERIODS

Traffic operations of project study intersections were evaluated for the a.m. and p.m. peak-hours. The a.m. peak-hour is defined as the highest one hour of traffic flow counted between 7:00 a.m. and 9:00 a.m. on a typical weekday. The p.m. peak-hour is defined as the highest one hour of traffic flow counted between 4:00 p.m. and 6:00 p.m. on a typical weekday.

TRAFFIC DATA COLLECTION

Wood Rodgers collected a.m. and p.m. peak-hour vehicular, pedestrian, and bicycle traffic counts at the following study intersections on the dates shown below:

- El Camino Real/Halford Avenue (Thursday May 18, 2017),
- El Camino Real/Lawrence Expressway Southbound On/Off Ramps (Thursday May 18, 2017),
- El Camino Real/Lawrence Expressway Northbound On/Off Ramps (Thursday May 18, 2017),
- Poinciana Drive/Klamath Avenue-White Oak Lane (Thursday May 18, 2017),
- Poinciana Drive-Cabrillo Avenue/Lawrence Expressway (Wednesday May 17, 2017),
- Lily Avenue/Toyon Avenue (Thursday May 18, 2017),
- Lily Avenue/White Oak Lane (Thursday May 18, 2017),
- Dahlia Drive/Toyon Avenue (Wednesday May 17, 2017),
- Columbine Avenue/Timberpine Avenue (Wednesday May 17, 2017),
- Reed Avenue/Timberpine Avenue (Wednesday May 17, 2017), and
- Reed Avenue-Monroe Street/Lawrence Expressway (Wednesday May 17, 2017).

Traffic volumes at the Dahlia Drive-Dahlia Court/West Project Driveway-Vinemaple Avenue and Dahlia Court/East Project Driveway intersections were developed using counts at the adjacent Dahlia Drive/Toyon Drive intersection and estimating peak-hour trips made by the small number of existing houses within the existing Dahlia Court cul-de-sac east of Vinemaple Avenue. For analysis purposes, traffic count volumes were balanced between study intersections.

LEVEL OF SERVICE DEFINITIONS

Signalized Intersections

LOS has been calculated for signalized intersections using methods documented in the Transportation Research Board publication Highway Capacity Manual, Fourth Edition, 2000 (TRB 2000), consistent with the VTA Traffic Level of Service Analysis Guidelines. For signalized intersections, the average intersection delay per vehicle, including all intersection movements, has been calculated and reported using TRAFFIX analysis software. The calculated signalized intersection delays correspond to the LOS designations shown in Table 4.7-1 (also provided on page 8 of the TOA, Appendix C) and which are consistent with VTA Traffic Level of Service Analysis Guidelines. Peak-hour factors and saturation flow rates were used as defined in the VTA Traffic Level of Service Analysis Guidelines.

Table 4.7-1 HCM-2000 Based Signalized Intersection LOS Thresholds

Level of Service	Description	Average Control Delay (seconds/vehicle)
A	Free-flow conditions with negligible to minimal delays. Excellent progression with most vehicles arriving during the green phase and not having to stop at all. Nearly all drivers find freedom of operation.	delay ≤ 10.0
B+	Good progression with slight delays. Short cycle-lengths typical. Relatively more vehicles stop than under LOS "A." Vehicle platoons are formed. Drivers begin to feel somewhat restricted within groups of vehicles.	10.0 < delay ≤ 12.0
B		12.0 < delay ≤ 18.0
B-		18.0 < delay ≤ 20.0
C+	Relatively higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, although many still pass through without stopping. Most drivers feel somewhat restricted.	20.0 < delay ≤ 23.0
C		23.0 < delay ≤ 32.0
C-		32.0 < delay ≤ 35.0
D+	Somewhat congested conditions. Longer but tolerable delays may result from unfavorable progression, long cycle lengths, and/or high volume-to-capacity ratios. Many vehicles are stopped. Individual cycle failures may be noticeable. Drivers feel restricted during short periods due to temporary back-ups.	35.0 < delay ≤ 39.0
D		39.0 < delay ≤ 51.0
D-		51.0 < delay ≤ 55.0
E+	Congested conditions. Significant delays result from poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures occur frequently. There are typically long queues of vehicles waiting upstream of the intersection. Driver maneuverability is very restricted.	55.0 < delay ≤ 60.0
E		60.0 < delay ≤ 75.0
E-		< delay ≤ 80.0
F	Jammed or grid-lock type operating conditions. Generally considered to be unacceptable for most drivers. Zero or very poor progression, with over-saturation or high volume-to-capacity ratios. Several individual cycle failures occur. Queue spillovers from other locations restrict or prevent movement.	delay > 80.0

Source: Traffic Level of Service Analysis Guidelines, June 2003; HCM-2000 Exhibit 16-2.

Unsignalized Intersections

LOS has been calculated for unsignalized intersections using methods documented in the Transportation Research Board publication Highway Capacity Manual, Fourth Edition, 2000 (TRB 2000), consistent with the VTA Traffic Level of Service Analysis Guidelines. For two-way-stop controlled (TWSC) unsignalized intersections and yield-controlled intersections, the worst movement delay (i.e. delay per vehicle of the intersection's worst operating movement) has been calculated and reported using TRAFFIX analysis software. The calculated unsignalized intersection delays correspond to the LOS designations shown in

Table 4.7-2 (also provided on page 9 of the TOA, Appendix C), and which are consistent with VTA Traffic Level of Service Analysis Guidelines. Peak-hour factors and saturation flow rates were used as defined in the VTA Traffic Level of Service Analysis Guidelines.

Table 4.7-2 HCM-2000 Based Unsignalized Intersection LOS Thresholds

Level of Service	Description	Average Control Delay (seconds/vehicle)
A	Free-flow conditions with negligible to minimal delays.	delay ≤ 10.0
B	Good progression with slight delays.	10.0 < delay ≤ 15.0
C	Relatively higher delays.	15.0 < delay ≤ 25.0
D	Somewhat congested conditions with longer but tolerable delays.	25.0 < delay ≤ 35.0
E	Congested conditions with significant delays.	35.0 < delay ≤ 50.0
F	Jammed or grid-lock type operating conditions.	delay > 50.0

Source: Traffic Level of Service Analysis Guidelines, June 2003; HCM-2000 Exhibit 17-2 and 17-22.

Signal Warrant Analysis

To determine whether traffic signals should be installed at currently unsignalized intersections, a supplemental California Manual on Uniform Traffic Control Devices, Revision 3, dated March 2018 (CA-MUTCD) based traffic signal warrant analysis was also completed. Signal warrants refer to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an unsignalized intersection location. The CA-MUTCD signal warrant criteria are based upon several factors including volume of vehicular and pedestrian traffic, location of school areas, frequency and type of collisions, etc. This TOA evaluated CA-MUTCD based Peak-Hour-Volume-based Warrant #3 as a representative type of warrant analysis. However, CA-MUTCD indicates that the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Queueing Analysis

The City of Sunnyvale has not defined a level of significance for vehicle queuing. Queuing, however, can impact how a road operates, even if it does not impact the LOS, safety, or alternative transportation on that road. Effects of queuing were analyzed in this DEIR for informational purposes only and recommendations have been identified to improve roadway operation.

Vehicle queueing deficiencies were analyzed at all study intersections. 95th percentile queue lengths were reported for all left-turn movements at all signalized study intersections and overall approach queues were reported for two-way stop-controlled study intersections. 95th percentile queues represent a worst-case queue length that will be reached or exceeded only 5 percent of the time during the peak-hour (i.e. 95 percent of queues would be less than this length).

Based on discussion with City Sunnyvale staff and as detailed in the TOA, queueing deficiencies are considered to occur when one of the following conditions is met:

- traffic generated by the project results in the 95th percentile queue exceeding available storage length at a location not currently experiencing the exceedance of 95th percentile queueing,
- traffic generated by the project results in the lengthening of a queue by 25 feet or more at a location currently experiencing an exceedance of the 95th percentile queue.

OPERATIONS

Existing Conditions

Exhibits 4.7-2a and 4.7-2b illustrates existing intersection lane geometrics and control and Exhibits 4.7-3a and 4.7-3b illustrates existing study intersection traffic volumes. Study intersection raw count sheets are included in Appendix C.

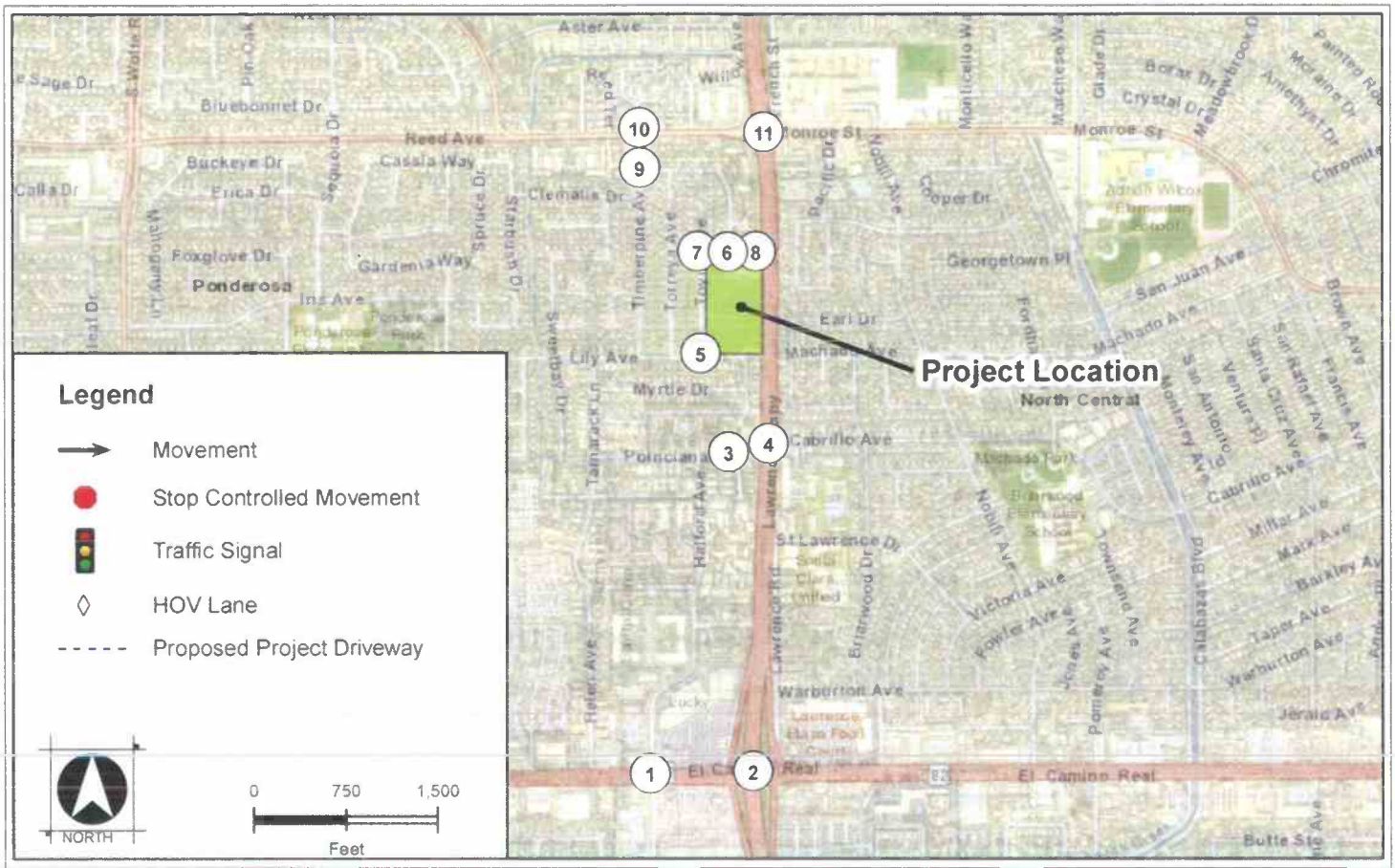
Existing traffic operations were analyzed at the eleven study intersections for the a.m. and p.m. peak-hours. As shown in Table 4.7-3 (also provided on page 19 of the TOA, Appendix C), all study intersections are currently operating at acceptable LOS (LOS D or better for City of Sunnyvale intersections and LOS E or better for regionally significant intersections) during the a.m. and p.m. peak-hours. All delay and LOS results shown in Table 4.7-3 were calculated using TRAFFIX software. CA-MUTCD based peak-hour signal Warrant #3 is not projected to be met at study unsignalized intersections under existing conditions. TRAFFIX intersection LOS outputs and CA-MUTCD signal Warrant #3 worksheets can be found in Appendix C of this DEIR.

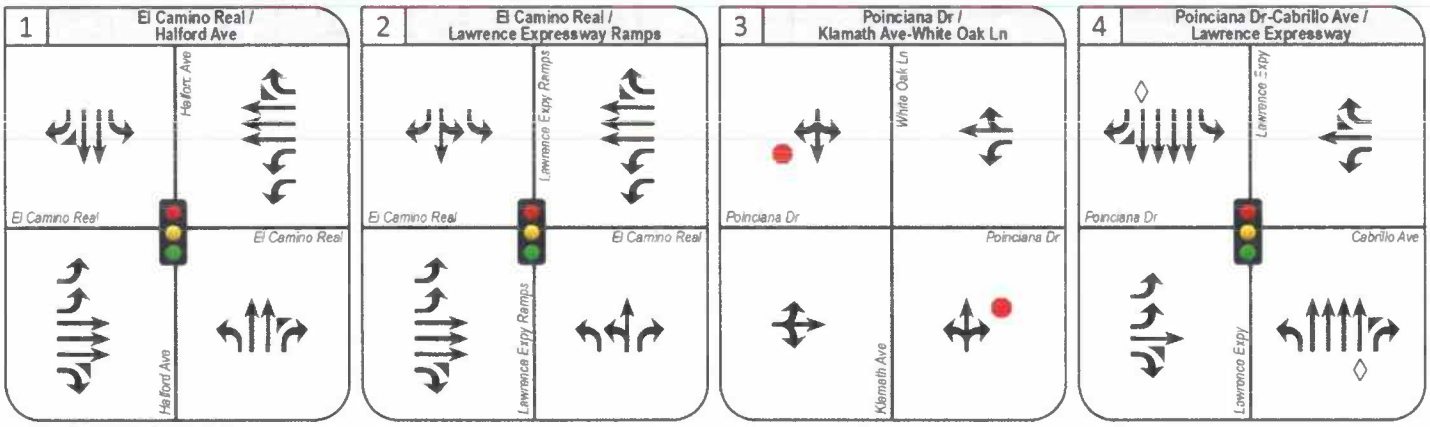
Table 4.7-3 Existing Conditions Intersection Traffic Operation

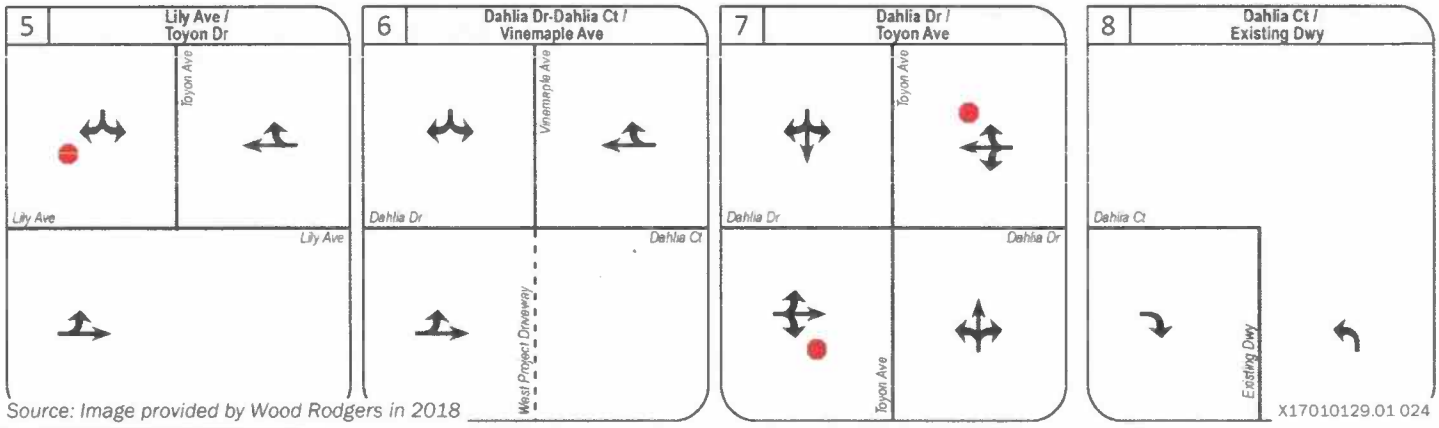
#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions		
					Delay (S/V)[1]	LOS	Wmt Met?[2]
1	El Camino Real/Halford Avenue[3]	Signal	E	a.m.	17.5	B	-
				p.m.	17.4	B	-
2	El Camino Real/Lawrence Expressway Ramps[3]	Signal	E	a.m.	27.8	C	-
				p.m.	27.1	C	-
3	Poinciana Drive/Klamath Avenue-White Oak Lane	TWSC	D	a.m.	14.8	B	No
				p.m.	13.5	B	No
4	Poinciana Drive-Cabrillo Avenue/Lawrence Expressway[3]	Signal	E	a.m.	19.6	B-	-
				p.m.	16.3	B	-
5	Lily Avenue/Toyon Drive	OWSC	D	a.m.	9.4	A	No
				p.m.	8.9	A	No
6	Dahlia Drive-Dahlia Court/Vinemaple Avenue	OWSC	D	a.m.	8.3	A	No
				p.m.	8.3	A	No
7	Dahlia Drive/Toyon Avenue	TWSC	D	a.m.	8.6	A	No
				p.m.	8.6	A	No
8	Dahlia Court/Existing Driveway	Uncontrolled[4]	D	a.m.	0.0	-	-
				p.m.	0.0	-	-
9	Columbine Avenue/Timberpine Avenue	Yield[5]	D	a.m.	11.3	B	No
				p.m.	9.1	A	No
10	Reed Avenue/Timberpine Avenue	Signal	D	a.m.	24.3	C	-
				p.m.	17.0	B	-
11	Reed Avenue-Monroe Street/Lawrence Expressway[3]	Signal	E	a.m.	60.4	E	-
				p.m.	51.6	D-	-

Notes:

1. S/V=Seconds/Vehicle. For TWSC (Two-Way-Stop-Control) and OWSC (One-Way-Stop-Control) intersections, "worst" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for Signal-Control intersections.
2. Wmt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3.
3. Regionally significant intersection(s).
4. The Dahlia Court/East Project Driveway intersection is planned to operate as an uncontrolled driveway at the end of the Dahlia Court cul-de-sac. As such there is no vehicle delay associated with this intersection.
5. The Columbine Avenue/Timberpine Avenue intersection is uncontrolled but operates as a yield-controlled intersection. Yield-controlled intersections were assumed to have the same standards as two-way stop-controlled intersections in this TOA.







Source: Image provided by Wood Rodgers in 2018

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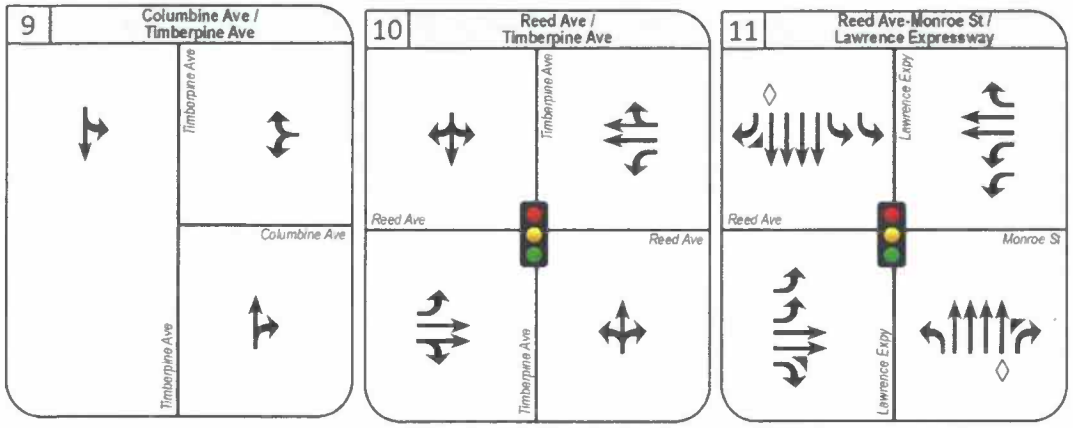
Exhibit 4.7-2a **Existing Lane Geometric and Control**



Source: Image provided by Wood Rodgers in 2018

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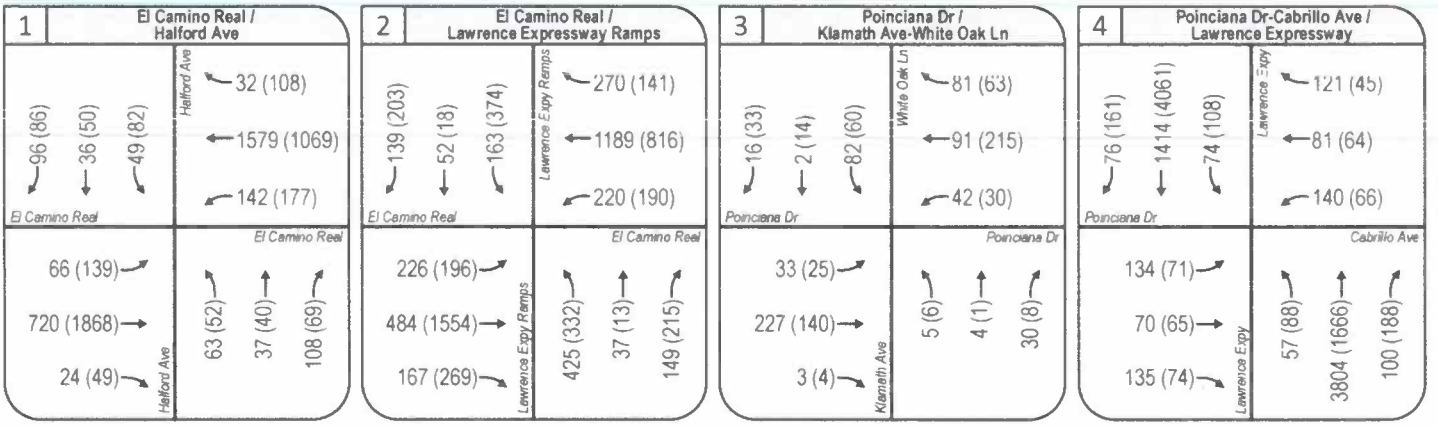
Exhibit 4.7-2b **Existing Lane Geometric and Control**



Source: Image provided by Wood Rodgers in 2018

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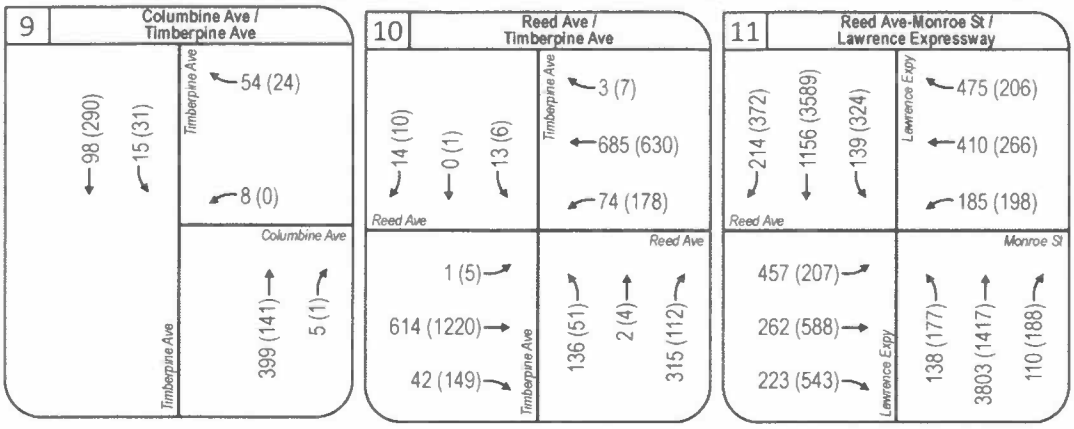
Exhibit 4.7-3a

Existing Traffic Volumes



Source: Image provided by Wood Rodgers in 2018

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Exhibit 4.7-3b

Existing Traffic Volumes

Background Conditions

Background condition traffic volumes were determined by adding trips generated by nearby approved but not constructed projects to the existing conditions traffic volumes. Lists of City of Sunnyvale approved and pending projects (dated May 5, 2017) and City of Santa Clara approved and pending projects (dated April 30, 2018) were used to determine the nearby approved projects to be included in the Background scenario. Per City of Sunnyvale policy, only projects that were designated as approved on the list of approved and pending projects, that consisted of land uses larger than 20 residential units or 10,000 square feet of office/commercial space, and which were located within a one-mile radius of the project site were assumed to be a part of the Background condition.

The net new trips from these nearby approved projects were estimated using typical ITE Trip Generation Manual 9th Edition rates and City of Sunnyvale and VTA trip reduction guidelines/ targets. These new trips were then assigned to the study area network using existing traffic volume patterns and available planning documents, and then were added to Existing traffic volumes to obtain Background traffic volumes. A full list of the approved but not constructed projects assumed, approved project trip generation and distribution worksheets, and total approved project generated volumes under Background conditions are included in Appendix C.

Based on discussion with the City of Sunnyvale, there are no future roadway improvement projects assumed to be completed within the project study area under Background conditions. Therefore, Background lane geometrics are assumed to be the same as Existing lane geometrics. Background condition study intersection turning movement volumes are presented in Exhibits 4.7-4a and 4.7-4b.

Table 4.7-4 (also provided on page 36 of the TOA, Appendix C) illustrates the resulting Background intersection LOS operations.

Table 4.7-4 Background Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Background Conditions		
					Delay (S/V)[1]	LOS	Wmt Met?[2]
1	El Camino Real/Halford Avenue[3]	Signal	E	a.m.	21.6	C+	–
				p.m.	27.7	C	–
2	El Camino Real/Lawrence Expressway Ramps[3]	Signal	E	a.m.	31.7	C	–
				p.m.	33.6	C-	–
3	Poinciana Drive/Klamath Avenue-White Oak Lane	TWSC	D	a.m.	14.8	B	No
				p.m.	13.5	B	No
4	Poinciana Drive-Cabrillo Avenue/Lawrence Expressway[3]	Signal	E	a.m.	20.2	C+	–
				p.m.	16.9	B	–
5	Lily Avenue/Toyon Drive	OWSC	D	a.m.	9.4	A	No
				p.m.	8.9	A	No
6	Dahlia Drive-Dahlia Court/Vinemaple Avenue	OWSC	D	a.m.	8.3	A	No
				p.m.	8.3	A	No
7	Dahlia Drive/Toyon Avenue	TWSC	D	a.m.	8.6	A	No
				p.m.	8.6	A	No
8	Dahlia Court/Existing Driveway	Uncontrolled[4]	D	a.m.	0.0	-	–
				p.m.	0.0	-	–
9	Columbine Avenue/Timberpine Avenue	Yield[5]	D	a.m.	11.3	B	No
				p.m.	9.1	A	No
10	Reed Avenue/Timberpine Avenue	Signal	D	a.m.	24.3	C	–
				p.m.	16.9	B	–

Table 4.7-4 Background Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Background Conditions		
					Delay (S/V)[1]	LOS	Wrnt Met?[2]
11	Reed Avenue-Monroe Street/Lawrence Expressway[3]	Signal	E	a.m.	65.4	E	–
				p.m.	52.6	D-	–

Notes:

1. S/V=Seconds/Vehicle. For TWSC (Two-Way-Stop-Control) and OWSC (One-Way-Stop-Control) intersections, "worst" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for Signal-Control intersections.
2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3.
3. Regionally significant intersection(s).
4. The Dahlia Court/East Project Driveway intersection is planned to operate as an uncontrolled driveway at the end of the Dahlia Court cul-de-sac. As such there is no vehicle delay associated with this intersection.
5. The Columbine Avenue/Timberpine Avenue intersection is uncontrolled but operates as a yield-controlled intersection. Yield-controlled intersections were assumed to have the same standards as two-way stop-controlled intersections in this TOA.

As shown in Table 4.7-4, all study intersections are projected to operate at acceptable LOS (LOS D or better for City of Sunnyvale intersections and LOS E or better for regionally significant intersections) under Background a.m. and p.m. peak-hour conditions. All delay and LOS results shown in Table 4.7-4 were calculated using TRAFFIX software. CA-MUTCD based peak-hour signal Warrant #3 is not projected to be met at study unsignalized intersections under Background conditions. TRAFFIX intersection LOS outputs and CA MUTCD signal Warrant #3 worksheets can be found in Appendix C of this DEIR.

TRANSIT SERVICE

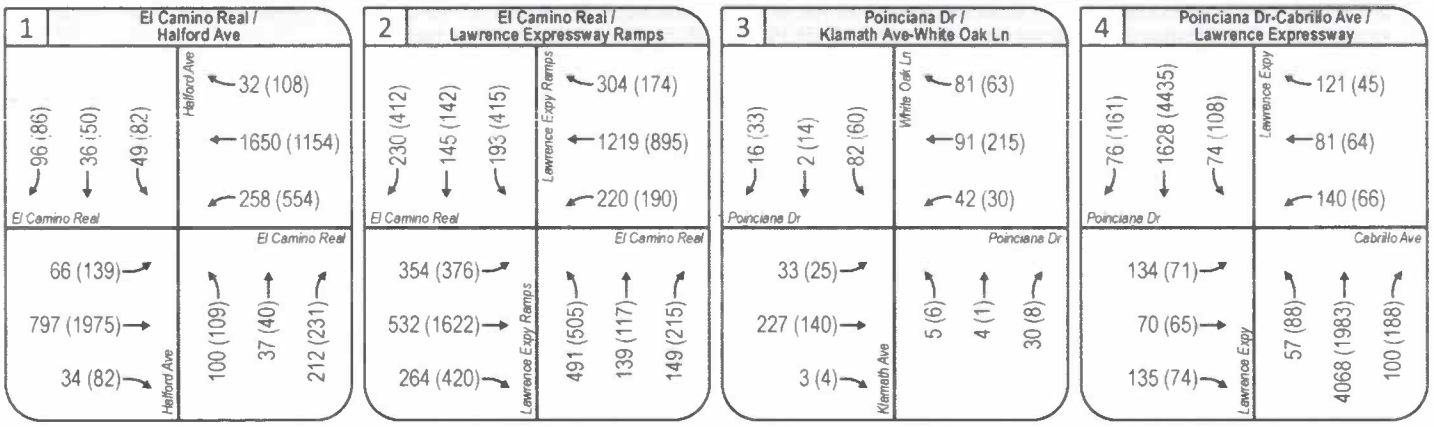
Existing transit service in the project study area is provided by the Santa Clara VTA and Caltrain. The corresponding transit services are shown in Exhibit 4.7-5 and are described below.

VTA Bus Service

VTA operates bus service along Routes 22, Route 32, Route 328, and Route 522 through and/or nearby the project study area. A summary of each local route is provided below:

- **Route 22** is a local service that runs between the Palo Alto Transit Center in Palo Alto and the Eastridge Transit Center in San Jose. Near the project study area, Route 22 primarily runs along El Camino Real, with stops at the El Camino Real intersections with Halford Avenue (0.8 mile from the project site), Lawrence Expressway (0.8 mile from the project site), and Flora Vista Avenue (0.9 mile from the project site. Eastbound and westbound Route 22 operate 24 hours a day, seven days a week on approximately 15 to 60-minute headways, with 15-minute headways for the majority of the day.

- **Route 32** is a local service that runs between the San Antonio Transit Center in Mountain View and the Santa Clara Caltrain Station in Santa Clara. Near the project study area, Route 32 runs along Reed Avenue and Monroe Street, with stops at the intersections of Reed Avenue/Evelyn Avenue (0.5 mile from the project site), Reed Avenue/Willow Avenue (0.5 mile from the project site), Reed Avenue-Monroe Street/Lawrence Expressway (0.5 mile from the project site), and Monroe Street/Pacific Street (0.6 miles from the project site). On weekdays, eastbound and westbound Route 32 operate between approximately 5:45 a.m. and 8:33 p.m. on 30-minute headways, except for the last bus of the day, which operates on a 60-minute headway. On Saturday, eastbound and westbound Route 32 operate between 8:45 a.m. and 6:00 p.m. on 60-minute headways. Route 32 does not operate on Sundays.



Source: Image provided by Wood Rodgers in 2018

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Exhibit 4.7-4a

Background Traffic Volumes

ASCENT ENVIRONMENTAL

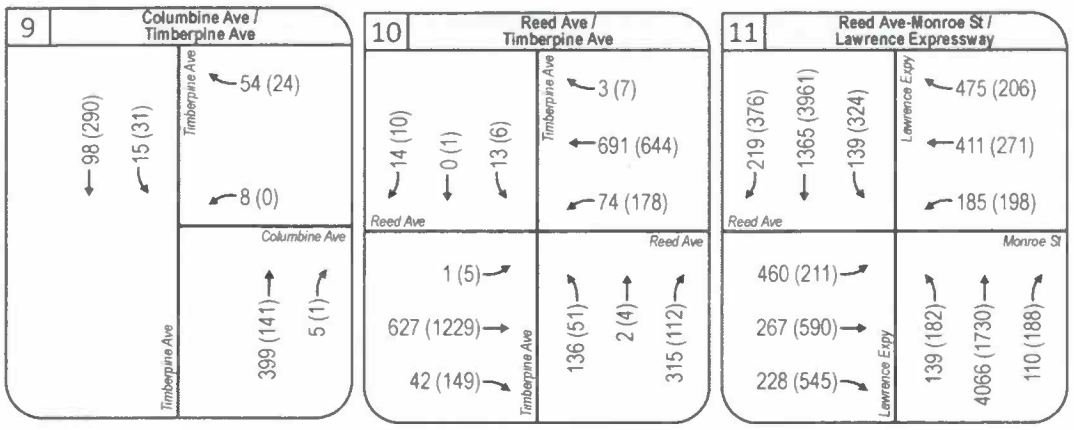

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Exhibit 4.7-4b

Background Traffic Volumes

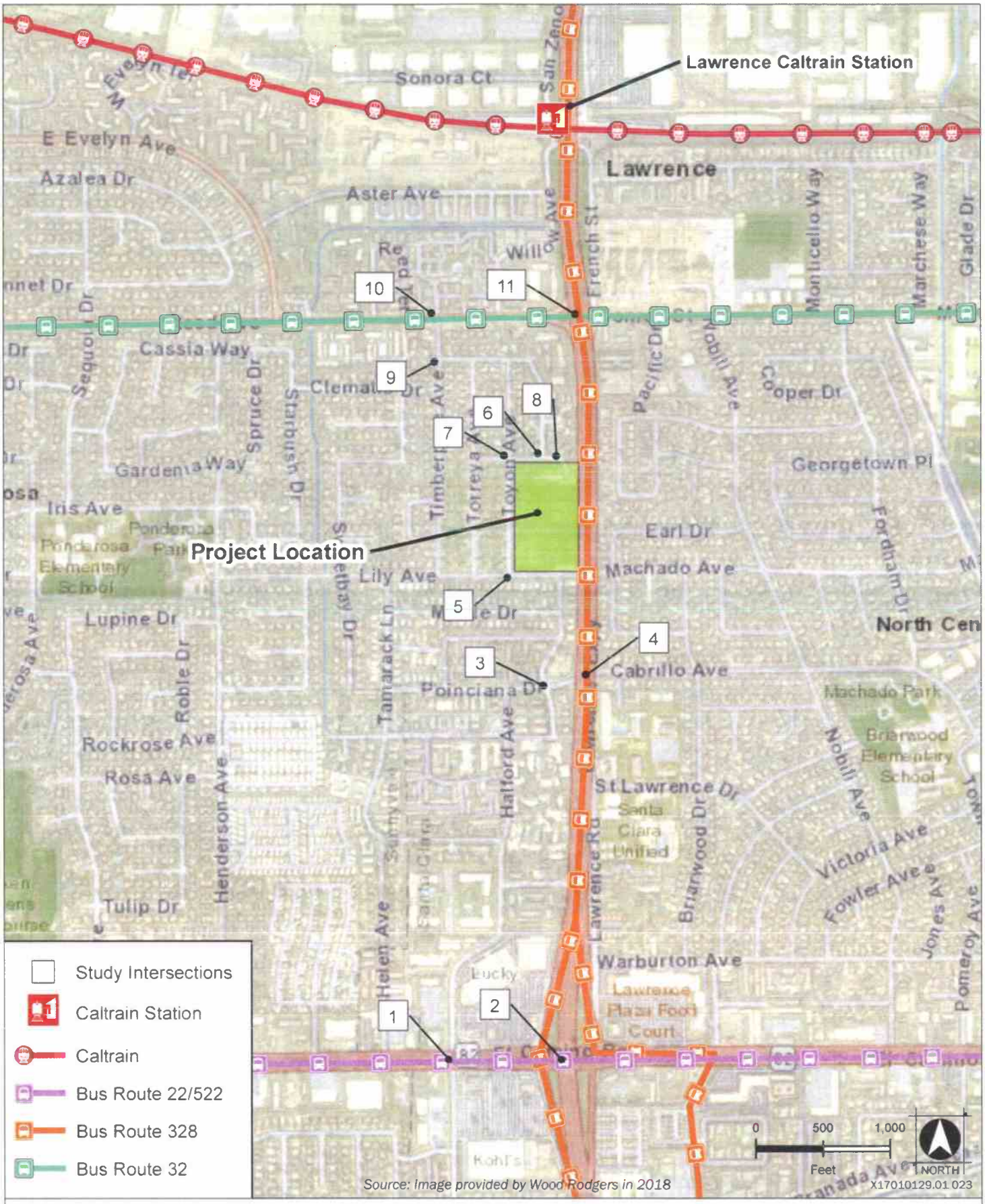


Exhibit 4.7-5 **Existing Project Study Area Transit Service**

- **Route 328** is a limited stop bus route that runs from Almaden Expressway and Via Valiente in San Jose to the Lockhead Martin Transit Center in Sunnyvale. As noted on the VTA website, there are a limited number of stops in the area where the project site exists. Near the project study area, Route 328 runs along Lawrence Expressway (and briefly along El Camino Real) with a southbound stop at the El Camino Real/Lawrence Expressway intersection (0.9 mile from the project site) and a northbound stop at the El Camino Real/Flora Vista Avenue intersection (0.9 mile from the project site).On weekdays, northbound Route 328 operates between approximately 5:57 a.m. and 8:43 p.m., and southbound Route 328 operates between approximately 4:53 p.m. and 7:14 p.m. Only two busses pick-up/drop-off at each stop along Route 328 each weekday. Route 328 does not operate on Saturday or Sunday.

- **Route 522** is a local service that runs between the Palo Alto Transit Center in Palo Alto and the Eastridge Transit Center in San Jose. Near the project study area, Route 522 primarily runs along El Camino Real, with a stop at the El Camino Real intersections with Halford Avenue (0.8 mile from the project site) and Lawrence Expressway (0.8 mile from the project site). On weekdays, eastbound and westbound Route 522 operate between approximately 4:39 a.m. and 11:24 p.m. on approximately 10- to 30-minute headways, with 10-minute headways for the majority of the day. On Saturday, eastbound and westbound Route 522 operate between approximately 7:46 a.m. and 11:15 p.m. on approximately 15- to 30-minute headways, with 15 minute headways for the majority of the day. On Sunday, eastbound and westbound Route 522 operate between approximately 8:31 a.m. and 7:34 p.m. approximately 15- to 25-minute headways, with 15-minute headways for the majority of the day.

Caltrain Service

Caltrain is a commuter rail line that runs between San Francisco and Santa Clara County. The nearest Caltrain station is Lawrence Station, which is located along Lawrence Station Road and Willow Avenue-French Street underneath the Lawrence Expressway overcrossing. Lawrence Station offers the following:

- 3 Shuttles (Including bus stops within walking distance):
  - Bowers-Walsh Shuttle
  - Duane Avenue Shuttle
  - Mission Shuttle
- Wheelchair Accessibility
- Bicycle Parking
  - 18 Bicycle Racks
  - 24 Lockers
- Parking
  - 122 Spaces (paid through ticket vending machine)
- 4 Ticket Vending Machines

Lawrence Station is utilized by local, limited stop, and baby-bullet trains. The northbound and southbound weekday a.m. and p.m. peak periods have approximately a 30-minute headway; the off-peak-hours have approximately a 60-minute headway. On the weekends, the headways in both the northbound and southbound directions are approximately 60 minutes, with Saturday extending its service times slightly longer than Sunday.

BICYCLE AND PEDESTRIAN FACILITIES

Bicycle Facilities

The VTA Bicycle Technical Guidelines references the Caltrans Highway Design Manual (HDM), Chapter 1000 for standards on designing bicycle facilities. The Caltrans HDM classifies bikeways as follows:

- Class I Bikeway (Bike Path) - Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized.

- Class II Bikeway (Bike Lane) - Provides a striped lane for one-way bicycle travel on a street or highway. These lanes are generally adjacent to the outside vehicular travel lane and are marked by special lane marking and signs.

- Class III Bikeway (Bike Route) - Provides for shared use with bicycle or motor vehicle traffic, typically on lower volume roadways. Class III bikeways are typically designated by signs and are used to provide continuity to other bicycle facilities.

Bicycle facilities within the study area were identified using information from the latest City of Sunnyvale Bicycle Map (dated May 5, 2017) and the 2013 City of Santa Clara Bicycle Map. Within or near the project study area, Class II bikeways exist along the following roadways:

- Reed Avenue west of Lawrence Expressway, and
- Cabrillo Avenue east of Lawrence Expressway.

Within the project study area, the City of Sunnyvale and the City of Santa Clara have designated the following facilities as bike routes (i.e. Class III bikeways):

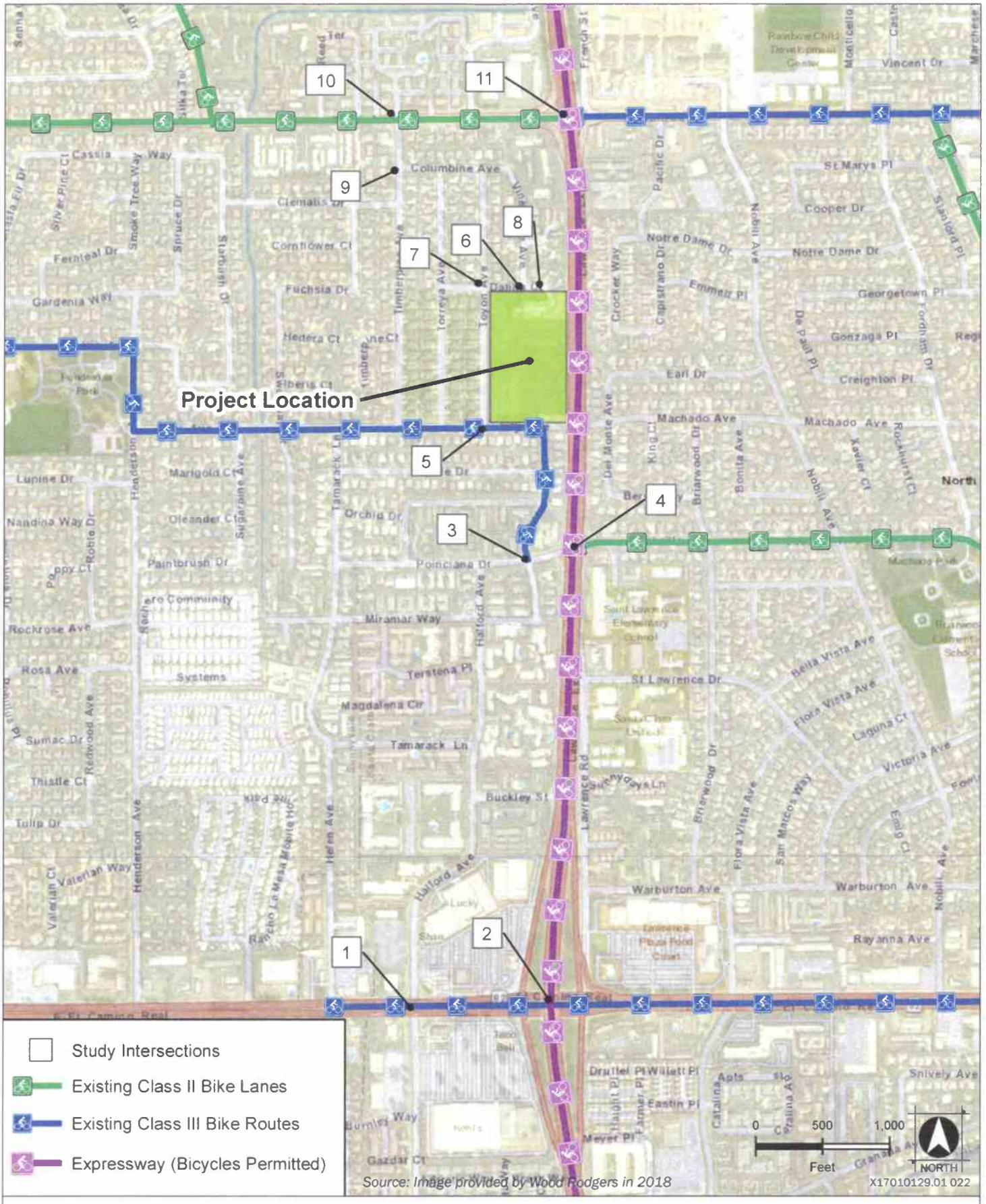
- Iris Avenue between Gail Avenue and Henderson Avenue,
- Henderson Avenue between Lily Avenue and Iris Avenue,
- Lilly Avenue between Henderson Avenue and White Oak Lane,
- White Oak Lane between Lilly Avenue and Poinciana Drive,
- Monroe Avenue east of Lawrence Expressway, and
- El Camino Real east of Helen Avenue.

Bicycles are permitted along Lawrence Expressway; however, no striped bicycle lanes are present along this roadway. Additionally, the high vehicular volumes along Lawrence Expressway are not typical of a roadway with Class III Bikeway. For all other project study area roadways, it can be assumed that bicycles are allowed to share the roadway with vehicles. There are no Class I bikeways within the project study area. Existing project study area bicycle facilities are shown in Exhibit 4.7-6.

Pedestrian Facilities

Adjacent to and nearby the project site, sidewalks are provided on both sides of Reed Avenue, Monroe Street, Timberpine Avenue, Columbine Avenue, Vinemaple Avenue, White Oak Lane, Poinciana Drive, Cabrillo Avenue, Halford Avenue, and El Camino Real. Sidewalks exist along most of Dahlia Drive, Toyon Avenue, and Lily Avenue except directly fronting the project site. Lawrence Expressway has intermittent sidewalks on both the east and west sides within the project study area.

Marked pedestrian crosswalks with push buttons exist on all legs of the Reed Avenue/Timberpine Avenue, Reed Avenue/Lawrence Expressway, Poinciana Drive-Cabrillo Avenue/Lawrence Expressway, El Camino Real/Halford Avenue, and El Camino Real/Lawrence Expressway Ramps intersections. The two-way stop controlled intersection of Poinciana Drive/White Oak Lane-Klamath Avenue has striped crosswalks on the north, south, and west legs.



Source: Image provided by Wood Rodgers in 2018

Exhibit 4.7-6 **Existing Project Study Area Bicycle Facilities**

4.7.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Project Elements Affecting Transportation and Circulation

The project plans to replace one existing single-family home and a small produce market on an approximately 8.8-acre site with 58 new single-family homes and a two-acre public park. The project proposes to construct a U-shaped internal street which would provide access to the majority of proposed homes and form two project driveways with Dahlia Drive and Dahlia Court. Additionally, 12 homes would directly front Toyon Avenue.

Site Circulation

Internal circulation within the project site will be provided by one main internal street forming a U-shape through the development and forming two project Driveways with Dahlia Drive and Dahlia Court. The project access to the nearby roadway network would be provided via two new project driveways formed by one internal U-shaped street. The two project driveways are described below:

- **East Project Driveway on Dahlia Court:** A two-lane access street that is planned to extend south from the existing Dahlia Court cul-de-sac. As this access street extends from the end of the Dahlia Court cul-de-sac with no conflicting vehicle movements, it operates as an uncontrolled driveway.

West Project Driveway on Dahlia Drive-Dahlia Court: A two-lane access street is planned to extend south from Dahlia Drive-Dahlia Court and form the south leg of the Vinemaple Avenue intersection with Dahlia Drive-Dahlia Court. Due to the low peak hour volumes projected at this intersection, there are no traffic control recommendations for the northbound and southbound legs beyond what is shown in the proposed preliminary project site plan (see Exhibit 3-2). The preliminary project site plan currently shows the centerline of the west project driveway aligned with the centerline of Vinemaple Avenue; and thus, for the purpose of this EIR it is assumed that this design feature is part of the project.

Twelve homes are planned to front Toyon Avenue. These homes would access the surrounding roadway network directly via Toyon Avenue and Dahlia Drive.

The existing intersection of Lily Avenue/White Oak Lane is planned to be modified as part of the project. The intersection would be modified to operate as an uncontrolled curve between the south and west legs of the intersection by removing the stop-control on the northbound approach, reducing the road width to better channelize vehicles through the curve, and removing existing short east leg of the intersection.

Project Trip Generation

Consistent with methods described in the VTA TIA Guidelines, Institute of Transportation Engineers Trip Generation Manual rates were used to estimate project trip generation. The following trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition were used to estimate project generated trips:

- Single-Family Detached Housing - For the proposed 58 single-family dwelling units, the Single-Family Detached Housing (Use Code 210) trip generation rate was used. ITE Trip Generation describes the Single-Family Detached Housing land use as: "...single-family detached homes on individual lots."

- City Park - For the proposed two-acre public park, the "City Park" (Use Code 411) trip generation rate is used. ITE Trip Generation describes City Parks as: "City Parks are owned and operated by a city. City parks surveyed vary widely as to location, type, and number of facilities..."

Trips generated by the existing single-family home on the project site were estimated using the Single-Family Detached Housing ITE land use type. These existing trips are assumed to already be on the project study area facilities and therefore were subtracted from proposed project trips to obtain net new project generated trips.

A VTA Trip Reduction Statement form, which documents any trip reductions applied to the project, was filled out and is included in Appendix C. Table 4.7-5 (also provided on page 25 of the TOA, Appendix C) summarizes the trip generation rates used for the project and Table 4.7-6 (also provided on page 26 of the TOA, Appendix C) summarizes the trip generation volumes and reductions for the proposed project.

Table 4.7-5 Project Trip Generation Rates

Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit[1]	Weekday A.M. Peak Hour Rate/Unit			Weekday P.M. Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Single-Family Detached Housing	ITE	210	DU[2]	10.97	0.87	25	75	1.11	63	37
City Park	ITE	411	Acre	1.89	4.50	56	44	3.50	57	43

Notes:

1. The trip rates illustrated in this table are based on ITE Trip Generation (9th Edition) fitted curve equations (Single-family Detached Housing) and average trip generation rates (City Park).
2. DU = Dwelling Unit.

As illustrated in Table 4.7-6 the project is anticipated to generate a total of 629 daily, 58 a.m. peak-hour (18 inbound, 40 outbound), and 70 p.m. peak-hour (44 inbound, 26 outbound) trips under typical annual average traffic demand conditions.

Table 4.7-6 Project Trip Generation Volumes

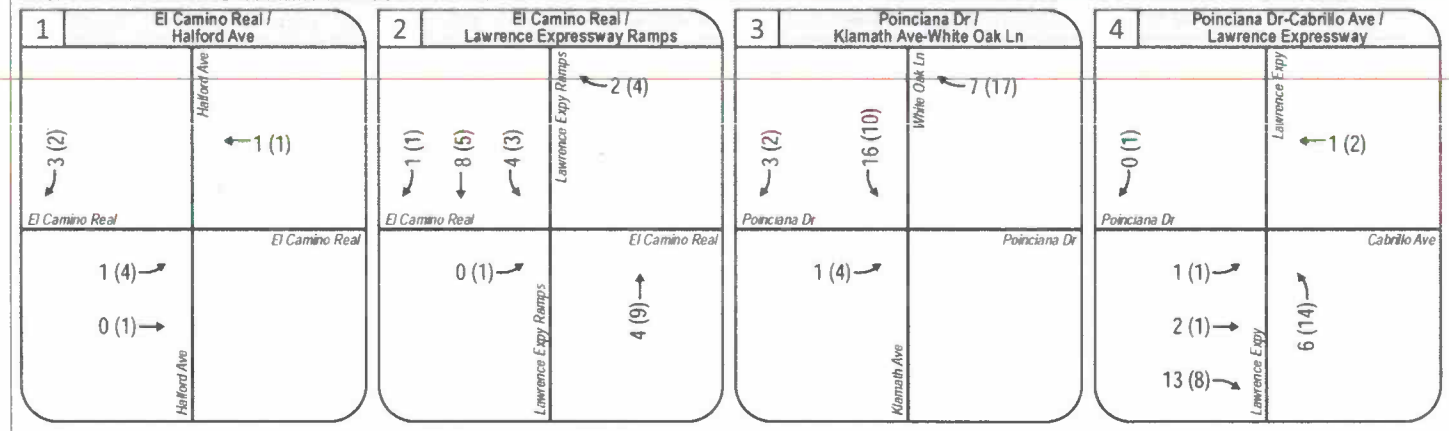
Land Use	Units	Quantity	Daily Trips	Weekday A.M. Peak Hour Trips[1]			Weekday P.M. Peak Hour Trips		
				Total	In	Out	Total	In	Out
Single-Family Detached Housing	DU[2]	58	636	50	13	37	64	41	23
City Park	Acre	2	4	9	5	4	7	4	3
Existing Single-Family Detached Housing	DU	-1	-11	-1	0	-1	-1	-1	0
Net Project Trip Generation			629	58	18	40	70	44	26

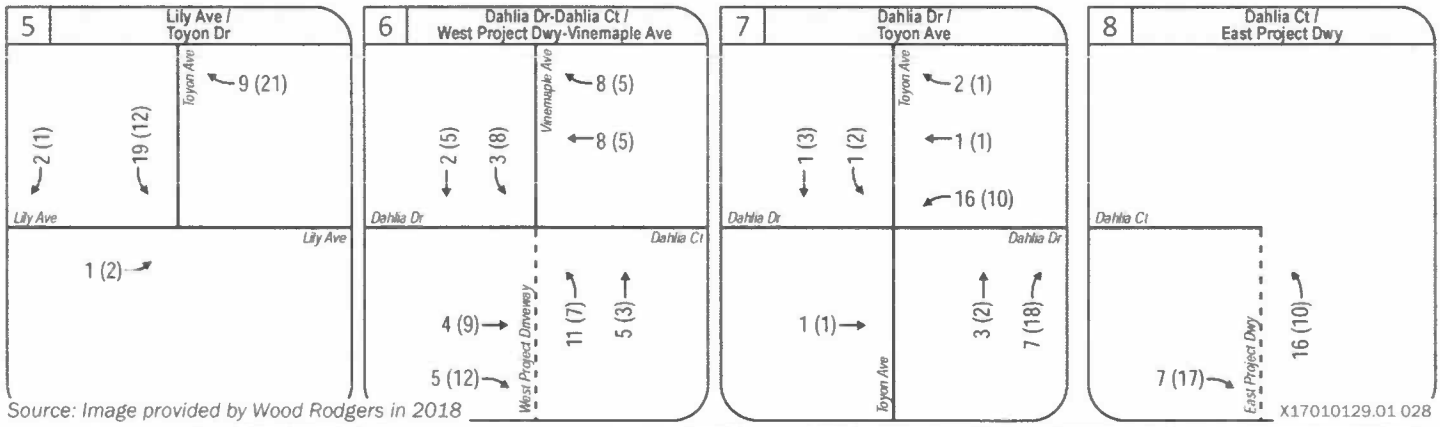
Notes:

1. The trip rates illustrated in this table are based on ITE Trip Generation (9th Edition) fitted curve equations (Single-family Detached Housing) and average trip generation rates (City Park).
2. DU = Dwelling Unit.

Project Distribution and Assignment

The project trip distribution was determined based on existing traffic volumes and travel patterns, engineering judgement, and discussion with City of Sunnyvale staff. project trips were assigned to the study area network based on the project trip distribution. Exhibits 4.7-7a and 4.7-7b illustrates the estimated project directional trip distribution and assignment patterns projected to be generally applicable for the project under existing and near-term conditions on an annualized average usage basis. The project generated traffic volumes were added to Existing conditions traffic volumes at study intersections to get Existing Plus Project conditions traffic volumes. Exhibits 4.7-8a and 4.7-8b illustrates the estimated a.m. and p.m. peak-hour Existing Plus Project conditions traffic volumes at study intersections.





Source: Image provided by Wood Rodgers in 2018

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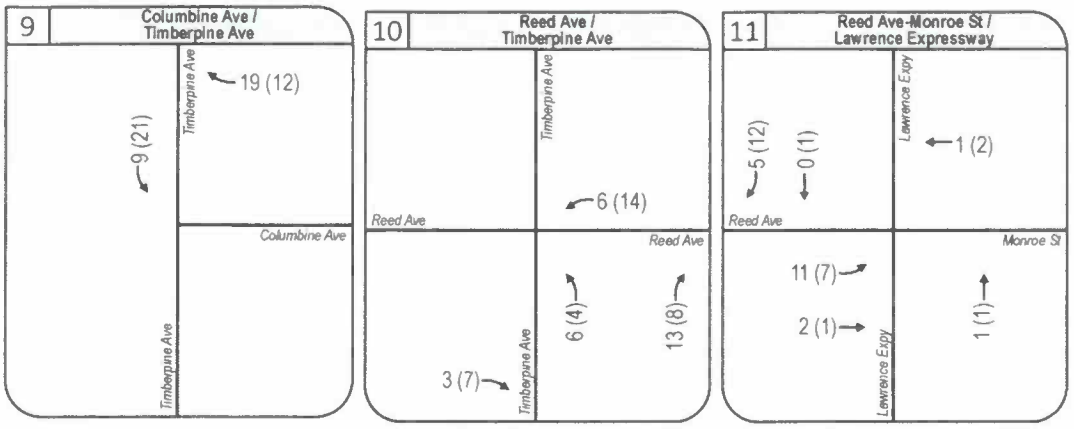
Exhibit 4.7-7a **Project Only Traffic Volumes and Trip Distribution**



Source: Image provided by Wood Rodgers in 2018

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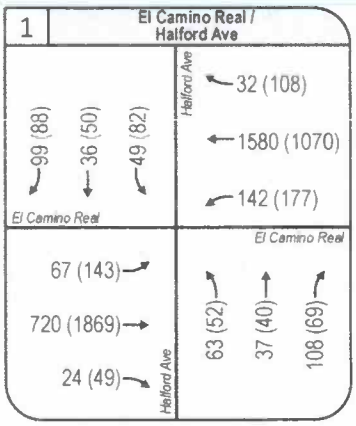
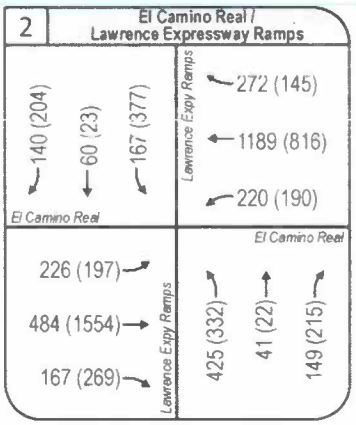
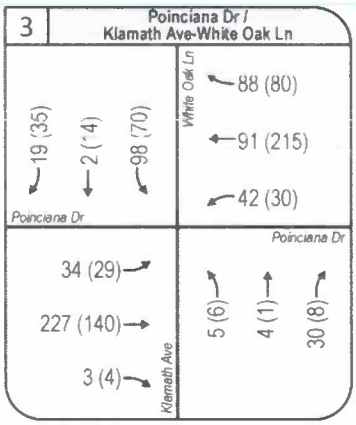
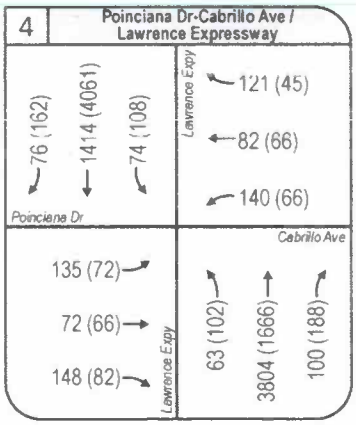
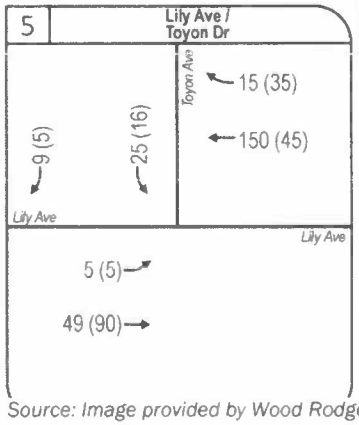
Exhibit 4.7-7b **Project Only Traffic Volumes and Trip Distribution**

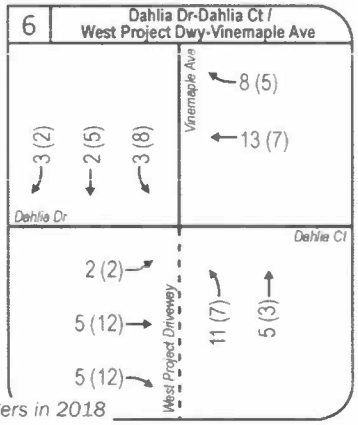


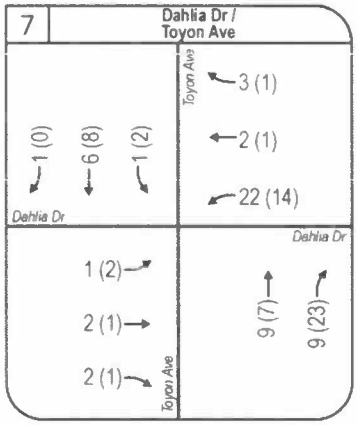


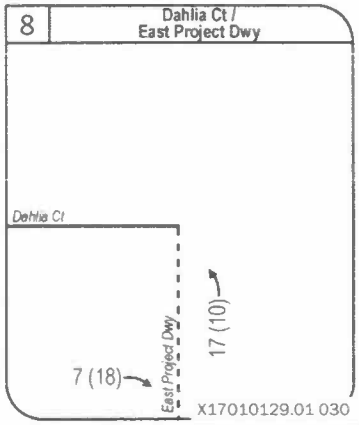












Source: Image provided by Wood Rodgers in 2018

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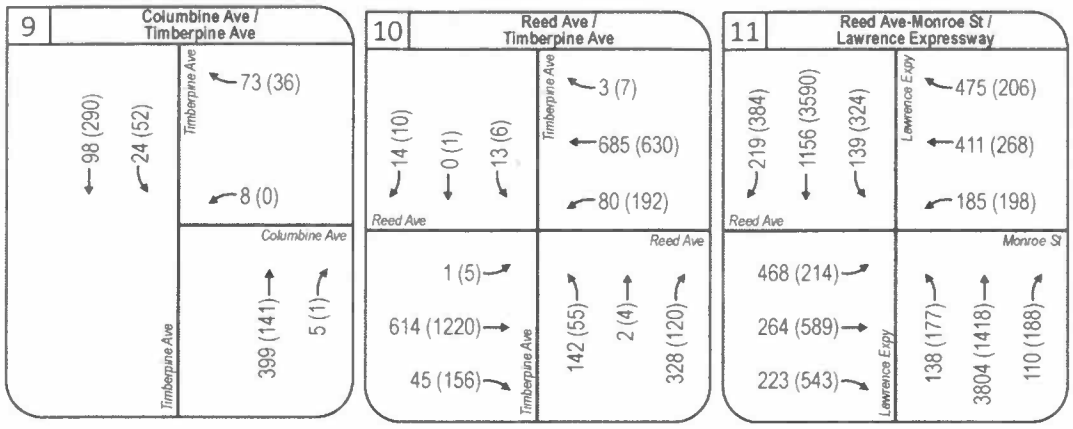
Exhibit 4.7-8a **Existing Plus Project Traffic Volumes**

ASCENT ENVIRONMENTAL



Source: Image provided by Wood Rodgers in 2018

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Exhibit 4.7-8b **Existing Plus Project Traffic Volumes**

THRESHOLDS OF SIGNIFICANCE

The significance criteria used to evaluate the project impacts to transportation and circulation under CEQA are based on Appendix G of the CEQA Guidelines, thresholds of significance adopted by the City of Sunnyvale in applicable general plan, and VTA thresholds of significance. The following describes the significance criteria used to identify project-specific impacts to the transportation and circulation system for the project.

Impacts to Intersection Operating Conditions

For the purposes of this analysis, an impact at City of Sunnyvale (not regionally significant) signalized intersections is considered significant if implementation of the project would result in any of the following:

- traffic generated by the project causes City of Sunnyvale (not a CMP intersection) intersection within the project study area to degrade from an acceptable LOS D or better to an unacceptable LOS E or worse,
- traffic generated by the project results in an increase to the average control delay for critical movements by four or more seconds and increases the critical V/C ratio by 0.01 or more at a City of Sunnyvale (not a CMP intersection) intersection within the project study area operating at unacceptable LOS E or worse,
- traffic generated by the project results in a decrease to the average control delay for critical movements but increases the critical V/C ratio by 0.01 or more at a City of Sunnyvale (not a CMP intersection) intersection within the project study area operating at unacceptable LOS E or worse.

For the purposes of this analysis, an impact at City of Sunnyvale (not regionally significant) unsignalized intersections is considered significant if implementation of the project would result in any of the following:

- traffic generated by the project causes City of Sunnyvale (not a CMP intersection) intersection within the project study area to degrade from an acceptable LOS D or better to an unacceptable LOS E or worse,
- traffic generated by the project results in an increase to the average intersection delay by four or more seconds and increases the V/C ratio by 0.01 or more at a City of Sunnyvale (not a CMP intersection) all-way stop-controlled intersection within the project study area operating at unacceptable LOS E or worse,
- traffic generated by the project results in an increase to the worst movement delay by four or more seconds and increases the V/C ratio by 0.01 or more at a City of Sunnyvale (not a CMP intersection) side-street stop-controlled intersection within the project study area operating at unacceptable LOS E or worse,
- traffic generated by the project causes an intersection within the project study area to meet the warrant(s) for installation of a traffic signal as per the latest edition of California Manual on Uniform Traffic Control Devices.

For the purposes of this analysis, an impact at regionally significant city intersections, CMP intersections, and County intersections is considered significant if implementation of the project would result in any of the following:

- traffic generated by the project causes a regionally significant intersection within the project study area to degrade from an acceptable LOS E or better to an unacceptable LOS F,
- traffic generated by the project increases the critical V/C ratio by 0.01 or more at a regionally significant intersection within the project study area operating at unacceptable LOS F,
- traffic generated by the project results in an increase to the average control delay for critical movements by four or more seconds and increases the critical V/C ratio by 0.01 or more at a regionally significant intersection within the project study area operating at unacceptable LOS F or worse.

For the purposes of this analysis, an impact on a City of Santa Clara (not regionally significant) intersection is considered significant if implementation of the project would result in either of the following conditions:

- traffic generated by the project causes a City of Santa Clara (not regionally significant) intersection (signalized or unsignalized) within the project study area to degrade from an acceptable LOS (D or better) to an unacceptable LOS (E or worse); or

- traffic generated by the project increases the critical movement delay by 4 seconds or more and/or increases the critical V/C by 0.01 or more at a City of Santa Clara (not regionally significant) intersection (signalized or unsignalized) within the project study area operating at unacceptable LOS (E or worse).

Impacts to Bicycle and Pedestrian Facilities

Impacts to bicycle facilities are considered significant if the project would:

- adversely affect existing or planned bicycle and/or pedestrian facilities;
- result in unsafe conditions for bicyclists and/or pedestrians; or
- fail to adequately provide for access by bicycles and/or pedestrians.

Impacts to Transit Facilities

Impacts to the transit system would be significant if the project would:

- adversely affect public transit operations, or
- fail to adequately provide access to transit.

Transportation Hazards

Transportation hazards are considered significant if the project would:

- Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Construction-Related Impacts on Traffic

Construction-related traffic impacts would be significant if they would:

- degrade LOS at an intersection or roadway to an unacceptable level;
- cause substantial inconvenience to motorists because of prolonged road closures; or
- result in substantially increased potential for conflicts between vehicles, pedestrians, and bicyclists.

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

Change in Air Traffic Patterns

The closest airport is San Jose International Airport, located approximately 3.25 miles east of the project site. The project would not have impacts on air traffic and would not result in incompatible uses in the study area. Thus, **no impact** to air traffic patterns would occur and this issue is not discussed further in this DEIR.

Emergency Access

Emergency access would be subject to review by the City of Sunnyvale and responsible emergency service agencies; thus, ensuring the project would be designed to meet all City of Sunnyvale emergency access and design standards. Therefore, adequate emergency access would be provided and **no impact** would occur. This issue is not discussed further in this DEIR.

IMPACT ANALYSIS

This section presents the results of the impact analysis, identifies significant impacts, and provides mitigations (where necessary). The focus is on presenting the effects of the project on Existing conditions

(i.e., the Existing Plus Project Condition) and Background conditions (i.e., the Background Plus Project Condition) and addressing these effects.

Impact 4.7-1: Impacts to Intersection Operating Conditions

All study intersections are projected to operate at acceptable LOS under Existing Plus Project and Background Plus Project a.m. and p.m. peak-hour conditions. Thus, this impact is **less than significant**.

Existing Plus Project Conditions

Table 4.7-7 (also provided on page 32 of the TOA, Appendix C) illustrates the resulting Existing and Existing Plus Project intersection LOS operations. Additionally, Table 4.7-7 shows the projected change in delay of critical movements and critical V/C ratios resulting from the addition of project generated trips.

Table 4.7-7 Existing Plus Project Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions			Existing Plus Project Conditions				
					Delay (S/V)[1]	LOS	Wrnt Met?[2]	Delay (S/V)[1]	LOS	Wrnt Met?[2]	Δ in Critical V/C	Δ in Critical Delay
1	El Camino Real/Halford Avenue[3]	Signal	E	a.m.	17.5	B	-	17.5	B	-	0.001	0.0
				p.m.	17.4	B	-	17.4	B	-	0.000	0.0
2	El Camino Real/Lawrence Expressway Ramps[3]	Signal	E	a.m.	27.8	C	-	28.0	C	-	0.005	0.3
				p.m.	27.1	C	-	27.4	C	-	0.006	0.3
3	Poinciana Drive/Klamath Avenue-White Oak Lane	TWSC	D	a.m.	14.8	B	No	15.5	C	No	0.040	0.4
				p.m.	13.5	B	No	14.1	B	No	0.026	0.2
4	Poinciana Drive-Cabrillo Avenue/Lawrence Expressway[3]	Signal	E	a.m.	19.6	B-	-	19.7	B-	-	0.001	0.0
				p.m.	16.3	B	-	17.0	B	-	0.009	0.9
5	Lily Avenue/Toyon Drive	OWSC	D	a.m.	9.4	A	No	9.7	A	No	0.024	0.8
				p.m.	8.9	A	No	9.3	A	No	0.014	0.6
6	Dahlia Drive-Dahlia Court/West Project Driveway-Vinemaple Avenue	OWSC	D	a.m.	8.3	A	No	8.9	A	No	0.008	0.4
				p.m.	8.3	A	No	8.9	A	No	0.006	0.4
7	Dahlia Drive/Toyon Avenue	TWSC	D	a.m.	8.6	A	No	8.7	A	No	0.016	1.0
				p.m.	8.6	A	No	8.8	A	No	0.010	0.5
8	Dahlia Court/East Project Driveway	Uncontrolled[4]	D	a.m.	0.0	-	-	0.0	-	-	0.0	0.0
				p.m.	0.0	-	-	0.0	-	-	0.0	0.0
9	Columbine Avenue/Timberpine Avenue	Yield[5]	D	a.m.	11.3	B	No	11.5	B	No	0.029	0.5
				p.m.	9.1	A	No	9.1	A	No	0.013	0.5
10	Reed Avenue/Timberpine Avenue	Signal	D	a.m.	24.3	C	-	24.7	C	-	0.012	0.2
				p.m.	17.0	B	-	17.8	B	-	0.019	1.1
11	Reed Avenue-Monroe Street/Lawrence Expressway[3]	Signal	E	a.m.	60.4	E	-	61.2	E	-	0.004	1.2
				p.m.	51.6	D-	-	51.6	D-	-	0.001	0.0

Notes:

1. S/V=Seconds/Vehicle. For TWSC (Two-Way-Stop-Control) and OWSC (One-Way-Stop-Control) intersections, "worst" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for Signal-Control intersections.
2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3.
3. Regionally significant intersection(s).
4. The Dahlia Court/East Project Driveway intersection is planned to operate as an uncontrolled driveway at the end of the Dahlia Court cul-de-sac. As such there is no vehicle delay associated with this intersection.
5. The Columbine Avenue/Timberpine Avenue intersection is uncontrolled but operates as a yield-controlled intersection. Yield-controlled intersections were assumed to have the same standards as two-way stop-controlled intersections in this TOA.

BOLD indicates unacceptable level of service.

As shown in Table 4.7-7, all study intersections are projected to operate at acceptable LOS (LOS D or better for City of Sunnyvale intersections and LOS E or better for regionally significant intersections) under Existing Plus Project a.m. and p.m. peak-hour conditions. CA-MUTCD based peak-hour signal Warrant #3 is not projected to be met at unsignalized study intersections under Existing Plus Project conditions. Detailed LOS modeling outputs and CAMUTCD signal Warrant #3 worksheets can be found in Appendix C of this DEIR.

Background Plus Project Conditions

Background plus project condition study intersection turning movement volumes are presented in Exhibit 4.7-9. Table 4.7-8 (also provided on page 40 of the TOA, Appendix C) illustrates the resulting Background and Background Plus Project intersection LOS operations. Additionally, Table 4.7-8 shows the projected change in delay of critical movements and critical V/C ratios resulting from the addition of project generated trips.

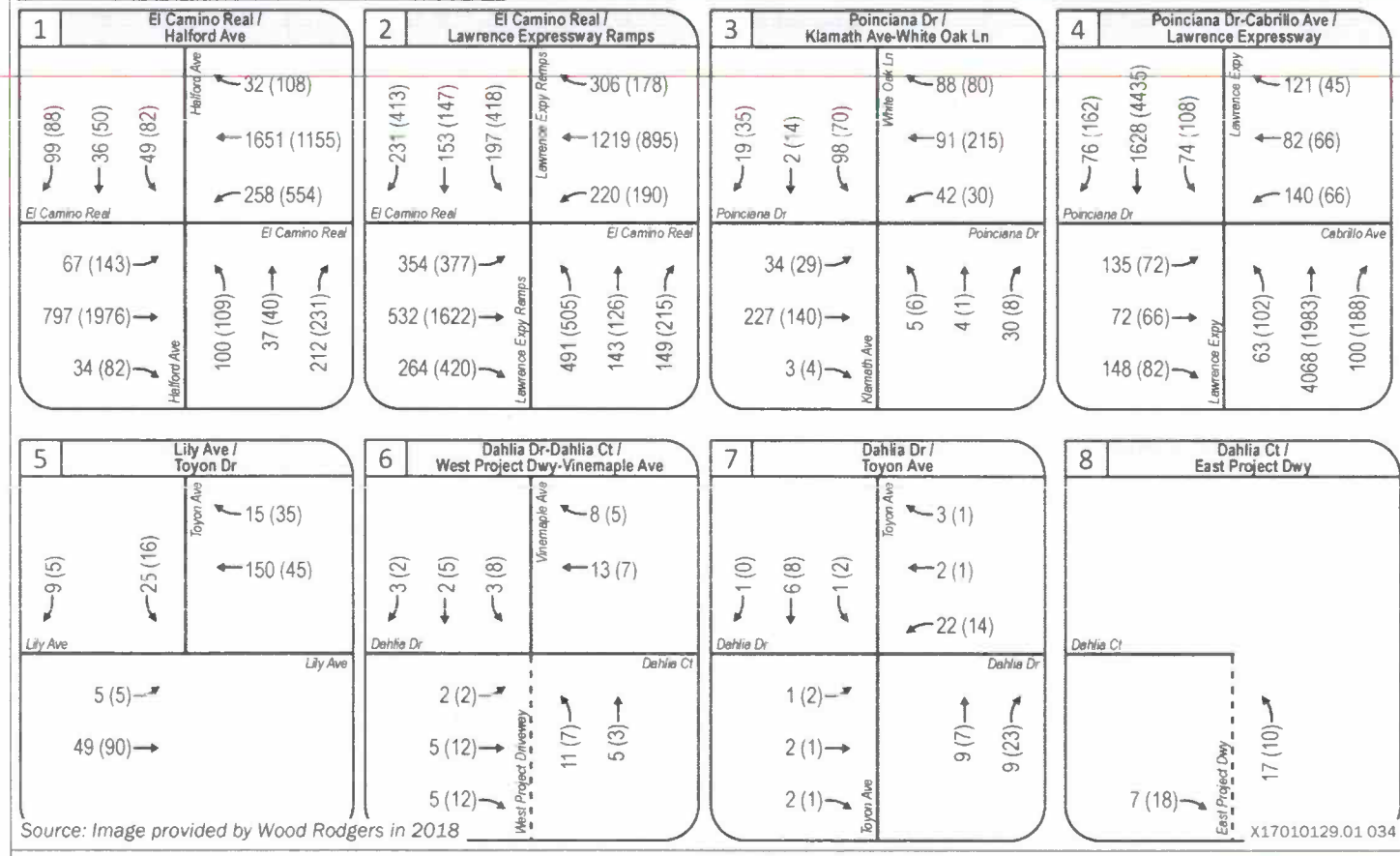
Table 4.7-8 Background Plus Project Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Background Conditions			Background Plus Project Conditions				
					Delay (S/V)[1]	LOS	Wrnt Met?[2]	Delay (S/V)[1]	LOS	Wrnt Met?[2]	Δ in Critical V/C	Δ in Critical Delay
1	El Camino Real/Halford Avenue[3]	Signal	E	a.m.	21.6	C+	-	21.6	C+	-	0.001	0.0
				p.m.	27.7	C	-	27.7	C	-	0.000	0.0
2	El Camino Real/Lawrence Expressway Ramps[3]	Signal	E	a.m.	31.7	C	-	31.9	C	-	0.005	0.3
				p.m.	33.6	C-	-	33.8	C-	-	0.006	0.2
3	Poinciana Drive/Klamath Avenue-White Oak Lane	TWSC	D	a.m.	14.8	B	No	15.5	C	No	0.040	0.4
				p.m.	13.5	B	No	14.1	B	No	0.026	0.2
4	Poinciana Drive-Cabrillo Avenue/Lawrence Expressway[3]	Signal	E	a.m.	20.2	C+	-	20.3	C+	-	0.001	0.0
				p.m.	16.9	B	-	17.6	B	-	0.010	1.0
5	Lily Avenue/Toyon Drive	OWSC	D	a.m.	9.4	A	No	9.7	A	No	0.024	0.8
				p.m.	8.9	A	No	9.3	A	No	0.014	0.6
6	Dahlia Drive-Dahlia Court/West Project Driveway-Vinemaple Avenue	OWSC	D	a.m.	8.3	A	No	8.9	A	No	0.008	0.4
				p.m.	8.3	A	No	8.9	A	No	0.006	0.4
7	Dahlia Drive/Toyon Avenue	TWSC	D	a.m.	8.6	A	No	8.7	A	No	0.016	1.0
				p.m.	8.6	A	No	8.8	A	No	0.010	0.5
8	Dahlia Court/East Project Driveway	Uncontrolled[4]	D	a.m.	0.0	-	-	0.0	-	-	0.0	0.0
				p.m.	0.0	-	-	0.0	-	-	0.0	0.0
9	Columbine Avenue/Timberpine Avenue	Yield[5]	D	a.m.	11.3	B	No	11.5	B	No	0.029	0.5
				p.m.	9.1	A	No	9.1	A	No	0.013	0.5
10	Reed Avenue/Timberpine Avenue	Signal	D	a.m.	24.3	C	-	24.7	C	-	0.012	0.3
				p.m.	16.9	B	-	17.8	B	-	0.019	1.1
11	Reed Avenue-Monroe Street/Lawrence Expressway[3]	Signal	E	a.m.	65.4	E	-	66.3	E	-	0.004	1.4
				p.m.	52.6	D-	-	52.6	D-	-	0.000	0.0

Notes:

1. S/V=Seconds/Vehicle. For TWSC (Two-Way-Stop-Control) and OWSC (One-Way-Stop-Control) intersections, "worst" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for Signal-Control intersections.
2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3.
3. Regionally significant intersection(s).
4. The Dahlia Court/East Project Driveway intersection is planned to operate as an uncontrolled driveway at the end of the Dahlia Court cul-de-sac. As such there is no vehicle delay associated with this intersection.
5. The Columbine Avenue/Timberpine Avenue intersection is uncontrolled but operates as a yield-controlled intersection. Yield-controlled intersections were assumed to have the same standards as two-way stop-controlled intersections in this TOA.

BOLD indicates unacceptable level of service.



Source: Image provided by Wood Rodgers in 2018

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Exhibit 4.7-9 **Background Plus Project Traffic Volumes**

ASCENT ENVIRONMENTAL

As shown in Table 4.7-8, all study intersections are projected to operate at acceptable LOS (LOS D or better for City of Sunnyvale intersections and LOS E or better for regionally significant intersections) under Background Plus Project a.m. and p.m. peak-hour conditions. CA-MUTCD based peak-hour signal Warrant #3 is not projected to be met at unsignalized study intersections under Background Plus Project conditions. Detailed LOS modeling outputs and CAMUTCD signal Warrant #3 worksheets can be found in Appendix C.

Therefore, this impact is **less than significant**.

Mitigation Measure

No mitigation required.

Impact 4.7-2: Impacts to Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities in the vicinity of the proposed project are adequate to accommodate the proposed project. The project would not adversely affect existing or planned facilities and would not result in unsafe conditions for bicyclist or pedestrians. Additionally, the project would provide new sidewalks along the border of the project site on Lily Avenue, Toyon Avenue, Dahlia Drive, and Dahlia Court. Therefore, this would be a **less-than-significant** impact.

The project would construct sidewalks on the perimeter of the project site along Lily Avenue, Toyon Avenue, Dahlia Drive, and Dahlia Court. Future project residents could use the continuous sidewalks provided on Reed Avenue, Monroe Street, Timberpine Avenue, Columbine Avenue, Vinemaple Avenue, White Oak Lane, Poinciana Drive, Cabrillo Avenue, Halford Avenue, and El Camino Real to access surrounding businesses and amenities. Additionally, pedestrian crosswalks with push buttons which exist on all legs of the Reed Avenue/Timberpine Avenue, Reed Avenue/Lawrence Expressway, Poinciana Drive-Cabrillo Avenue/Lawrence Expressway, El Camino Real/Halford Avenue, and El Camino Real/Lawrence Expressway Ramps intersections could be used to safely access Lawrence Station, mid-block bus stops, and surrounding amenities located near the project site.

A bicycle and pedestrian entrance to Lawrence Expressway is planned to be constructed at the east end of Lily Avenue, near the southeast corner of the project site. Bicyclists will be able to use existing bike lane or route facilities on Reed Avenue, Iris/Henderson/Lily Avenue, White Oak Lane, Monroe Avenue, and El Camino Real to travel between the project site and Lawrence Station or nearby mid-block bus stops. Additionally, the project will not conflict with any planned or existing bicycle or pedestrian facilities. This would be a **less-than-significant** impact.

Mitigation Measure

No mitigation required.

Impact 4.7-3: Impacts to Transit Facilities

Transit facilities in the vicinity of the project are adequate to accommodate the increase transit demand generated by the project. Additionally, the project would not adversely affect existing or planned transit service. Therefore, this would be a **less-than-significant** impact.

The nearest bus stops to the project site are located on where Reed Avenue intersects Timberpine Avenue and Lawrence Expressway, approximately 0.4 mile and 0.5 mile walks from the project site, respectively. The Caltrain Lawrence Station is approximately a 0.7 mile walk from the project site. Additionally, the project would result in a small increase in demand for transit services that could be adequately accommodated by the existing transit service in the study area.

Busses operating on study roadway facilities could experience increased delay due to the addition of project-related trips to study intersections and roadways. A detailed analysis of the transit vehicle delay resulting

from the addition of project-related trips is provided in Section 7.1, "Project Traffic Effects on Transit Operation" of the project TOA attached as Appendix C.

As shown in Table 4.7-9 (also provided on page 43 of the TOA, Appendix C) the project-generated traffic is projected to increase transit service delay for all transit routes on study facilities during the a.m. and p.m. peak hours under both the Existing Plus Project and Background Plus Project scenarios by up to 1.5 seconds. The small projected increases in transit vehicle delay are not anticipated to affect the overall schedule of the transit routes.

Table 4.7-9 Transit Delay Caused by Project Generated Traffic

Transit Route	Roadway	Peak Hour	Additional Transit Delay (seconds) Caused by Project Generated Traffic			
			Existing Plus Project		Background Plus Project	
			NB/EB	SB/WB	NB/EB	SB/WB
328	Lawrence Expressway	a.m.	1.0	0.0	1.5	0.0
		p.m.	0.1	0.8	0.1	1.0
22/522	El Camino Real	a.m.	0.3	0.3	0.2	0.3
		p.m.	0.3	0.3	0.4	0.2
32	Reed Avenue-Monroe Street	a.m.	0.3	0.9	0.3	0.9
		p.m.	1.1	0.2	1.0	0.2

Note: All delay values were obtained using TRAFFIX software. NB=northbound; SB=Southbound; EB=Eastbound; WB=Westbound.

Therefore, the project would provide adequate access to transit and would not adversely affect public transit operations. This impact is **less than significant.**

Mitigation Measure

No mitigation required.

Impact 4.7-4: Transportation Hazards

All roadway improvements associated with the project would be constructed in accordance with applicable City of Sunnyvale design and safety standards. Additionally, the project is subject to the City of Sunnyvale off-site improvement plan review process; thus, ensuring that that the project design will comply with the City of Sunnyvale Municipal Code and no parking would be allowed within driveway vision triangles. Therefore, this impact is **less than significant.**

All roadway improvements associated with the project would be constructed in accordance with applicable City of Sunnyvale design and safety standards. However, as shown in Appendix C, vision triangles at the southwest corner of the Dahlia Drive-Dahlia Court/West Project Driveway-Vinemaple Avenue intersection and the southeast corner of the Dahlia Drive/Toyon Avenue intersection overlap with two of the proposed residential driveways. Therefore, if parking was allowed within these vision triangles a potential transportation hazard could occur. However, the project is subject to the City of Sunnyvale review process which would ensure that that the project design will comply with the City of Sunnyvale Municipal Code and the associated vision triangle requirements, and that no parking is allowed within these vision triangles. Therefore, this impact is **less than significant.**

Mitigation Measure

No mitigation required.

Impact 4.7-5: Construction-Related Impacts on Traffic

Project construction may require restricting or redirecting pedestrian, bicycle, and vehicular movements at locations around the site to accommodate construction, staging, and modifications to existing infrastructure. Such restrictions could include lane closures, lane narrowing, and detours. For these reasons, construction traffic impacts would be **potentially significant**.

Construction may include disruptions to the transportation network near the site, including the possibility of temporary lane closures, street closures, sidewalk closures, and bikeway closures. Heavy vehicles will access the site and may need to be staged for construction. Construction staging for materials and equipment would occur on the project site. A construction management plan will be required by the City of Sunnyvale and the City of Sunnyvale would determine the construction truck routes. The duration of construction, number of trucks, truck routing, number of employees, truck idling, lane closures, and a variety of other construction-related activities are unknown at this time. Construction traffic impacts would be localized and temporary; however, these activities could result in degraded roadway operating conditions. Therefore, the impacts are considered **potentially significant**.

Mitigation Measure 4.7-5: Preparation and Implementation of a Temporary Traffic Control Plan

Before the beginning of construction or issuance of building permits, the developer or the construction contractor will prepare a temporary traffic control plan (TTC) to the satisfaction of the City of Sunnyvale Division of Transportation and Traffic and subject to review by all affected agencies.

The TTC shall include all information required on the City of Sunnyvale TTC Checklist and conform to the TTC Guidelines of the City of Sunnyvale. At a minimum, the plan shall include and/or show:

- provide vicinity map including all streets within the work zone properly labeled with names, posted speed limits and north arrow;
- provide existing roadway lane and bike lane configuration and sidewalks where applicable including dimensions;
- description of proposed work zone;
- description of detours and/or lane closures (pedestrians, bicyclists, vehicular);
- description of no parking zone or parking restrictions;
- provide appropriate tapers and lengths, signs, and spacing;
- provide appropriate channelization devices and spacing;
- description of buffers;
- provide work hours/work days;
- dimensions of above elements and requirements per latest CA—MUTCD Part 6 and City of Sunnyvale's SOP for bike lane closures;
- provide proposed speed limit changes if applicable;
- description of bus stops, signalized and non-signalized intersection impacted by the work;
- show plan to address pedestrians, bicycle and ADA requirement throughout the work zone per CA-MUTCD Part 6 and City of Sunnyvale's SOP for Bike lane closures;

- indicate if phasing or staging is requested and duration of each;
- description of trucks including: number and size of trucks per day, expected arrival/departure times, truck circulation patterns;
- provide all staging areas on the project site; and
- ensure that the contractor has obtained and read the City of Sunnyvale's TTC Guidelines and City of Sunnyvale's SOP for bike lane closures;
- ensure traffic impacts are localized and temporary.

Significance after Mitigation

The implementation of Mitigation Measure 4.7-5 would require the developer or the construction contractor to prepare and implement a TTC consistent with CA-MUTCD, Part 6: Temporary Traffic Control and City of Sunnyvale TTC guidelines, and that meets with the approval of the City of Sunnyvale Division of Transportation and Traffic. Thus, Mitigation Measure 4.7-5 would reduce the temporary impact to the degree feasible. Additionally, construction traffic impacts would be localized and temporary. For these reasons, construction traffic impacts of the project would be **less than significant**.

4.7.4 Non-CEQA Operational Transportation Analysis

The project would increase the number of vehicles on local roadways; and thus, could result in increases in delay at intersections such that vehicle backups would exceed existing available vehicle storage space during the peak hours. Analysis of project related on-site and off-site queueing is detailed below.

INTERNAL ON-SITE QUEUING

Based on the current preliminary project site plan (see Exhibit 3-2), the East Project Driveway and West Project Driveway extend south from Dahlia Court and Dahlia Drive and connect within the project site to form a continuous street internal to the project site that is approximately 1,300 feet long. Based on the HCM 2000 TRAFFIX analysis, northbound peak-hour egress queues for the West Project Driveway on Dahlia Drive-Dahlia Court are projected to reach up to 25 feet (or one vehicle). As the East Project Driveway intersection with Dahlia Court does not experience any conflicting vehicle movements, there are no projected queues at this intersection. Therefore, there are not projected to be any internal circulation conflicts within the project roadway due to queueing at the project driveways.

OFF-SITE QUEUING

Queuing analysis for left-turn movements was performed at all signalized study intersection approaches that contained one or more left-turn pockets. Queuing analysis for overall approach queues was performed for two-way stop-controlled intersections. Table 4.7-10 (also provided on page 45 of the TOA, Appendix C) shows total available storage length and total projected 95th percentile queues for each approach under Existing, Existing Plus Project, Background, and Background Plus Project for a.m. and p.m. peak-hour conditions.

Table 4.7-10 Queueing Analysis

#	Intersection	Approach	Available Pocket Length (ft)[1]	Peak Hour	Number of Trips Added	Projected Queue Length (ft)[2]			
						Existing (Existing Plus Project)		Background (Background Plus Project)	
1	El Camino Real/ Halford Avenue	NBL	180	a.m.	0	100	(100)	125	(125)
				p.m.	0	75	(75)	150	(150)
		SBL	150	a.m.	0	75	(75)	75	(75)
				p.m.	0	125	(125)	125	(125)
		EBL	525	a.m.	1	100	(100)	100	(100)
				p.m.	4	175	(200)	200	(200)
		WBL	410	a.m.	0	175	(175)	325	(325)
				p.m.	0	250	(250)	**700**	**(700)**
2	El Camino Real/ Lawrence Expressway Ramps	NBL	815	a.m.	0	275	(275)	375	(375)
				p.m.	0	225	(250)	375	(400)
		SBL	500	a.m.	4	150	(175)	225	(250)
				p.m.	3	250	(275)	350	(350)
		EBL	550	a.m.	0	350	(350)	525	(525)
				p.m.	1	275	(300)	525	(550)
		WBL	560	a.m.	0	300	(300)	325	(325)
				p.m.	0	300	(300)	300	(300)
3	Poinciana Drive/ Klamath Avenue-White Oak Lane	NBL	80	a.m.	0	25	(25)	25	(25)
				p.m.	0	25	(25)	25	(25)
		SBL	290	a.m.	16	25	(50)	25	(50)
				p.m.	10	25	(25)	25	(25)
		EBL	210	a.m.	1	25	(25)	25	(25)
				p.m.	4	25	(25)	25	(25)
		WBL	200	a.m.	0	25	(25)	25	(25)
				p.m.	0	25	(25)	25	(25)
4	Poinciana Drive-Cabrillo Avenue/ Lawrence Expressway	NBL	340	a.m.	6	75	(100)	75	(100)
				p.m.	14	175	(175)	175	(175)
		SBL	600	a.m.	0	125	(125)	125	(125)
				p.m.	0	175	(175)	175	(175)
		EBL	290	a.m.	1	225	(225)	225	(225)
				p.m.	1	150	(150)	150	(150)
		WBL	50	a.m.	0	**200**	**(200)**	**200**	**(200)**
				p.m.	0	**125**	**(125)**	**125**	**(125)**
5	Lily Avenue/ Toyon Avenue	SB	150	a.m.	19	25	(25)	25	(25)
				p.m.	12	25	(25)	25	(25)
		EB	210	a.m.	1	25	(25)	25	(25)
				p.m.	2	25	(25)	25	(25)

Table 4.7-10 Queueing Analysis

#	Intersection	Approach	Available Pocket Length (ft)[1]	Peak Hour	Number of Trips Added	Projected Queue Length (ft)[2]			
						Existing (Existing Plus Project)		Background (Background Plus Project)	
6	Dahlia Drive-Dahlia Court/West Project Driveway-Vinemaple Avenue	NB	525	a.m.	16	0	(25)	0	(25)
				p.m.	10	0	(25)	0	(25)
7	Dahlia Drive/ Toyon Avenue	EB	180	a.m.	1	25	(25)	25	(25)
				p.m.	1	25	(25)	25	(25)
		WB	180	a.m.	19	25	(25)	25	(25)
				p.m.	12	25	(25)	25	(25)
8	Dahlia Court/East Project Driveway[3]	NB	525	a.m.	0	0	(0)	0	(0)
				p.m.	0	0	(0)	0	(0)
9	Columbine Avenue/ Timberpine Avenue	SB	110	a.m.	9	25	(25)	25	(25)
				p.m.	21	25	(25)	25	(25)
		WB	200	a.m.	19	25	(25)	25	(25)
				p.m.	12	25	(25)	25	(25)
10	Reed Avenue/ Timberpine Avenue	NB	200	a.m.	6	350	(375)	350	(375)
				p.m.	4	200	(225)	200	(225)
		SB	90	a.m.	0	25	(25)	25	(25)
				p.m.	0	25	(25)	25	(25)
		EBL	165	a.m.	0	25	(25)	25	(25)
				p.m.	0	25	(25)	25	(25)
		WBL	150	a.m.	6	100	(100)	100	(100)
				p.m.	14	225	(225)	225	(225)
11	Reed Avenue-Monroe Street/ Lawrence Expressway	NBL	325	a.m.	0	325	(325)	350	(350)
				p.m.	0	475	(475)	500	(500)
		SBL	700	a.m.	0	425	(425)	425	(425)
				p.m.	0	950	(950)	950	(950)
		EBL	625	a.m.	11	1300	(1325)	1325	(1350)
				p.m.	7	600	(600)	600	(625)
		WBL	500	a.m.	0	500	(500)	500	(500)
				p.m.	0	600	(600)	600	(600)

Notes: NB=northbound; SB=Southbound; EB=Eastbound; WB=Westbound; L=Left.

1. Total storage length provided by all left-turn pockets (signalized intersections) and approach/throat depth (two-way stop-controlled intersections).
2. Total queued vehicle length in all pockets. All queue lengths were rounded up to the neared 25-foot increment.
3. The Dahlia Court/East Project Driveway intersection is planned to operate as an uncontrolled driveway at the end of the Dahlia Court cul-de-sac. As such there are no queues associated with this intersection.

Bold values show queues projected to exceed available storage.

Shaded values show queuing deficiencies made worse by project generated traffic.

As shown in Table 4.7-10, traffic generated by the project results in the 95th percentile queue exceeding available storage length under Existing Plus Project and Background Plus Project conditions at the following intersection that is not currently experiencing the exceedance of 95th percentile queueing. The City's Transportation and Traffic Division of Public Works has determined that these queuing impacts do not trigger

safety impacts. There are currently sidewalks, crosswalks, and bike routes at these intersections that would not be obstructed by the queue lengths.

- Intersection 10 - Reed Avenue/Timberpine Avenue (northbound left, p.m. peak-period)

Additionally, as shown in Table 4.7-10 traffic generated by the project results in the lengthening queues by 25 feet or more under Existing Plus Project and Background Plus Project conditions at the following intersections that are currently experiencing an exceedance of the 95th percentile queue:

- Intersection 10 - Reed Avenue/Timberpine Avenue (northbound left, a.m. peak-period)
- Intersection 11 - Reed Avenue-Monroe Street/Lawrence Expressway (eastbound left, a.m. peak-period)

RECOMMENDED MPROVEMENTS

Reed Avenue/Timberpine Avenue

Timberpine Avenue is already constructed to ultimate build-out conditions; and thus, the addition of northbound storage space to accommodate the worst-case queue is not be feasible. The project will be required to contribute towards the ITS projects through the City of Sunnyvale's Transportation Impact Fee, which is intended to improve queueing issues city-wide.

Reed Avenue-Monroe Street/Lawrence Expressway

Adding the required storage space to accommodate projected 95th percentile queues under Background Plus Project conditions can be achieved with restriping the eastbound approach of this intersection to include dual 675-foot left turn pockets (for a combined storage length of 1,350 feet), and extending the existing median approximately 500 feet to the west. However, the left-turn pocket extension is not feasible due to site constraints (i.e. the proximity of the adjacent intersection), Thus, improvement of the queueing deficiency along the eastbound left-turn at the Reed Avenue-Monroe Street/Lawrence Expressway intersection could be accomplished through the implementation of future projects at this intersection, which may include the Lawrence Expressway Grade Separation Project. Thus, the project will be required to contribute a fair share contribution towards future projects at this intersection. Since the Lawrence Expressway Grade Separation Project is a large-scale project that includes several intersections on the Lawrence Expressway Corridor and for which a conceptual estimate is not broken down by intersection, a traditional fair-share contribution calculation based on a percentage of traffic volumes would be difficult to accurately calculate. It is recommended that project fair share contribution to future improvements at this intersection be similar to the estimated cost of a stand-alone improvement that would address the queuing deficiencies if it were feasible. Adding the required storage space to accommodate projected 95th percentile queues under Background Plus Project conditions could be achieved with restriping the eastbound approach of this intersection to include dual 675-foot left turn pockets (for a combined storage length of 1,350 feet) and extending the existing median approximately 500 feet to the west. The cost of extending the dual left-turn pockets is estimated at approximately $70,000. However, since the left-turn pocket extension is not feasible due to site constraints (i.e. the proximity of the adjacent intersection), this $70,000 fair-share contribution should be allocated to future projects which may include the Lawrence Expressway Grade Separation Project.

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4.8 GREENHOUSE GAS EMISSIONS

This chapter presents a summary of the current state of climate change science and greenhouse gas (GHG) emissions sources in California; a summary of applicable regulations; quantification of project-generated GHG emissions and discussion about their potential contribution to global climate change; and analysis of the project's resiliency to climate change-related risks.

No comments in response to the notice of preparation were received that identified concerns regarding climate change-related impacts to the project.

4.8.1 Regulatory Setting

FEDERAL

In *Massachusetts et al. v. Environmental Protection Agency et al.*, 549 U.S. 497 (2007), the Supreme Court of the United States ruled that carbon dioxide (CO_2) is an air pollutant as defined under the federal Clean Air Act and that the U.S. Environmental Protection Agency (EPA) has the authority to regulate GHG emissions.

In 2010, EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for "major sources" issued under Title V of the federal Clean Air Act.

In 2015, EPA unveiled the Clean Power Plan. The purpose of the plan was to reduce CO_2 emissions from electrical power generation by 32 percent relative to 2005 levels within 25 years. EPA is proposing to repeal the Clean Power Plan because of a change to the legal interpretation of Section 111(d) of the Clean Air Act, on which the Clean Power Plan was based. The comment period on the proposed repeal closed April 26, 2018. A final ruling by EPA has not yet been issued.

In October 2012, EPA and the National Highway Traffic Safety Administration, on behalf of the U.S. Department of Transportation, issued final rules to further reduce GHG emissions and improve corporate average fuel economy standards for light-duty vehicles for model years 2017 and beyond (77 Federal Register [FR] 62624). These rules would increase fuel economy to the equivalent of 54.5 miles per gallon, limiting vehicle emissions to 163 grams of CO_2 per mile for the fleet of cars and light-duty trucks by model year 2025 (77 FR 62630). However, on April 2, 2018, the EPA administrator announced a final determination that the current standards are not appropriate and should be revised. It is not yet known what revisions will be adopted or when they will be implemented (EPA 2018).

STATE

Statewide GHG Emission Targets and the Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades (State of California 2018). GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected (United Nations 2015).

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by the California Air Resources Board (CARB), outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017a:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste).

The state has also passed more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below.

Cap-and-Trade Program

CARB administers the state's cap-and-trade program, which covers GHG emission sources that emit more than 25,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/year), such as refineries, power plants, and industrial facilities. This market-based approach to reducing GHG emissions provides economic incentives for achieving GHG emission reductions.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel–powered on-road vehicles. In addition, the program's zero-emission vehicle (ZEV) regulation requires battery, fuel cell, and plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2016a:15). By 2025, when the rules will be fully implemented, GHG emissions from the statewide fleet of new cars and light trucks will be reduced by 34 percent and cars will emit 75 percent less smog-forming pollution than the statewide fleet in 2016 (CARB 2016b:1).

Executive Order B 48 18, signed into law in January 2018, requires all state entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen fueling stations and 250,000 electric vehicle (EV)–charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

CARB adopted the Low Carbon Fuel Standard (LCFS) in 2007 to reduce the carbon intensity of California's transportation fuels. The LCFS applies to fuels used by on-road motor vehicles and by off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

In addition to regulations that address tailpipe emissions and transportation fuels, the state legislature has passed regulations to address the amount of driving by on-road vehicles. Since passage of SB 375 in 2008, CARB requires metropolitan planning organizations (MPOs) to adopt plans showing reductions in GHG emissions from passenger cars and light trucks in their respective regions for 2020 and 2035 (CARB 2018a:1). These plans link land use and housing allocation to transportation planning and related mobile-source emissions. The Metropolitan Transportation Commission (MTC) serves as the MPO for the nine counties in the bay area region, including the County of Santa Clara where the project site is located. In 2014, the MTC adopted Plan Bay Area, the areas Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). MTC was tasked by CARB to achieve a 10 percent per capita reduction compared to 2005 level emissions by 2020 and a 16 percent per capita reduction by 2035, which CARB confirmed the region would achieve by implementing its SCS (CARB 2014). In March of 2018, CARB approved the proposed Target Update for the SB 375 targets tasking MTC to achieve a 10 percent and a 16 percent per capita reduction by 2020 and 2035, respectively (CARB 2018a).

Under SB 743 of 2013, the Governor's Office of Planning and Research (OPR) proposed changes to the State CEQA Guidelines, including the addition of Section 15064.3, which would require that CEQA transportation analysis move away from focusing on vehicle delay and level of service (LOS) (OPR 2017a:77–90). In support of these changes, OPR published its *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which recommends that the transportation impact of a project be based on whether the project would generate a level of vehicle miles traveled (VMT) per capita (or VMT per employee) that is 15 percent lower than that of existing development in the region (OPR 2017b:12–13). OPR's technical advisory explains that this criterion is

consistent with Section 21099 of the California Public Resources Code, which states that the criteria for determining significance must "promote the reduction in greenhouse gas emissions" (OPR 2017b:18). This metric is intended to replace the use of delay and level of service to measure transportation-related impacts. More detail about SB 743 is provided in the "Regulatory Setting" section of Section 4.7, "Traffic and Circulation." At the time this EIR was prepared, the California Natural Resources Agency (CNRA) had not yet adopted OPR's proposed addition of Section 15064.3 to the State CEQA Guidelines.

Legislation Associated with Electricity Generation

The state has passed legislation requiring the increasing use of renewables to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018).

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Code of Regulations, Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). The California Energy Commission (CEC) updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions. The current (2016) California Energy Code is scheduled to be replaced by the 2019 California Energy Code on January 1, 2020. The 2019 California Energy Code will require builders to use more energy-efficient building technologies for compliance with increased restrictions on allowable energy use. Additionally, new residential units will be required to include solar panels, sized to offset the estimated electrical requirements of each unit (CCR, Title 24, Part 6, Section 150.1[c]14). CEC estimates that the combination of required energy-efficiency features and mandatory solar panels in the 2019 California Energy Code will result in new residential buildings that use 53 percent less energy than those designed to meet the 2016 California Energy Code. CEC also estimates that the 2019 California Energy Code will result in new commercial buildings that use 30 percent less energy than those designed to meet the 2016 California Energy Code, primarily through the transition to high-efficacy lighting (CEC 2018a).

REGIONAL

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for addressing air quality concerns in the San Francisco Bay Area, including Santa Clara County—its role is discussed further in Section 4.2, "Air Quality." BAAQMD also recommends methods for analyzing project-related GHGs in CEQA analyses and recommends multiple GHG reduction measures for land use development projects. BAAQMD developed thresholds of significance to provide a uniform scale to determine the CEQA significance of GHG emissions associated with land use and stationary source projects that align with the statewide GHG target mandated by AB 32. BAAQMD's goals in developing GHG thresholds include ease of implementation; use of standard analysis tools; and emissions mitigation consistent with AB 32. However, BAAQMD has not adopted thresholds of significance or guidance for determining whether a project's GHG emissions would be consistent with the statewide GHG target established by SB 32 (i.e., 40 percent below 1990 levels by 2030).

LOCAL

City of Sunnyvale General Plan

The City of Sunnyvale Land Use and Transportation Element (LUTE) of the General Plan contains the following policies related to global climate change and GHGs applicable to the project (City of Sunnyvale 2017):

- **Policy LT-2.1:** Enhance the public's health and welfare by promoting the city's environmental and economic health through sustainable practices for the design, construction, maintenance, operation, and deconstruction of buildings, including measures in the Climate Action Plan.

- **Policy LT-2.2:** Reduce greenhouse gas emissions that affect climate and the environment though land use and transportation planning and development.
- **Policy LT-2.3:** Accelerate the planting of large canopy trees to increase tree coverage in Sunnyvale in order to add to the scenic beauty and walkability of the community; provide environmental benefits such as air quality improvements, wildlife habitat, and reduction of heat islands; and enhance the health, safety, and welfare of residents.
- **Policy LT-2.7:** Provide Sunnyvale residents and businesses with opportunities to develop private, renewable energy facilities.
- **Policy LT-3.1:** Use land use planning, including mixed and higher-intensity uses, to support alternatives to the single-occupant automobile such as walking and bicycling and to attract and support high investment transit such as light rail, buses, and commuter rail.
- **Policy LT-3.5:** Follow California Environmental Quality Act requirements, Congestion Management Program requirements, and additional City requirements when analyzing the transportation impacts of proposed projects and assessing the need for offsetting transportation system improvements or limiting transportation demand.

Sunnyvale Climate Action Plan

The City of Sunnyvale adopted its first climate action plan (CAP) in May 2014. The CAP identifies that communitywide GHG emissions per service population will decrease from 6.1 metric tons of carbon dioxide-equivalent per person ($MTCO_2e$/person) in 2008, to 3.6 $MTCO_2e$/person in 2020, and to 2.6 $MTCO_2e$/person in 2035. The CAP identifies how the City will achieve and exceed the state-recommended GHG emissions reduction target of 15 percent below 2008 levels by the year 2020 and make progress toward the 2050 target stated in Executive Order S-3-05 (i.e., 80 percent below 1990 levels by 2050). The CAP includes targets and associated reduction measures related to energy use, transportation, land use, water, solid waste, and off-road equipment. Several CAP reduction measures are directly applicable to land use development projects, which are required to adhere to the CAP as a condition of development approval.

The City is tracking the progress of the CAP through biennial progress reporting. According to the City's 2018 CAP Biennial Progress Report (Report), communitywide GHG emissions in 2016 were approximately 12 percent less than 1990 levels and that an estimated 28 percent less than 1990 levels is achievable by 2020 (City of Sunnyvale 2018). According to the report, the City is ahead of schedule in meeting its GHG reduction goals.

The City's CAP and its reduction targets are aligned with the statewide GHG target established by AB 32; however, the CAP was prepared prior to the passage of SB 32 in 2016 and does not set an emissions reduction target that is aligned with the statewide GHG target established for 2030. As such, a project may not rely on consistency with the CAP to demonstrate that it would be consistent with CARB's 2017 Scoping Plan and its GHGs would not be a cumulatively considerable contribution to global climate change. The City is currently in the process of updating its CAP (CAP 2.0) to be aligned with the statewide target of the 40 percent less than 1990 emissions levels by 2030 to be consistent with the mandate of SB 32.

Silicon Valley Clean Energy

The City of Sunnyvale as well as the cities of Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Saratoga, and unincorporated Santa Clara County are members of Silicon Valley Clean Energy (SVCE), which serves as the Community Choice Aggregation for its member jurisdictions. SVCE was established in March 2016 following the adoption of the 2014 CAP and works in partnership with Pacific Gas and Electric (PG&E) to deliver GHG-efficient electricity to customers within its member jurisdictions. Consistent with state law, all electricity customers in the city of Sunnyvale were automatically enrolled in SVCE; however, customers can choose to opt out and be served by PG&E. According to the Sunnyvale Climate Action Plan Biennial Progress Report released in 2018, 98 percent of

residential and commercial accounts received carbon-free electricity from SVCE and 100 percent of City facilities were powered by renewable energy (City of Sunnyvale 2018). Currently, all power supplied by SVCA is carbon-free.

4.8.2 Environmental Setting

PHYSICAL SCIENTIFIC BASIS OF GREENHOUSE GAS AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014:5).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remain stored in the atmosphere (IPCC 2013:467).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

As discussed previously, GHG emissions are attributable in large part to human activities. The total GHG inventory for California in 2016 was 429 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) (CARB 2018b). This is less than the 2020 target of 431 $MMTCO_2e$ mandated by AB 32 (CARB 2018b:1). Table 4.8-1 summarizes the statewide GHG inventory for California.

Table 4.8-1 Statewide GHG Emissions by Sector

Sector	Percent of Total
Transportation	41%
Industrial	23%
Electricity generation (in state)	10%
Electricity generation (imports)	6%
Agriculture	8%
Residential	7%
Commercial	5%
Not specified	<1%

Source: CARB 2018c

As shown in Table 4.8-1, transportation, industry, and electricity generation are the largest GHG emission sectors.

Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing CO_2 from the atmosphere.

The most recent GHG inventory for the City of Sunnyvale (2016) is provided in the City's 2018 CAP and summarized in Table 4.8-2.

Table 4.8-2 City of Sunnyvale Greenhouse Gas Inventory for the Year 2016 ($MTCO_2e$)

Emissions Sector	2016	Percentage of Total
Commercial/Industrial[1]	294,430	33%
Transportation (on-road motor vehicles)	386,230	44%
Residential[1]	128,440	15%
Community Waste (Solid Waste Disposal)	47,410	5%
Off-Road Motor Vehicles	19,170	2%
Water Consumption	3,200	<1%
Caltrain	1,200	<1%
Total	880,080	100%

Notes: Totals may not equal the sum of the numbers because of independent rounding.

$MTCO_2e$ = metric tons of carbon dioxide equivalent.

[1] Emissions from the Commercial/Industrial and Residential sectors include electricity consumption and natural gas combustion in 2008. Due to high enrollment in Silicon Valley Clean Energy at the time of writing this EIR (i.e., 97 percent), GHG emissions associated with energy consumption would be projected to be approximately 61 percent lower.

Source: City of Sunnyvale 2014

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to the Intergovernmental Panel on Climate Change, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 4.8 degrees Celsius (°C) (6.7 to 8.6 degrees Fahrenheit [°F]) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to CEC, temperatures in California will warm by approximately 2.7°F above 2000 averages by 2050 and by 4.1°F to 8.6°F by 2100, depending on emission levels (CEC 2012:2).

Other environmental resources could be indirectly affected by the accumulation of GHG emissions and the resulting rise in global average temperature. In recent years, California has been marked by extreme weather and its effects. According to CNRA's *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018:55). In contrast, the northern Sierra Nevada experienced its wettest year on record during the 2016–2017 water year (CNRA 2018:64). The changes in precipitation exacerbate wildfires throughout California, increasing their frequency, size, and devastation. As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018:190–192). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet, the sea level along California's coastline could rise up to 10 feet by 2100, which is approximately 30–40 times faster than the sea-level rise experienced over the last century (CNRA 2017:102). Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure and crop production (CNRA 2018:64, 116–117, 127).

Cal-Adapt is a climate change scenario planning tool developed by CEC that downscales global climate model data to local and regional resolution under representative concentration pathways (RCPs): the RCP 8.5 represents a scenario where emissions continue to rise strongly through 2050 and plateau, and the RCP 4.5 represents a scenario where emissions peak around 2040, then decline. According to Cal-Adapt, average annual maximum and minimum temperature in the project area from 1950 to 2005 was 69.0°F and 49.9°F, respectively. Under the RCP 4.5 scenario, average maximum temperatures in the project area are projected to rise by 3.1°F to 72.1°F by 2050 and increase by 4.3°F to 73.3°F by 2099. Average minimum temperatures in the project area are projected to rise by 3.2°F to 53.1°F by 2050 and rise by 4.2°F to 54.1°F by 2099. Under the RCP 8.5 scenario, average maximum temperatures in the project area are projected to rise by 3.3°F to 72.3°F by 2050 and increase by 8.3°F to 77.3 °F by 2099 (CEC 2018b). Average minimum temperatures are projected to increase by 3.7°F to 53.6°F by 2050 and increase by 8.6°F to 58.5°F (CEC 2018b).

The project area experienced an average precipitation of 14.3 inches per year between 1950 and 2005. Under the RCP 4.5 scenario, the project area is projected to experience an increase of 5 inches to 19.3 inches per year by 2050 and an increase of 2 inches to 16.3 inches (CEC 2018b). Under the RCP 8.5 scenario, the project area is projected to experience an increase of 5.3 inches to 19.6 inches per year by 2050 and be at 18.6 inches per year by 2099 (CEC 2018b).

4.8.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Construction- and operation-related GHGs were estimated in accordance with BAAQMD-recommended methodologies (BAAQMD 2017).

Construction

Short-term construction-generated GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 computer program, (California Air Pollution Control Officers Association [CAPCOA] 2017), as recommended by BAAQMD and other air districts in California. Modeling was based on project-specific information (e.g., demolition, building size, area to be graded, area to be paved) where available; assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type, and the expected duration of the construction period. Detailed model assumptions and inputs for these calculations can be found in Appendix B.

Operation

Operational GHG emissions would be associated with vehicle trips to and from the project site (i.e., mobile sources); the consumption of electricity, including the indirect consumption of electricity associated with water consumption; on-site combustion of natural gas; the generation of wastewater and solid waste, and the use of landscape maintenance equipment. Operational mobile-source GHG emissions were modeled based on the level of project-related VMT estimated as part of the traffic analysis used to support the impact discussion in Section 4.7, "Transportation and Circulation." The traffic analysis estimated that the project would generate 11,834,760 VMT per year when the project becomes fully operational. Mobile-source emissions associated with this VMT were calculated using CalEEMod Version 2016.3.2 (CAPCOA 2017), which uses emission factors from CARB's 2017 Emission Factor model (CARB 2017b). Indirect emissions associated with electricity consumption were estimated using GHG emissions factors for PG&E. Indirect emissions from electricity consumption were then adjusted to reflect a 97 percent enrollment rate in SVCE, which provides 100 percent renewable electricity to its customers. This estimation is consistent with the current enrollment rate of SVCE's service area. Emissions associated with on-site consumption of natural gas were estimated using default consumption rates and emission factors in CalEEMod. Adjustments were made to the consumption of electricity and natural gas, however, to account for the energy efficiency requirements in the 2019 California Energy Code, which goes into effect in 2020. Emissions associated with landscape maintenance activities and the generation of wastewater and solid waste were estimated using the applicable modules in CalEEMod. Operational emissions from all sources were estimated for full buildout of the project which would become fully operational in 2021. Detailed assumptions and inputs for these calculations are provided in Appendix B.

THRESHOLDS OF SIGNIFICANCE

CEQA Guidelines Section 15064 and relevant portions of Appendix G recommend that a lead agency consider a project's consistency with relevant, adopted plans, and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. In Appendix G of the State CEQA Guidelines, two questions are provided to help assess whether a project would result in a potentially significant impact related to climate change. These questions ask whether a project would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or
- conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As explained in Section, 4.8.1, "Regulatory Setting," BAAQMD has not recommended quantitative thresholds of significance or guidance for determining whether the GHG emissions associated with a project would be consistent with the statewide GHG target established by SB 32 (i.e., 40 percent below 1990 levels by 2030).

BAAQMD and other air districts in the state generally defer to consistency with a qualified GHG reduction plan, per Section 15183.5(b) of the CEQA Guidelines, as an approach for evaluating a project's GHG emissions. This approach is also highlighted in CARB's 2017 Scoping Plan (CARB 2017a:101). The City believes this is the best approach for evaluating land use development projects. However, also explained in Section, 4.8.1, "Regulatory Setting," the City has not yet developed or adopted its CAP 2.0, which will

demonstrate consistency with the statewide GHG target established for 2030 by SB 32 of 2016 and, as such, this CEQA analysis may not rely on consistency with a CAP to demonstrate that the project's GHGs would be less than significant.

The 2017 Scoping Plan includes the following endorsement of using a net-zero threshold in its discussion about different viable project-level significance criteria (CARB 2017a:101–102):

> Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development. There are recent examples of land use development projects in California that have demonstrated that it is feasible to design projects that achieve zero net additional GHG emissions. Several projects have received certification from the Governor under AB 900, the Jobs and Economic Improvement through Environmental Leadership Act (Buchanan, Chapter 354, Statutes of 2011), demonstrating an ability to design economically viable projects that create jobs while contributing no net additional GHG emissions. Another example is the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan, in which the applicant, Newhall Land and Farming Company, proposed a commitment to achieve net zero GHG emissions for a very large-scale residential and commercial specific planned development in Santa Clarita Valley.
>
> Achieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA.

A net zero increase of GHG emissions would eliminate a project's incremental contribution to climate change. With no increase in GHG emissions compared to existing conditions, any potential inconsistencies with relevant GHG reduction plans would be avoided. Therefore, if a project demonstrates that it may be implemented and operated without increasing emissions of GHGs as compared to baseline conditions, the project's contribution to global climate change would be less than significant.

City staff believe that, until the City's CAP 2.0 is completed and adopted, applying a net-zero threshold is an adequate approach for evaluating the proposed project in this EIR. Therefore, prior to the completion and adoption of CAP 2.0, the project would not contribute to climate change if it would result in no increase in GHG emissions.

IMPACT ANALYSIS

Impact 4.8-1: Project-Generated GHG Emissions

Project construction would generate approximately 966 $MTCO_2e$. Operation of the project would generate approximately 675 $MTCO_2e$/year. Because the project would not be consistent with a local or regional adopted for the purpose of sufficiently reducing the emissions of GHGs after 2020, project-related GHG emissions would contribute to climate change. This impact would be **significant.**

Because the City has not completed and adopted its CAP 2.0 at the time of writing this EIR, the project would not be consistent with a local or regional adopted for the purpose of reducing the emissions of GHGs under SB 32.

GHG emissions associated with the project would be generated during project construction and by operation of the land uses after they are built. Estimated levels of construction- and operation-related GHGs are presented below.

Construction-Generated Greenhouse Gas Emissions

Project-related construction activities would result in the generation of GHG emissions. Heavy-duty off-road construction equipment, materials transport, and worker commute during construction of the project would result in exhaust emissions of GHGs. Based on modeling conducted with CalEEMod, it is estimated that project-related construction would generate an approximate total of 966 $MTCO_2e$ over the construction period (2018–2021). See Appendix B for detailed input parameters and modeling results.

Operational Greenhouse Gas Emissions

Operation of the project would result in mobile-source GHG emissions associated with vehicle trips to and from the project (i.e., project-generated VMT), the combustion of natural gas for space and water heating, and landscape maintenance activity, the conveyance and treatment of wastewater, and the generation of solid waste. The project is committed to Zero Net Electricity residential buildings, generating adequate electricity on-site through photovoltaic solar panels, that would meet the electricity needs of these uses. The project's GHG emissions related to electricity consumption would be zero. Emissions generated from project operation are reported in Table 4.8-3.

Table 4.8-3 Operational-Related Greenhouse Gas Emissions by Sector for the Year 2022[1]

Emissions Sector	Annual $MTCO_2e$
Vehicle Trips (Mobile Sources)	567
Natural Gas Consumption (On-Site)	85
Solid Waste Disposal	9
Water Consumption and Wastewater Treatment	8
Landscape Maintenance	6
Electricity Consumption (On-Site)[2]	0
Total Operational GHG Emissions	675

Notes: Totals may not add due to rounding.

$MTCO_2e$ = metric tons of carbon dioxide equivalent

[1] Emissions estimate account for energy and water efficiency project design features as well as reduced mobile-source emissions associated with improved density and affordable market housing rates.

[2] Residents of the project site would be enrolled in Silicon Valley Clean Energy (SVCE), which provides 100 percent renewable energy to its customers using Pacific Gas & Electric (PG&E) infrastructure. The project would be Zero Net Electricity.

See Appendix B for detailed input parameters and modeling results.

Source: Modeled by Ascent Environmental in 2018.

It should be noted that the applicant has committed to several design features, in addition to Zero Net Electricity, that may result in the project operation in a more GHG-efficient manner and a list of such measures is included in Chapter 3, "Project Description." The reductions achieved by implementation of these design features cannot be easily quantified and are not accounted for in the GHG estimates presented in Table 4.8-3.

Project construction would generate an approximately total of 966 $MTCO_2e$ and operation of the project would generate approximately 675 $MTCO_2e$/year. Because the project would not be consistent with a local or regional adopted for the purpose of reducing the emissions of GHGs, the project's GHG emissions would contribute to climate change. This would be a **significant** impact.

Mitigation Measure 4.8-1: Implement Project Features to be Consistent with A Future Qualified Climate Action Plan or Implement All Feasible On-Site Greenhouse Gas Reduction Measures And Purchase Carbon Offsets

A. The applicant shall implement project design features sufficient to demonstrate that the project would be consistent with the next version of the City's climate action plan, referred to as CAP 2.0. This option can only be followed if the CAP 2.0 meets the criteria listed in Section 15183.5b(1) of the State CEQA Guidelines prior to any project-related demolition or construction activity. This option can also only be followed if the CAP 2.0 is aligned with the statewide GHG reduction target established by SB 32 of 2016 (i.e., 40 percent below 1990 levels by 2030) and any additional post-2030 statewide reduction targets established by the state legislature at the time. The applicant must follow the City's process for demonstrating that a project is consistent with the CAP 2.0.

   If CAP 2.0 is not adopted at the time of construction of project facilities, the applicant shall implement Parts B and C of this mitigation measure.

B. The applicant shall implement all feasible measures to reduce GHG emissions associated with the project, including but not limited to the construction- and operation-related measures listed below. The applicant may refrain from implementing some of the measures below only if it provides substantial evidence to the City that substantiates why the measure is infeasible for this project. The GHG reductions achieved by the implementation of measures listed in Part B shall be estimated by a qualified third-party selected by the City. All GHG reduction estimates shall be supported by substantial evidence. The effort to quantify the GHG reductions shall be fully funded by the project applicant. Measures should be implemented even if it is reasonable that its implementation would result in a GHG reduction, but a reliable quantification of the reduction cannot be substantiated. The applicant shall incorporate onsite design measures into the project and submit verification to the City prior to issuance of building permits. Many of these measures are identical to, or consistent with, the measures listed in Appendix B of the 2017 Scoping Plan (CARB 2017a: B-7 to B-8).

   a. Construction-related GHG Reduction Measures. Implementation of these measures shall be required in the contract the applicant establishes with its construction contractors and identified in the project improvement and site design plans.

      i. The applicant shall require its contractors to enforce idling of on- and off-road diesel equipment for no more than 5 minutes while on site. This measure is also required by Mitigation Measure 4.2-1, which addresses emissions of particulate matter.

      ii. The applicant shall implement waste, disposal, and recycling strategies in accordance with Sections 4.408 and 5.408 of the 2016 California Green Building Standards Code (CALGreen Code), or in accordance with any update to these requirements in future iterations of the CALGreen Code in place at the time of project construction.

      iii. Project construction shall achieve or exceed the enhanced Tier 2 targets for recycling or reusing construction waste of 75 percent for residential land uses as contained in Sections A4.408 and A5.408 of the CALGreen Code.

      iv. All diesel-powered, off-road construction equipment shall meet EPA's Tier 4 emissions standards as defined in 40 Code of Federal Regulation (CFR) 1039 and comply with the exhaust emission test procedures and provisions of 40 CFR Parts 1065 and 1068. Tier 3 models can be used if a Tier 4 version of the equipment type is not yet produced by manufacturers. This measure can also be achieved by using battery-electric off-road equipment as it becomes available.

      v. All diesel-powered construction equipment shall be powered only with renewable diesel fuel. The renewable diesel fuel shall meet California's LCFS and be certified by CARB Executive Officer; be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100 percent biomass

material (i.e., non-petroleum sources), such as animal fats and vegetables; contain no fatty acids or functionalized fatty acid esters; and have a chemical structure that is identical to petroleum-based diesel and complies with American Society for Testing and Materials D975 requirements for diesel fuels to ensure compatibility with all existing diesel engines. Suppliers of renewable diesel in the San Francisco Bay Area include Ramos Oil, Propel Fuels, and Western States Oil. The cost of renewable diesel fuel is typically 5 to 6 cents higher per gallon than for conventional diesel fuel. Local governments that have adopted renewable diesel fuel for their diesel vehicle fleets include the City and County of San Francisco, Sacramento County, San Diego County, and Carlsbad (Western States Oil 2018). Moreover, staff at CARB note that some large additional renewable diesel production projects are currently being planned (Wade, pers. comm., 2018).

vi. The applicant shall implement a program that incentives construction workers to carpool, use public transit, or EVs to commute to and from the project site.

b. Operational GHG Reduction Measures

i. The applicant shall achieve as many residential zero net energy (ZNE) buildings as feasible. Prior to the issuance of building permits the project developer or its designee shall submit a Zero Net Energy Confirmation Report (ZNE Report) prepared by a qualified building energy efficiency and design consultant to the city for review and approval. The ZNE Report shall demonstrate that development within the project area subject to application of the California Energy Code has been designed and shall be constructed to achieve ZNE, as defined by CEC in its 2015 Integrated Energy Policy Report, or otherwise achieve an equivalent level of energy efficiency, renewable energy generation, or GHG emissions savings. This measure would differ than the project's commitment zero net electricity because ZNE also concerns on-site consumption of natural gas.

ii. All buildings shall include rooftop solar photovoltaic systems to supply electricity to the buildings. Alternatively, solar photovoltaic systems can be installed on canopies that also shade parking areas.

iii. The applicant shall install rooftop solar water heaters if room is available after installing photovoltaic panels.

iv. Any household appliances included in the original sale of the residential units shall be electric and certified Energy Star-certified (including clothes washers, dish washers, fans, and refrigerators, but not including tankless water heaters).

v. The applicant shall install programmable thermostat timers in all residential dwelling units that allow users to easily control when the HVAC system will heat or cool a certain space, thereby saving energy.

vi. Single-family residential buildings shall include efficiency design features that meet standards established by Tier 2 of CalGreen.

vii. All buildings shall be designed to include cool roofs consistent with requirements established by Tier 2 of the CALGreen Code.

viii. All buildings shall be designed to comply with requirements for water efficiency and conservation as established in the CALGreen Code.

ix. If natural gas service is provided to the project site then natural gas connections must be provided in the backyards of single-family homes. This measure is not required if natural gas connections are not provided to the project site.

x. Electrical outlets shall be included on every exterior wall of all buildings. These exterior outlets will enable the use of electric-powered landscape maintenance equipment thereby providing an alternative to using fossil fuel-powered generators.

xi. Any outdoor parking lot that is part the public park shall include trees and/or solar canopies designed to provide a minimum 50 percent shading of parking lot surface areas.

xii. Provide a minimum of one single-port electric vehicle charging station at each new residential unit that achieves similar or better functionality as a Level 2 charging station (referring to the voltage that the electric vehicle charger uses).

xiii. Create safe paths of travel to building and park access points, connecting to existing bicycle and pedestrian facilities.

C. In addition to the measures listed under Part B, the applicant shall offset GHG emissions to zero by funding activities that directly reduce or sequester GHG emissions or by purchasing and retiring carbon credits.

To the degree that a project relies on GHG mitigation measures, the City of Sunnyvale, BAAQMD, and CARB recommend that lead agencies prioritize on-site design features, such as those listed in Part B of this mitigation measure, and direct investments in GHG reductions within the vicinity of the project site to provide potential air quality and economic co-benefits locally. While emissions of GHGs and their contribution to climate change is a global problem, emissions of air pollutants, which have a localized effect, are often emitted from similar activities that generate GHG emissions (i.e., mobile, energy, and area sources). For example, direct investment in a local building retrofit programs could pay for cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting, energy efficient appliances, energy efficient windows, insulation, and water conservation measures for homes within the geographic area of the project. Other examples of local direct investments include financing installation of regional electric vehicle charging stations, paying for electrification of public school buses, and investing in local urban forests. These investments would not only achieve GHG reductions, but would also directly improve regional and local ambient air quality. However, to adequately mitigate GHG emissions to zero, it is critical that any such investments in actions to reduce GHG emissions meet the criteria of being real, additional, quantifiable, enforceable, validated, and permanent, as stated in CEQA Guidelines Section 15126.4(C)(3). Where further project design or regional investments are infeasible or not proven to be effective, it may be appropriate and feasible to mitigate project emissions through purchasing and retiring carbon credits issues by a recognized and reputable accredited carbon registry (e.g., Climate Action Reserve).

The CEQA Guidelines recommend several options for mitigating GHG emissions. State CEQA Guidelines Section 15126.4(C)(3) states that measures to mitigate the significant effects of GHG emissions may include "off-site measures, including offsets that are not otherwise required..." Through the purchase of GHG credits through voluntary participation in an approved registry, GHG emissions may be reduced at the project level. GHG reductions must meet the following criteria:

- Real—represent reductions actually achieved (not based on maximum permit levels),
- Additional/Surplus—not already planned or required by regulation or policy (i.e., not double counted),
- Quantifiable—readily accounted for through process information and other reliable data,
- Enforceable—acquired through legally-binding commitments/agreements,
- Validated—verified through accurate means by a reliable third party, and
- Permanent—will remain as GHG reductions in perpetuity.

In partnership with offset providers, the applicant shall purchase credits to offset 966 $MTCO_2e$ of the project's construction-related GHGs prior to the start of construction from a verified program that meets the above criteria. The applicant shall also purchase 675 $MTCO_2e$ of the project's operational-related GHGs from available programs that not only meet the above criteria, but, demonstrate the ability to counterbalance GHG emissions over the lifespan of the project or "in perpetuity." For example, the purchase of an offset generated by a reforestation or forest preservation program would entail replanting

or maintenance of carbon sequestering trees, which would continue to sequester carbon over several years, decades, or even centuries (Forest Trends 2017). The offsets purchased must offer an equivalent GHG reduction benefit annually or more GHGs reduced annually as opposed to a one-time reduction.

Alternatively, if such offset programs are unavailable or infeasible, prior to commencing operation, the applicant shall also purchase credits to offset the project's operational emissions of 675 $MTCO_2e$/year multiplied by the number of years of operation between commencement of operation and 2050, which is the target year of Executive Order S-3-05. It should be noted, however, that this number is subject to change depending on alterations in the level of on-site mitigation applied to the project depending on the feasibility of individual measures, including those listed in Part B of this mitigation measure. Offset protocols and validation applied to the project could be developed based on existing standards (e.g., Climate Registry Programs) or could be developed independently, provided such protocols satisfy the basic criterion of "additionality" (i.e. the reductions would not happen without the financial support of purchasing carbon offsets).

Prior to issuing building permits for development within the project, the city shall confirm that the project developer or its designee has fully offset the project's remaining (i.e. post implementation of GHG reduction measures listed in Part B) GHG emissions by relying upon one of the following compliance options, or a combination thereof:

- demonstrate that the project developer has directly undertaken or funded activities that reduce or sequester GHG emissions that are estimated to result in GHG reduction credits (if such programs are available), and retire such GHG reduction credits in a quantity equal to the project's remaining GHG emissions;
- provide a guarantee that it shall retire carbon credits issued in connection with direct investments (if such programs exist at the time of building permit issuance) in a quantity equal to the project's remaining GHG emissions;
- undertake or fund direct investments (if such programs exist at the time of building permit issuance) and retire the associated carbon credits in a quantity equal to the project's remaining GHG emissions; or
- if it is impracticable to fully offset the project's GHG emissions through direct investments or quantifiable and verifiable programs do not exist, the project developer or its designee may purchase and retire carbon credits that have been issued by a recognized and reputable, accredited carbon registry in a quantity equal to the project's remaining GHG Emissions.

Significance after Mitigation

Implementation of Part A of Mitigation Measure 4.8-1 would ensure that the project is consistent with an adopted plan for the purpose of reducing the emissions of GHGs. Alternatively, implementation of both Parts B and C of Mitigation Measure 4.8-1 would ensure that the project would not result in a net increase in GHG emissions and, thus, not conflict with CARB's 2017 Scoping Plan or an established state GHG reduction targets (e.g., SB 32). Thus, the project's contribution to climate change would be reduced to **less than significant**.

Impacts of Climate Change on the Project

This analysis reflects the direction from a California Supreme Court decision addressing the scope of analysis required in EIRs for potential impacts resulting from existing environmental conditions within the vicinity of a proposed project site. In *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, the court held (page 378):

> In light of CEQA's text, statutory structure, and purpose, we conclude that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental

> hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users.

The court stated that CEQA does not routinely require in all circumstances the consideration of the effects of existing environmental conditions on the future occupants or users of a project site. However, if implementing the project might exacerbate an existing environmental condition, the lead agency must then analyze the exposure of future residents and users on the project site/in the plan area to the environmental condition. Also, the court did not prohibit an agency from considering how existing environmental conditions might affect its own project's future users, so for publicly sponsored and implemented projects, the lead agency retains this discretion. Given the Supreme Court decision, the City of Sunnyvale is providing an analysis of climate change exposure on the project site with implementation of the project for informational purposes only.

Human-induced increases in GHG concentrations in the atmosphere have led to increased global average temperatures (climate change) through the intensification of the greenhouse effect, and associated changes in local, regional, and global average climatic conditions. Although there is strong scientific consensus that global climate change is occurring and is influenced by human activity, there is less certainty as to the timing, severity, and potential consequences of the climate phenomena. Scientists have identified several ways in which global climate change could alter the physical environment in California (CNRA 2012, DWR 2006, IPCC 2007). These include:

- increased average temperatures;
- modifications to the timing, amount, and form of precipitation (rain vs. snow);
- changes in the timing and amount of runoff;
- reduced water supply;
- deterioration of water quality; and
- elevated sea level.

Many of these phenomena would translate into a variety of issues and concerns that may affect the project area, including but not limited to:

- increased frequency and intensity of extreme heat days;
- more intense variability in water supply, including more frequent or intense periods of drought;
- increased stormwater runoff associated with changes to precipitation patterns;
- increased risk of inundation from rising sea levels; and
- increased risk of flooding associated with changes to precipitation patterns.

According to Cal-Adapt, average maximum temperatures in the project area are projected to rise by 3.1°F to 72.1°F by 2050 and increase by 4.3°F to 73.3°F by 2099. Average minimum temperatures in the project area are projected to rise by 3.2°F to 53.1°F by 2050 and rise by 4.2°F to 54.1°F by 2099. Under the RCP 8.5 scenario, average maximum temperatures in the project area are projected to rise by 3.3°F to 72.3°F by 2050 and increase by 8.3°F to 77.3 °F by 2099 (CEC 2018c). Average minimum temperatures are projected to increase by 3.7°F to 53.6°F by 2050 and increase by 8.6°F to 58.5°F (CEC 2018b).

The project would be required to meet the 2019 California Energy Code, which requires well-insulated buildings and high-efficiency heating, ventilation, and air conditioning units. The project would also landscape the project area with trees, which would minimize the project's contribution to the urban heat island effect.

Increased temperature is expected to lead to secondary climate change impacts, including increased intensity, frequency, and severity of wildland fire. Cal-Adapt estimates that the historical annual mean acres burned in the project area was 10.6 acres between 1950 and 2005. Under the RCP 4.5 scenario, average annual mean acres burned would be 10.0 acres by 2050 and 8.8 acres by 2099. Under the RCP 8.5 scenario, average annual mean acres burned would be 7.3 acres by 2050 and 8.5 acres by 2099 (CEC 2018b). These estimations suggest that under both a high- and low-emission scenario, the project site's

exposure to risk of wildland fire would decrease until the end of the century. Furthermore, the *Santa Clara County Community Wildfire Protection Plan* indicates that the City of Sunnyvale is at low risk for wildland fire (Santa Clara County Fire Department 2016).

The project area experienced an average precipitation of 14.3 inches per year between 1950 and 2005. Under the RCP 4.5 scenario, the project area is projected to experience an increase of 5 inches to 19.3 inches per year by 2050 and an increase of 2 inches to 16.3 inches by 2099 (CEC 2018b). Under the RCP 8.5 scenario, the project area is projected to experience an increase of 5.3 inches to 19.6 inches per year by 2050 and be at 18.6 inches per year by 2099 (CEC 2018b).

As described in Chapter 1, "Introduction," utilities and service systems for development of the project were addressed as part of the Lawrence Station Area Plan (LSAP) Final Environmental Impact Report (FEIR). The FEIR certified for the LSAP evaluated potential impacts on water and concluded that development within the LSAP area, including the project site, would not require new water infrastructure, or new or expanded water entitlements to serve the development under the LSAP. Therefore, adequate water supply would exist to serve the project at buildout.

Cal-Adapt also projects the maximum inundation depth during a 100-year storm under a 0.5-meter (m), 1.0-m, and 1.41-m rise in sea level. Coastal areas of the San Francisco Bay are especially vulnerable to such increases in sea level; however, located at approximately 23 m above existing mean sea level, the project site is located sufficiently inland and not at risk of inundation from a 100-year flood coupled with a 0.5- to 1.41-m rise in sea level (CEC 2018d).

The project would also include features that enable adaptation and resiliency in the face of climate change-related impacts. These features include:

- Installation of Low-E windows, high-efficiency A/C units, and high performance wall and attic insulation, which would serve to lower energy costs associated with indoor cooling and heating;
- construction and operation of outdoor recreational space on privately owned property coupled with the planting of shade trees, which would further reduce the potential for the urban heat island effect and improve degraded air quality associated with rising temperatures, which intensifies formation of ground-level ozone;
- Installation of photovoltaic solar generation panels on all residential units, reducing the reliance of project buildings on the existing energy grid for electricity generation; and
- use of water efficiency strategies, which would contribute to the overall resiliency of the Sunnyvale and surrounding communities to less secure water resources.

Based on currently available data, the project is not located within an area projected to experience a substantial increase in wildland fire risk or inundation from sea-level rise due to future climate change-related effects. Further, water supply for the project would be adequate and consistent with future city-wide projections. Design features included in the project description would also reduce the extent and severity of climate change-related to the project. These projected climate change effects to the project site as well as the project's resiliency to such effects are provided for informational purposes only.

4.9 NOISE AND VIBRATION

This section includes a summary of applicable regulations related to noise and vibration, a description of ambient-noise conditions, and an analysis of potential short-term construction and long-term operational-source noise impacts associated with the Corn Palace project. Mitigation measures are recommended as necessary to reduce significant noise impacts. Additional data is provided in Appendix D.

4.9.1 Regulatory Background

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

U.S. Environmental Protection Agency Office of Noise Abatement and Control

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, documents and research completed by the EPA Office of Noise Abatement and Control continue to provide value in the analysis of noise effects.

Federal Transit Administration

To address the human response to ground vibration, the Federal Transit Administration (FTA) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 4.9-1.

Table 4.9-1 Ground-Borne Vibration Impact Criteria for General Assessment

Land Use Category	GVB Impact Levels (VdB re 1 micro-inch/second)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 [4]	65 [4]	65 [4]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Notes: VdB = vibration decibels referenced to 1 µ inch/second and based on the root mean square (RMS) velocity amplitude.

1. "Frequent Events" is defined as more than 70 vibration events of the same source per day.
2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.
3. "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.
4. This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2006

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Department of Transportation

In 2013, Caltrans published the Transportation and Construction Vibration Manual (Caltrans 2013b). The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 4.9-2 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

Table 4.9-2 Caltrans Recommendations Regarding Levels of Vibration Exposure

PPV (in/sec)	Effect on Buildings
0.4–0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006–0.019	Vibration unlikely to cause damage of any type

Notes: PPV= Peak Particle Velocity; in/sec = inches per second

Source: Caltrans 2013b

LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

City of Sunnyvale General Plan

The City of Sunnyvale General Plan establishes standards intended to protect residents from harmful and annoying noise levels. These policies identify permissible maximum average-daily noise standards for determination of land use compatibility. The City's General Plan noise standards are summarized in Table 4.9-3. However, new residential land uses must comply with state Title 24 Noise Insulation Requirements.

Table 4.9-3 City of Sunnyvale Maximum Permissible Noise Criteria for Determination of Land Use Compatibility

Land Use	Maximum L_{dn} (dB)		
	Normally Acceptable	Conditionally Acceptable	Unacceptable
Residential, Hotels, and Motels	≤60	61–75	>75
Outdoor Sports and Recreation, Neighborhood Park and Playground	≤65	66–80	>80
Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, and Churches	≤60	61–75	>75
Office Buildings, Commercial and Professional Businesses	≤70	71–80	>80
Auditoriums, Concert Halls, Amphitheaters	–	55–70	>70
Industrial, Manufacturing, Utilities, and Agriculture	55–70	71–80	–

Source: City of Sunnyvale 2011

For CEQA analyses, a proposed development must be reviewed to see if it results in a significant noise impact on existing development. Table 4.9-4 shows General Plan standards for evaluating a project's contribution to ambient noise level increases.

Table 4.9-4 Significant Noise Impacts from New Development On Existing Land Use

L_{dn} Category for Existing Development	Noise Increase Considered "Significant" Over Existing Noise Levels
Normally Acceptable	An increase of more than 3 dB and the total L_{dn} exceeds the "normally acceptable" category
Normally Acceptable	An increase of more than 5 dB
Conditionally Acceptable	An increase of more than 3 dB
Unacceptable	An increase of more than 3 dB

Source: City of Sunnyvale 2011

City of Sunnyvale Municipal Code

Municipal Code Title 19, Chapter 19.42, provides operational noise standards that would be enforced on residentially zoned property. Operational noise shall not exceed 75 dB at any point at the property line of the property upon which the noise or sound is generated or produced; provided, however, that the noise or

sound level is not to exceed 50 dB during nighttime or 60 dB during daytime hours at any point on adjacent residentially zoned property. If the noise occurs during nighttime hours and the enforcing officer has determined that the noise involves a steady, audible tone such as a whine, screech, or hum, or is a staccato or intermittent noise (e.g., hammering), or includes music or speech, the allowable noise or sound level cannot exceed 45 dB.

Municipal Code Title 16, Chapter 16.08, presents construction noise regulations. Construction activity is permitted between the hours of 7:00 a.m. and 6:00 p.m., Monday through Friday. Permissible construction hours of operation on Saturday are between 8:00 a.m. and 5:00 p.m. No construction activity is allowed on Sundays or on national holidays when City offices are closed. Additionally, no loud environmentally disruptive noises, such as air compressors without mufflers, continuously running motors or generators, loud playing musical instruments, radios, etc., will be allowed where such noises may be a nuisance to adjacent residential neighborhoods. The City of Sunnyvale Municipal Code does not contain quantitative standards for regulating construction noise.

4.9.2 Existing Conditions

ACOUSTIC FUNDAMENTALS

Before discussing the noise setting for the project, background information about sound, noise, vibration, and common noise descriptors is needed to provide context and a better understanding of the technical terms referenced throughout this section.

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this large range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB).

Addition of Decibels

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level

at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of A-weighted decibels) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. All sound levels discussed in this section are expressed in A-weighted decibels. Table 4.9-5 describes typical A-weighted noise levels for various noise sources.

Table 4.9-5 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	– 110 –	Rock band
Jet fly-over at 1,000 feet	– 100 –	
Gas lawn mower at 3 feet	– 90 –	
Diesel truck at 50 feet at 50 miles per hour	– 80 –	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	– 70 –	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	– 60 –	
Quiet urban daytime	– 50 –	Large business office, Dishwasher next room
Quiet urban nighttime	– 40 –	Theater, large conference room (background)
Quiet suburban nighttime	– 30 –	Library, Bedroom at night
Quiet rural nighttime	– 20 –	
	– 10 –	Broadcast/recording studio
Lowest threshold of human hearing	– 0 –	Lowest threshold of human hearing

Source: Caltrans 2013a: Table 2-5.

Human Response to Changes in Noise Levels

The doubling of sound energy results in a 3-dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher and lower frequency sounds of the same magnitude with less intensity (Caltrans 2013a:2-18). In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in

typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013a:2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2006:7-5, Caltrans 2013a:6).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006:7-4; Caltrans 2013b:7). This is based on a reference value of 1 micro inch per second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006:7-8; Caltrans 2013b:27).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2006:7-5).

Vibrations generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Table 4.9-6 summarizes the general human response to different ground vibration-velocity levels.

Table 4.9-6 Human Response to Different Levels of Ground Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.

Source: FTA 2006:7-8

Common Noise Descriptors

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors used throughout this section.

Equivalent Continuous Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013a:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period and is the basis for noise abatement criteria used by California Department of Transportation (Caltrans) and Federal Highway Administration (FHWA) (Caltrans 2013a:2-47; FTA 2006:2-19).

Maximum Sound Level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013a:2-48; FTA 2006:2-16).

Day-Night Level (L_{dn}): L_{dn} is the energy average of A weighted sound levels occurring over a 24 hour period, with a 10-dB "penalty" applied to sound levels occurring during nighttime hours between 10 p.m. and 7 a.m. (Caltrans 2013a:2-48; FTA 2006:2-22).

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the following factors:

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roads and highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources, thus propagating at a slower rate in comparison to a point source. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuate rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels, as wind can carry sound. Sound levels can be increased over large distances (e.g., more than 500 feet) from the source because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also affect sound attenuation.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction (Caltrans 2013a:2-41; FTA 2006:5-6, 6-25). Barriers higher than the line of sight provide increased noise reduction (FTA 2006:2-12). Vegetation between the source and receiver is rarely effective in reducing noise because it does not create a solid barrier unless there are multiple rows of vegetation (FTA 2006:2-11).

EXISTING NOISE ENVIRONMENT

Existing Noise- and Vibration-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where 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, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

The nearest noise-sensitive receptors are single family homes located along Lily Avenue, Toyon Avenue, and Dahlia Drive located approximately 50 feet south, west, and north of the boundary of the project site, respectively. Exhibit 4.9-1 shows the layout of these receptors relative to the project site.

Existing Noise Sources and Ambient Levels

The predominant noise source in the project area is vehicle traffic along Lawrence Expressway which borders the project site to the east. Lawrence Expressway is a high-volume county expressway that experiences average daily traffic volumes of approximately 39,700 trips. Existing traffic noise levels on roadway segments in the project area modeled using calculation methods consistent with FHWA Traffic Noise Model, Version 2.5 (FHWA 2004) and using average daily traffic (ADT) volumes, vehicle mix, and temporal distribution provided by Hexagon Transportation Consultants in the 2016 City of Sunnyvale Land Use and Transportation Element Draft Environmental Impact Report (DEIR).

Table 4.9-7 summarizes the modeled existing traffic noise levels at 100 feet from the centerline of the primary roadway segment affected by the project and lists distances from each roadway centerline to the 70, 65, and 60 L_{dn} traffic noise contours. For further details on traffic-noise modeling inputs and parameters, refer to Appendix D.

Table 4.9-7 Summary of Modeled Existing Traffic Noise Levels

Roadway Segment	L_{dn} at 100 feet from Roadway Centerline	Distance (feet) from Roadway Centerline to L_{dn} Contour		
		70	65	60
Lawrence Expressway (El Camino Real to Reed Avenue)	71.0	127	402	1,272

Notes: L_{dn} = Day-Night Level

All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow, and does not account for shielding of any type or finite roadway adjustments. For additional details, refer to Appendix D for detailed traffic data, and traffic-noise modeling input data and output results.

Source: Data modeled by Ascent Environmental in 2018

Exhibit 4.9-1 **Sensitive Receptors**

4.9.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Construction Noise and Vibration

To assess potential short-term (construction-related) noise and vibration impacts, sensitive receptors and their relative exposure were identified. Potential project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from FTA's *Guide on Transit Noise and Vibration Impact Assessment* methodology (FTA 2006) and FHWA's *Roadway Construction Noise Model User's Guide* (FHWA 2006). Reference levels for noise and vibration emissions for specific equipment or activity types are well-documented and the usage thereof common practice in the field of acoustics.

Traffic Noise

To assess potential long-term (operation-related) noise impacts due to project-generated increases in traffic, noise levels were estimated using calculations consistent with the FHWA's Traffic Noise Model Version 2.5 (FHWA 2004) and project-specific traffic volume data from the analysis prepared for the project and provided in Appendix D. The analysis is based on the reference noise emission levels for automobiles, medium trucks, and heavy trucks, and accounts for vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors. Note that the modeling conducted does not account for any natural or human-made shielding (e.g., the presence of walls, buildings, intervening topography, or stands of forest).

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, noise impacts are considered to be significant if the following could result from the implementation of the project:

- Expose persons to or generate noise levels in excess of applicable standards; The City of Sunnyvale does not have noise-related performance standards for regulating noise from construction. For the purposes of this analysis the following standards were used:
  - short-term exposure of nearby sensitive receptors to increased construction equipment-related noise levels that exceed the operational noise standards established in the City of Sunnyvale Municipal Code Title 19, Chapter 19.42 (i.e., sound level is not to exceed 60 L_{eq} during daytime hours at any point on adjacent residentially zoned property);
  - long-term exposure of nearby sensitive receptors to increased operational related noise levels that exceed the noise standards for determination of land use compatibility detailed in the City of Sunnyvale General Plan Noise Element; and
  - long-term exposure of nearby sensitive receptors to increased traffic-noise levels that exceed the significant noise impacts for new development detailed in the City of Sunnyvale General Plan Noise Element (i.e., 3 dB L_{dn} for residential land uses in the Conditionally Acceptable noise exposure range).
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project:
  - long-term exposure of sensitive receptors to increased operational related noise levels that exceed the noise standards for determination of land use compatibility detailed in the City of Sunnyvale General Plan Noise Element; and
  - long-term exposure of nearby sensitive receptors to increased traffic-noise levels that exceed the significant noise impacts for new development detailed in the City of Sunnyvale General Plan Noise Element (i.e., 3 dB L_{dn} for residential land uses in the Conditionally Acceptable noise exposure range).

- Result in a substantial temporary (or periodic) increase in ambient noise levels in the project vicinity above levels existing without the project; The City of Sunnyvale does not have noise-related performance standards for regulating noise from construction. For the purposes of this analysis the following standard was used:
  - Short-term exposure of nearby sensitive receptors to increased construction equipment-related noise levels that exceed the operational noise standards established in the City of Sunnyvale Municipal Code Title 19, Chapter 19.42 (i.e., sound level is not to exceed 60 L_{eq} during daytime hours at any point on adjacent residentially zoned property).
- Result in exposure of persons to or generation of an excessive groundborne vibration or groundborne noise level.
- For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, exposure of people residing or working in the project area to excessive noise levels.
- For a project in the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

ISSUES NOT DISCUSSED FURTHER

Stationary Noise

Mechanical equipment, such as air conditioning units, would be installed in new residences, potentially resulting in noise exposure to adjacent residences, depending on the location and proximity of new equipment to existing or new residences. Section 19.48.100 Mechanical equipment-setback requirements, of the City of Sunnyvale Municipal Code requires such equipment to be located within side or rear yards, screened from view, which would provide some noise shielding as these areas are typically within property line fences/walls. In addition, the code requires all mechanical equipment to comply with City of Sunnyvale noise limits, as defined by Section 19.42.030 of the code. Thus, new mechanical equipment would have **no impact** to sensitive receptors and this issue is not discussed further in the DEIR.

Vibration

The project does not include the operation of any new major vibration sources (e.g., roadways, transit stations) and would not locate any new sensitive receptors near existing major sources of vibration. Construction of the project would not include vibration-intensive activities such as blasting or pile driving. Therefore, the project would have **no impact** related to excessive vibration or vibration levels such that any receptors would be adversely affected, and vibration-related impacts are not discussed further in this DEIR.

Airport Noise

The project is not located within an airport land use plan, or within two miles of a public airport or public use airport. Additionally, the project is not located within 2 miles of a private airstrip; San Jose International Airport is the closest airport and is located approximately 3.25 miles east of the project site. Thus, the project would have **no impact** related to the exposure of people residing or working in the project area to excessive aircraft-related noise levels. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 4.9-1: Construction Noise

Construction activity would be limited Monday through Friday, during daytime hours and occur during less noise-sensitive daytime hours. Short-term construction-generated noise levels associated with the project could expose nearby noise-sensitive receptors to a substantial temporary increase in noise levels at the surrounding noise-sensitive receptors. This impact would be **significant**.

Construction of the project would involve noise-generating activities. Short-term construction noise levels on and near the project site would fluctuate depending on the type, number, and duration of usage for the varying types of heavy-duty equipment. The effects of construction noise largely depend on the type of construction activities being performed, noise levels generated by those activities, distances to noise-sensitive receptors, the relative locations of noise attenuating features such as vegetation and existing structures, and existing ambient noise levels.

Construction noise would be temporary in nature and would include noise from activities such as site preparation, truck hauling of material, paving, and construction of buildings. Pile-driving and/or rock blasting would not occur as part of construction. Construction noise typically occurs intermittently and varies depending on the nature of the construction activities being performed. Noise is generated by construction equipment, including excavation equipment, material handlers, and portable generators. Thus, existing noise-sensitive land uses located near areas of potential construction activity could be exposed to construction noise within the project area.

Noise-generating activities occurring during the more noise-sensitive evening and nighttime hours are of increased concern. Because exterior ambient noise levels typically decrease during the late evening and nighttime hours as typical levels of community activities (e.g., industrial activities, vehicle traffic) decrease, construction activities performed during the more noise-sensitive evening and nighttime hours could result in increased annoyance and potential sleep disruption for occupants of nearby residential land uses.

Based on the types of construction activities anticipated to occur (e.g. demolition, grading, building construction), it is expected that the primary sources of noise would include backhoes, dozers, graders, excavators, dump trucks, pavers and various trucks (e.g., job trucks, water trucks, fuel trucks). Noise levels generated by common types of construction equipment are shown in Table 4.9-8.

As described in Chapter 3, "Project Description," construction is anticipated to last approximately 16 months and would occur between 8:00 a.m. and 5:00 p.m., Monday through Friday. The construction-noise evaluation conservatively assumed that three of the highest noise-generating pieces of equipment could operate simultaneously near each other and near the boundaries of the project site.

Based on the reference noise levels listed in Table 4.9-8 and accounting for typical usage factors of individual pieces of equipment, on-site construction-related activities could generate a combined hourly average noise level of approximately 86 L_{eq} and a maximum noise level as high as 90 L_{max} at 50 feet from the project boundary. Detailed inputs and parameters for the estimated construction noise exposure levels are provided in Appendix D.

Table 4.9-8 Noise Emission Levels from Construction Equipment

Equipment Type	Typical Noise Level (dB) @ 50 feet
Dump Truck	76
Drill Rig Truck	79
Concrete Mixer	85
Crane	85
Dozer	85
Grader	85
Excavator	85
Front End Loader	80
Paver	89
Roller	85
Scraper	89

Notes: Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacturer-specified noise levels for each piece of heavy construction equipment.

Source: FTA 2006

The nearest noise-sensitive receptors that could be adversely affected by construction noise are shown in Exhibit 4.9-1 and Table 4.9-9. These values represent a conservative assessment because the modeling assumes that three of the highest noise-generating pieces of equipment operate simultaneously near each other in close proximity to the boundaries of the project site. All nearby-sensitive receptors would be located within the City of Sunnyvale; and thus, City of Sunnyvale noise standards would apply. The closest receptors are approximately 50 feet to south, west, and north of the project site.

Table 4.9-9 Noise Exposure at Off-Site Noise-Sensitive Receptors from Typical Daytime Construction Activity

Sensitive Receptor	Distance to Project Site (feet)	Daytime Construction Noise Exposure Level at Sensitive Receptor [1]	
		L_{eq} (dB)	L_{max} (dB)
Nearest Sensitive Receptor	50	86	90

Notes:

[1] Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacture-specified noise levels for each piece of heavy construction equipment.

Source: Data modeled by Ascent Environmental in 2018

According to Municipal Code Chapter 16.08, the legal hours of construction are between 7:00 a.m. and 6:00 p.m. Monday through Friday and between 8:00 a.m. and 5:00 p.m. on Saturdays. However, as shown in Table 4.9-9, daytime construction-generated noise levels could be as high as 86 L_{eq} and 90 L_{max} at the nearest sensitive receptor. Thus, construction activities are anticipated to result in a substantial temporary increase in noise levels that would exceed the significance threshold of 60 L_{eq} during daytime hours at any point on adjacent residentially zoned property. Therefore, construction-related noise impacts are considered **significant**.

Mitigation Measure 4.9-1: Implement Construction-Noise Reduction Measures

To minimize noise levels during construction activities, the construction contractors shall comply with the following measures during all construction work that will be identified in project improvement plans:

- All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

- Noise-reducing enclosures and techniques shall be used around stationary noise-generating equipment (e.g., concrete mixers, generators, compressors).

- Where available and feasible, construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that only sound when an object is detected. Self-adjusting backup alarms shall automatically adjust to 5 dB over the surrounding background levels. All non-self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels.

- Designate a disturbance coordinator and post that person's telephone number conspicuously around the construction site and provide to nearby residences. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any feasible measures to alleviate the problem.

- Install temporary noise curtains as close as feasible to noise-generating activity and that blocks the direct line of sight between the noise source and the nearest noise-sensitive receptor(s). Temporary noise curtains shall consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side. The noise barrier layer shall consist of rugged, impervious, material with a surface weight of at least one pound per square foot.

Significance after Mitigation

Implementation of Mitigation Measure 4.9-1 would provide substantial reductions in levels of construction noise exposure at noise-sensitive receptors by ensuring proper equipment use; locating noise-generating equipment away from sensitive land uses; requiring a temporary solid barrier around the project site and staging area; and requiring the use of enclosures, shields, and noise curtains (noise curtains typically can reduce noise by up to 10 dB [EPA 1971]). However, construction activities could occur approximately 50 feet from existing residential uses to the south, west, and north of the project site. Although, noise reduction would be achieved with implementation of Mitigation Measure 4.9-1, it is likely that noise levels are likely still exceed 60 L_{eq} at the nearest sensitive receptors during daytime hours. this impact would remain **significant and unavoidable.**

Impact 4.9-2: Operational-Related Traffic Noise

Traffic generated by the project would result in less than 1 dB increase in traffic noise on Lawrence Expressway, the primary access road to the project site. This level of noise increase would not be perceptible to the human ear and, therefore, would not be considered a substantial increase in noise. This impact would be **less than significant.**

Generally, a doubling of a noise source is required to result in an increase of 3 dB, which is perceived as barely noticeable by humans (Egan 2007). Thus, in regard to traffic noise specifically, a noticeable increase in traffic noise could occur with a doubling in the volume of traffic on a roadway. This noise impact analysis is based on the project-specific traffic study conducted and discussed in Section 4.7, "Transportation and Circulation." Operation of the project would be expected to result in a net increase of approximately 629 new daily trips and in the associated traffic-noise levels along area roadway segments, Lawrence Expressway is the primary access road to the project site and the predominant noise source in the project area. Therefore, the traffic noise analysis focuses primarily on project-related noise increases on Lawrence Expressway.

Based on the traffic analysis conducted for the project, existing annual average daily trip volume on Lawrence Expressway is 39,672. A daily increase of 629 vehicles would not result in a doubling of traffic on this road and consequently would not result in a substantial increase in traffic noise. Further, according to

noise modeling results, the increase in noise would be less than 1 dB (see Appendix D for the detailed modeling results), not exceeding the City of Sunnyvale's CEQA criteria for determining substantial increases in noise, as shown in Table 4.9-4. It should also be noted that the project would construct an 8-foot wall along its frontage with Lawrence Expressway that would improve existing noise conditions on the project site and the adjacent residential areas. Therefore, traffic noise generated by project operation would not result in a substantial increase in noise levels and this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

5 PROJECT ALTERNATIVES

5.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT REQUIREMENTS

The California Code of Regulations (CCR) Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe "... a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the "rule of reason." This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (State CEQA Guidelines Section 15126.6[d]).

The State CEQA Guidelines further require that the "no project" alternative be considered (Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a project with the impacts of not approving the project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "...shall also identify an environmentally superior alternative among the other alternatives" (Section 15126[e][2]).

In defining "feasibility" (e.g., "... feasibly attain most of the basic objectives of the project ..."), State CEQA Guidelines Section 15126.6(f) (1) states, in part:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body, here the Sunnyvale City Council (See PRC Sections 21081.5, 21081[a][3]).

5.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

5.2.1 Attainment of Project Objectives

Potential project alternatives carried forward for analysis were selected based on their ability to meet most of the project's stated objectives:

- Create a residential community offering two-story single-family detached homes for sale in an area with low, new home availability.
- Provide housing located within close proximity to major regional transit and several large private tech employers.
- Meet and/or exceed Green Building Standards.
- Create a project that will set aside a 2-acre public park on-site for future residents and surrounding neighborhoods.
- Create a residential community that makes efficient use of land while offering lower densities and building masses that compliment existing residential developments of adjacent land uses in the project area.
- Create a residential development that is consistent with the City's vision and goals for sustainable growth and economic development.

5.2.2 Summary of Project Impacts

The technical sections in Chapter 4 of this DEIR identify the environmental impacts of the project. Potentially feasible alternatives were developed with consideration of avoiding or lessening the significant adverse effects of the project. The following list is comprised significant impacts associated with the proposed ordinance.

AIR QUALITY

- Particulate matter construction emissions could contribute to local pollutant concentrations that exceed NAAQS and CAAQS. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.2-1).

ARCHAEOLOGICAL, HISTORIC, AND TRIBAL CULTURAL RESOURCES

- Implementation of the project would result in the demolition of existing site structures that appear eligible for CRHR and local listing. Mitigation has been recommended to reduce this impact. However, the mitigation measures would not completely offset this impact. Therefore, the impact is **significant and unavoidable** (Impact 4.3-1). This impact would also be **cumulatively considerable** and **significant and unavoidable** (Impact 6-4).
- Project-related ground-disturbing activities could result in discovery or damage of yet undiscovered subsurface unique archaeological resources. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.3-2).

BIOLOGICAL RESOURCES

- Project implementation could result in the disturbance or loss of one special-status plant species – Congdon's tarplant. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.4-1).
- Project implementation could result in the disturbance or loss of burrowing owls and their burrows, if present, through disturbance to grassland habitat during ground disturbance activities, such as grading, trenching, or vegetation removal. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.4-2).
- Project implementation could result in the disturbance or loss of nesting raptors, special-status birds, and other birds, if present, through removal of trees and vegetation. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.4-3).
- Project implementation could result in the removal of or damage to trees, including those considered "protected trees" under the City of Sunnyvale Tree Preservation Ordinance. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.4-4).

HAZARDS AND HAZARDOUS MATERIALS

- Elevated concentrations of DDT, chlordane, and dieldrin in soil were found above residential screening values in samples recently collected on-site. Demolition, grading, and other construction-related activities could disturb these hazardous materials and become detrimental to the health of construction workers and other people who come into contact with contaminated materials. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.6-2).

TRANSPORTATION AND CIRCULATION

- Project construction may require restricting or redirecting pedestrian, bicycle, and vehicular movements at locations around the project site to accommodate construction, staging, and modifications to existing infrastructure. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.7-5).

GREENHOUSE GASES

- Project construction and operation would result in greenhouse gas emissions that may conflict with State reduction efforts. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 4.8-1).

NOISE

- Short-term construction-generated noise levels associated with the project could expose nearby noise-sensitive receptors to a substantial temporary increase in noise levels at the surrounding noise-sensitive receptors. Mitigation has been recommended to reduce this impact. However, the mitigation measures would not completely offset this impact. Therefore, the impact is **significant and unavoidable** (Impact 4.9-1).

5.3 ALTERNATIVES DISMISSED FROM DETAILED EVALUATION

The following describes other alternatives considered by City of Sunnyvale, but dismissed from further evaluation in this DEIR, with a brief description of the reasons for their rejection.

5.3.1 Off-Site Alternative

The possibility of an off-site location was considered as an alternative to the project; however, objectives of the project include creating a residential community with single-family detached homes for sale in an area with low new home availability and providing housing in proximity to major regional transit and several large private tech employers. The project site is the last vacant parcel in the City that is zoned for single-family development in close proximity to major regional transit (Lawrence Station for Caltrain). It is also noted that the project site is surrounded by existing residential development, utility connections, and roadway access. For these reasons, the Off-Site Alternative was dismissed from detailed evaluation.

5.4 EVALUATION OF ALTERNATIVES

The following alternatives to the project are evaluated in detail, as described below:

- Alternative 1: No Project, No Development
- Alternative 2: No Project, General Plan Buildout
- Alternative 3: Retain Farm Stand with Reduced Density

For each alternative, a brief discussion of its principal characteristics is followed by an analysis of the alternative. The emphasis of the analysis is on a determination of whether or not the alternative would reduce, eliminate, or create new significant impacts, as well as the alternative's relative beneficial effects compared to the project and how well the alternative meets each of the project objectives. This section concludes with a discussion of the environmentally superior alternative.

5.4.1 Alternative 1: No Project, No Development

CEQA requires consideration of the No Project Alternative, which addresses the impacts associated with not moving forward with the project. The purpose of analyzing the No Project Alternative is to allow decision-makers to compare the impacts of the project versus no project. CEQA indicates that in certain instances, the no project alternative means 'no build' wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (State CEQA Guidelines Section 15126[e][3][B]). These latter conditions were evaluated under Alternative 2: No Project, General Plan Buildout.

Although preservation of the existing undeveloped site condition is considered less likely than future development of the project site, examination of the comparative environmental impacts between the project and Alternative 1: No Project, No Development (Alternative 1)is useful. Whereas the DEIR focuses on the direct, indirect, and cumulative impacts of the project, the analysis of the No Project, No Development Alternative considers the effects of leaving the project site in its current condition. In general, the project site consists primarily of vacant land with three residences, a vacant farm stand, and several other structures.

EVALUATION OF ENVIRONMENTAL EFFECTS

Aesthetics

Alternative 1 would result in no change to the existing visual character of the project site and no changes to views of or from the project site. Further, there would be no increase in lighting or glare on-site. Thus, Alternative 1 would have a **less than significant** impact to visual character and light/glare. Although the project would result in a less than significant impact related to aesthetics, Alternative 1 would result in no changes to the existing visual condition. Relative to the project, this impact would be of **lesser** magnitude under Alternative 1.

Air Quality

Construction and new operational air pollutant emissions would not occur and no air quality impacts would occur under Alternative 1. The project would result in potentially significant construction air quality impacts that would addressed through implementation of mitigation measures identified in Impact 4.2-1. Thus, relative to the project, air quality impacts would be of **lesser** magnitude under Alternative 1.

Archaeological, Historic, and Tribal Cultural Resources

Implementation of Alternative 1 would not result in the loss of the Corn Palace historical site and would not disturb any known or unknown cultural resources or undisturbed human remains because no ground disturbance would occur. As identified in Impact 4.3-1 and 4.3-2, development of the project would result in significant historic resource impacts and potentially significant impacts to undiscovered archaeological resources. Relative to the project, impacts would be of **lesser** magnitude under Alternative 1 because it would avoid loss of on-site historic resources and would not result in ground disturbance that could impact undiscovered archaeological resources.

Biological Resources

Alternative 1 would have **no impact** on special-status species, habitats, or conflicts with the City of Sunnyvale Tree Preservation Ordinance because no development would occur with this alternative. The project would result in ground-disturbance and development of the project site that could adversely affect Congdon's tarplant, burrowing owl, nesting raptors, special-status birds, and protected trees as described in Impacts 4.4-1, 4.4-2. 4.4-3, and 4.4-4. Mitigation measures have been identified to reduce project impacts to less than significant. Relative to the project, impacts would be of **lesser** magnitude under Alternative 1 because it would avoid project impacts to biological resources.

Energy

Alternative 1 would have a **less-than-significant** energy impact as it would not result in any new development that could result in a wasteful, inefficient, or unnecessary consumption of energy. The project would increase energy usage associated with construction, operation, and vehicle use. As described in Section 4.5, "Energy", the project's energy use impact would be less than significant as it would not result in inefficient, wasteful, and unnecessary consumption of energy. Relative to the project, impacts would be of **lesser** magnitude under Alternative 1 because it would avoid any new use of energy.

Hazards and Hazardous Materials

Elevated concentrations of DDT, chlordane, and dieldrin in soil were found above residential screening values on the project site. Alternative 1 would have a **less-than-significant** hazards impact as it would not disturb on-site soil conditions that could impact public health. The project could result in potentially significant public health impacts that would be mitigated through the implementation of the project site's Feasibility Study/Remedial Action Workplan as described in Impact 4.6-2. Relative to the project, impacts would be of **lesser** magnitude under Alternative 1 because it would avoid disturbing on-site soils.

Transportation and Circulation

Alternative 1 would have **no impact** on traffic operations, transit, pedestrian, and bicycle facilities as no new transportation demand would occur. The project would result in significant but mitigatable impacts related to

construction traffic (Impacts 4.7-5). Relative to the project, impacts would be of **lesser** magnitude under Alternative 1 because it would not generate any new transportation demands.

Greenhouse Gas Emissions

Alternative 1 would have **no impact** related to GHG as it would not generate any new GHG emissions because no site development would occur. The project would generate new GHG emissions associated project construction and operation (stationary and mobile sources). Mitigation measures have been identified to reduce project impacts to less than significant (Impact 4.8-1). Relative to the project, impacts would be of **lesser** magnitude under Alternative 1 because it would avoid generating new GHG emissions.

Noise and Vibration

Alternative 1 would have **no impact** related to noise and vibration because no development of the project site would occur. The project would result in significant and unavoidable construction noise impacts(Impact 4.9-1). Relative to the project, impacts would be of **lesser** magnitude under Alternative 1 because it would not generate any new transportation demands.

5.4.2 Alternative 2: No Project, General Plan Buildout

The project site is designated as Low-Medium Density Residential in the City of Sunnyvale General Plan LUTE and the LSAP. The project site has been designated as Low-Medium Density Residential with a Planned Development combining zoning district (R1.5-PD) under the City's Zoning Ordinance. The project site is surrounded by existing residential development and roadways. The project is consistent with the current land use designation and zoning. Therefore, it is reasonable to expect that if the project were not approved, the project site would be developed as residential development consistent with the land use and zoning designations. Therefore, it is assumed that the Alternative 2: No Project, General Plan Buildout would result in similar development of the project site. The proposed park is also assumed as part meeting LSAP policies related to parks and open space for the project site (LSAP Policy OSP-1 and Chapter 6 Urban Design – Southern Residential Subarea) (City of Sunnyvale 2016).

EVALUATION OF ENVIRONMENTAL EFFECTS

Alternative 2 would result in **similar** significant environmental impacts identified for the in Sections 4.1 through 4.9 of this DEIR because the extent of site development would be the same as the project.

5.4.3 Alternative 3: Retain Farm Stand with Reduced Density

Alternative 3 would retain the Corn Palace Farm Stand structure associated parking area located in the southeast corner of the project site and incorporated into the design of the project proposed public park. Retention of the Corn Palace Farm Stand would provide further mitigation associated with the loss of historical resources of the project site given its visual prominence and association to the historic use of the project site. The proposed park would be expanded by approximately 0.2-acre (Exhibit 5-1). Under the project as proposed, there are two residences proposed for this area; therefore, Alternative 3 would result in construction of 56 single-family residences instead of 58. All other components of Alternative 3 would be the same as the project.

Source: Image provided by SSA Landscape Architects in 2018

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Exhibit 5-1

Alternative 3

ASCENT ENVIRONMENTAL

EVALUATION OF ENVIRONMENTAL EFFECTS

Aesthetics

Alternative 3 would result in development that is consistent visual character and lighting and glare conditions of the project area. Thus, Alternative 3 would have a **less than significant** impact to visual character and light/glare. Relative to the project, this impact would be of **similar** magnitude under Alternative 3 because it would have the same extent of site development as the project.

Air Quality

Like the project, Alternative 3 would result in potentially significant construction air quality impacts that would addressed through implementation of mitigation measures identified in Impact 4.2-1. Thus, relative to the project, air quality impacts would be of **similar** magnitude under Alternative 3.

Archaeological, Historic, and Tribal Cultural Resources

Implementation of Alternative 3 would result in the loss of significant features of the Corn Palace historical site similar to the project but would retain the Corn Palace Farm Stand to partially mitigate this impact. However, the impact to historic resources would remain significant and unavoidable. Like the project, this alternative could result in potentially significant impacts to undiscovered archaeological resources. Relative to the project, impacts would be of **lesser** magnitude under Alternative 3 because it retains the Corn Palace Farm Stand.

Biological Resources

Like the project, Alternative 3 would result in ground-disturbance and development of the project site that could adversely affect Congdon's tarplant, burrowing owl, nesting raptors, special-status birds, and protected trees as described in Impacts 4.4-1, 4.4-2. 4.4-3, and 4.4-4. Mitigation measures have been identified to reduce project impacts to less than significant. Relative to the project, impacts would be of **similar** magnitude under Alternative 3 because it would have the same extent of site development as the project.

Energy

The project's energy use impact would be less than significant as it would not result in inefficient, wasteful, and unnecessary consumption of energy. Alternative would also result in a less than significant impact to energy use and would have a reduced energy demand as compared to the project because of the reduced residential development of the project site. Relative to the project, impacts would be of **lesser** magnitude under Alternative 3 because it would have fewer residential units.

Hazards and Hazardous Materials

Elevated concentrations of DDT, chlordane, and dieldrin in soil were found above residential screening values on the project site. Like the project, Alternative 3 could result in potentially significant public health impacts that would be mitigated through the implementation of the project site's Feasibility Study/Remedial Action Workplan as described in Impact 4.6-2. Relative to the project, impacts would be of **similar** magnitude under Alternative 3 because it would have the same extent of site development as the project.

Transportation and Circulation

Like the project, Alternative 3 would result in significant but mitigatable impacts related to construction traffic (Impacts 4.7-5). Relative to the project, impacts would be of **lesser** magnitude under Alternative 3 because it would have fewer residential units.

Greenhouse Gas Emissions

Like the project, Alternative 3 would generate new GHG emissions associated project construction and operation (stationary and mobile sources). Mitigation measures have been identified to reduce project impacts to less than significant (Impact 4.8-1). Relative to the project, impacts would be of **lesser** magnitude under Alternative 3 because it would have fewer residential units generating GHG emissions.

Noise and Vibration

Like the project, Alternative 3 would result in significant and unavoidable construction noise impacts(Impact 4.9-1). Relative to the project, impacts would be of **similar** magnitude under Alternative 3 because it would have the same extent of site development as the project.

5.4.4 Comparison of Alternatives

Table 5-1 summarizes the environmental analyses provided above for the project alternatives.

Table 5-1 Comparison of the Environmental Impacts of the Alternatives in Relation to the Project

Environmental Topic	Project	Alternative 1: No Project, No Development	Alternative 2: No Project, General Plan Buildout	Alternative 3: Retain Farm Stand with Reduced Density
Aesthetics	Less Than Significant	Less	Similar	Similar
Air Quality	Less Than Significant (With Mitigation)	Less		Similar
Archaeological, Historic, and Tribal Cultural Resources	Significant and Unavoidable	Less	Similar	Less (Historic Resources) Similar (Archaeological Resources)
Biological Resources	Less Than Significant (With Mitigation)	Less	Similar	Similar
Energy	Less Than Significant	Less	Similar	Less
Hazards and Hazardous Materials	Less Than Significant (With Mitigation)	Less	Similar	Similar
Transportation and Circulation	Less Than Significant (With Mitigation)	Less	Similar	Less
Greenhouse Gas Emissions	Less Than Significant (With Mitigation)	Less	Similar	Less
Noise and Vibration	Significant and Unavoidable	Less	Similar	Similar

Source: Compiled by Ascent Environmental in 2018

5.4.5 Environmentally Superior Alternative

Section 15126.6 of the California Code of Regulations (CCR) suggests that an EIR should identify the "environmentally superior" alternative. "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

Alternative 1: No Project, No Development is the environmentally superior alternative, because all of the significant impacts of the project would be avoided. However, Alternative 1: No Project, No Development would not meet any of the project's objectives.

With Alternative 3, impacts to historic, energy, transportation and circulation, and greenhouse gases would be reduced, when compared to the project. Because Alternative 3 would result in reduced environmental impact than the project as proposed, it would be considered environmentally superior. This alternative could also meet most of the project's objectives. It should be noted that Alternative 3 would not avoid significant unavoidable impacts for the loss of historic resources (Impact 4.3-1) and construction noise (Impact 4.9-1).

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6 OTHER CEQA SECTIONS

6.1 CUMULATIVE IMPACTS

Section 15130(a) of the State CEQA Guidelines requires a discussion of the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Cumulatively considerable, as defined in CEQA Guidelines Section 15065(a)(3), means that the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." The State CEQA Guidelines Section 15355 defines a cumulative impact as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

6.1.1 Cumulative Impact Approach

CEQA Guidelines Section 15130 identifies two basic methods for establishing the cumulative environment in which a project is considered: the use of a list of past, present, and probable future projects or the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. This cumulative analysis uses a combination of the "list" approach and the "projections" approach to identify the cumulative setting.

The effects of past and present projects on the environment are reflected by the existing conditions in the project area. A vacant farm stand, associated parking area, and agricultural supply well are located in the southeast corner of the project site and three single-family homes with three outbuildings and other shed structures are located in the northern portion of the project site. The remainder of the project site was historically used as agricultural land and had been under a Williamson Act contract until its cancellation in 1990 (City of Sunnyvale 1990). The land was last cultivated in 2015 and since then is mowed or disked as needed up to five times a year for purpose of fire safety.

In December 2016, City Council approved the Lawrence Station Area Plan (LSAP). The LSAP, which includes the project site, guides future development of the 319-acre urbanized area surrounding the Lawrence Caltrain Station that better supports and promotes public transit usage. In April 2017, the City Council adopted an update to the City's Land Use and Transportation Element (LUTE) of its General Plan. The project would be consistent with the designated land use of the project site under the LSAP and LUTE (i.e., Low-Medium Density Residential) and existing adjacent residential uses. The "projections" approach consists of the anticipated buildout of the project area under the area identified in the 2016 LSAP and the entire City under the 2017 LUTE Update. At buildout, the LSAP area would result in 3,523 residential dwelling units and 3.8 million square feet of commercial/office/industrial uses, while the City would have 72,100 residential dwelling units and 59.8 million square feet of commercial/ office/ industrial uses, The environmental impacts of growth under both of the LSAP and LUTE Update were evaluated in their associated EIRs (LSAP EIR State Clearinghouse No. 2013082030 and LUTE Update EIR State Clearinghouse No. 2012032003).

Probable future projects are those in the project vicinity that have the possibility of interacting with the project to generate a cumulative impact (based on proximity and construction schedule) and either:

- are partially occupied or under construction,
- have received final discretionary approvals,

- have applications accepted as complete by local agencies and are currently undergoing environmental review, or
- are projects that have been discussed publicly by an applicant or that otherwise become known to a local agency and have provided sufficient information about the project to allow at least a general analysis of environmental impacts.

6.1.2 Cumulative Setting

GEOGRAPHIC SCOPE

The geographic area that could be affected by the project varies depending on the type of environmental resource being considered. When the effects of the project are considered in combination with those other past, present, and probable future projects to identify cumulative impacts, the other projects that are considered may also vary depending on the type of environmental effects being assessed. Table 6-1 presents the general geographic areas associated with the different resources addressed in this analysis.

Table 6-1 Geographic Scope of the Cumulative Impacts

Aesthetics	Project site and surrounding public viewpoints
Air Quality	Region (pollutant emissions that affect the air basin), immediate project vicinity (pollutant emissions that are highly localized)
Archaeological, Historic, and Tribal Cultural Resources	Project site
Biological Resources	Defined differently for each species, based on species distribution, habitat requirements, and scope of impact from proposed activities
Energy	Region and immediate project vicinity
Hazards and Hazardous Materials	Project site and immediate project vicinity
Transportation and Circulation	Project site and surrounding areas
Greenhouse Gas Emissions	Global/statewide
Noise and Vibration	Project site and immediate project vicinity

Source: Data compiled by Ascent Environmental in 2018

PROJECT LIST

Table 6-2 provides the list of probable future projects that meet the requirements stated above. Table 6-2 identifies probable future projects that were considered in the development and analysis of potential cumulative impacts and the location of each is mapped in Exhibit 6-1 (the map numbering in Exhibit 6-1 corresponds to the numbering in Table 6-2). In addition to these projects, the City of Sunnyvale has initiated a proposed update to the LSAP to provide additional housing opportunities adjacent to the Caltrain Lawrence Station (potential increase of 1,000 to 2,800 residential units) and the planned electrification of the Caltrain line that has begun construction planning. These probable future projects meet the criteria described above because they are in the project vicinity and have the possibility of interacting with the project to generate a cumulative impact.

Significance criteria, unless otherwise specified, are the same for cumulative impacts as project impacts for each environmental topic area. When considered in relation to other reasonably foreseeable projects, cumulative impacts to some resources would be significant and more severe than those caused by the proposed project alone.

Table 6-2 Cumulative Projects List

Project Number	Location	Description	Residential Units and/or Non-Residential Area	Project Status
City of Sunnyvale				
1	750 Lakeway Drive	Redevelopment of a 232-room Residence Inn with partial demolition of 32 rooms and construction of new 7-story hotel with 111 guest rooms (79 net new rooms). Project also includes 32 structured parking spaces and associated site modifications.	79 net new guest rooms	Approved by Planning Commission
2	1250 Lakeside Drive	Development of a vacant site with two new buildings and associated site improvements - a six-story, 263-room hotel with an attached 3,000 square feet (sf) restaurant and an attached three-level above grade parking structure; and a five-story, 250-unit apartment building over a two-level, above-grade podium parking garage. Project includes an amendment to the Lakeside Specific Plan to revise the land use configuration and make other miscellaneous updates. Project also proposes a Tentative Parcel Map to create two lots for each land use.	263-room hotel ; 3,000 sf restaurant; 250-unit apartments	Approved by City Council
3	1230 Oakmead Parkway	Site and building modifications to an existing office building resulting in 7,449 net new square footage (42% FAR).	7,449 sf office	Under Review
4	1080 Stewart Drive	Redevelopment of a hotel site (Residence Inn) resulting in 357 guest rooms. The new 7-story building will contain 133 guest rooms. (24 of the 248 existing guest rooms are to be demolished, resulting in 109 net new rooms).	109 new guest rooms	Approved by Planning Commission
5	1 AMD Place	Redevelop a site to construct 1,074 dwelling units (130 townhomes, 887 mid-rise apartments, 57 walk up apartments) including extension of a public street, and dedication of a 6.5-acre (ac) public park.	1,074 units	Under Review
6	1060 Stewart Drive	Demolish seven (120,399 sf) of the nine (293,455 sf) existing mini-storage buildings; construct two, 4-story, mini-warehouse buildings (170,016 sf and 147,376 sf, total new 317,392 sf), resulting in a total of 490,448 sf for the entire site (net new 196,993 sf), resulting in 43.4% Lot Coverage and 166% FAR for the public storage (self-storage) use. See PR comments (File No. 2017-7416) for previous comments.	490,448 sf self-storage/warehouse (net new 196,993 sf),	Under Review
7	975 Stewart Drive	57 multi-family apartment development.	57 units	Approved by Planning Commission
8	915 De Guigne Drive	450 townhouse units and demolition of the existing manufacturing site. Also see GPA and RZ under 2014-7416	450 units	Approved by City Council
9	629 E. Taylor Avenue	Construct 20 three-story townhome-style condominium units in the Fair Oaks Junction Sense of Place area (industrial to residential transition site) and create one common lot and 20 condominium units. Project includes site improvements and demolition of the existing industrial buildings.	20 units	Under Construction
10	680 E Taylor Avenue	18 new townhouse units and a recreation building (modification to a prior permit approval (SDP 2013-7272))	18 units	Under Construction
11	698 E Taylor Avenue	Redevelopment of an industrial site with 49 townhome-style condominium units.	49 units	Approved by Planning Commission
12	280 Santa Ana Ct./ 280 N. Wolfe	Allow three 6-story office buildings with a total of 777,170 sf and 30,000 sf of amenities.	777,170 sf office; 30,000 sf amenities	Under Construction
13	111 W. Evelyn Avenue	3-story office building totaling 69,102 sf with underground parking. Related to the proposed downtown specific plan amendments and EIR (2017-8047).	69,102 sf office	Under Review
14	388 E. Evelyn Avenue	Development of a 67-unit apartment building utilizing state and green building density bonuses.	67 units	Under Construction

Table 6-2 Cumulative Projects List

Project Number	Location	Description	Residential Units and/or Non-Residential Area	Project Status
15	899 Kifer Road	Allow a General Plan Amendment for an Industrial Intensification Designation and Rezoning from M-S to M-S/100% FAR.	N/A	Under Review
16	701 E. Evelyn Avenue	Redevelopment of an 11.04-ac industrial/R&D site with 204 three-story townhome-style condominiums and concierge trash service.	204 units.	Under Construction
17	711 E. Evelyn Avenue	Modifications to the previously approved project (2014-7656) for a 204-townhome unit development to add a 0.37-ac parcel and 11 additional units at 711 E. Evelyn Avenue. The modified overall project would total 11.41 ac and 215 townhome units.	215 units	Approved by Planning Commission
18	1050 Kifer Road	Redevelopment of a 21.7-ac site, including construction of two new four-story office/R&D buildings and two parking structures resulting in 755,144 sf and 80% Floor Area Ratio (Intuitive Surgical).	755,144 sf offices and parking structures	Under Construction
19	1120 Kifer Road	Redevelop a 7.99-ac industrial property with mixed-use, including 7,400 sf of retail and 520 apartment units (Greystar).	520 units; 7,400 sf retail	Under Construction
20	1122 Aster Avenue	Redevelopment of a 1.66-ac site into 34 three-story townhomes. Project includes Vesting Tentative Map to subdivide the site into 34 lots and one common lot.	34 units	Under Construction
21	603 Old San Francisco Road	Request for a General Plan Amendment Initiation for an existing 0.74-ac site to change from Neighborhood Commercial to High Density Residential.	N/A	Under Review
22	669 Old San Francisco Road	Allow a 6-unit, thee-story townhouse development; existing single-family homes to be demolished.	6 units	Under Review
23	1040 Sunnyvale-Saratoga Road	A new 3,180 sf convenience store and trash enclosure for an existing fueling station	3,180 sf retail	Approved by City Council
24	838 Azure Street	Develop four new single-family homes. Two single family homes are proposed to be demolished as part of the application.	4 units	Approved by City Council
25	655 S. Fair Oaks Avenue	Add 268 units to an existing 766-unit apartment community.	268 units	Under Construction
26	1010 Sunnyvale-Saratoga Road	Allow construction of a 18,600 sf commercial building for child care use (240 children)	18,600 sf commercial	Under Construction
27	845 Maria Lane	Redevelopment of a site with a 5-unit townhome-style project.	5 units	Under Construction
28	1162 Sunnyvale-Saratoga Road	Redevelop an existing 11-unit apartment complex into 14 three-story townhomes. Per applicant the project is one lot with 14 condos.	14 units	Under Review
29	830 E. El Camino Real	Demolish an existing single-story restaurant (Crazy Buffet) and construct a new 127-unit, four-story hotel with underground parking garage on a 2.56-ac parcel.	127 units	Approved by Planning Commission
30	840 E. El Camino Real	Combine two commercial properties and construct an approximately 10,350-square foot single-story multi-tenant commercial building (retail, office and restaurant uses) with surface parking.	10,350 sf commercial	Approved by Planning Commission
31	861 E. El Camino Real	Redevelopment of a site to allow a 162-room hotel (Hampton Inn). Variance for solar shading.	162 guest rooms	Approved by City Council
32	871 and 895 E. Fremont Avenue	Redevelopment of a 5.49-ac site with 138 residential units (39 townhomes and 99 apartments) plus 6,934 sf of retail/office use with surface and underground parking. Project involves Rezoning of 895 E. Fremont Avenue from C-1/ECR to R-3/ECR and preparation of an Environmental Impact Report (EIR).	138 units; 6,934 sf of retail/office	Approved by City Council

Table 6-2 Cumulative Projects List

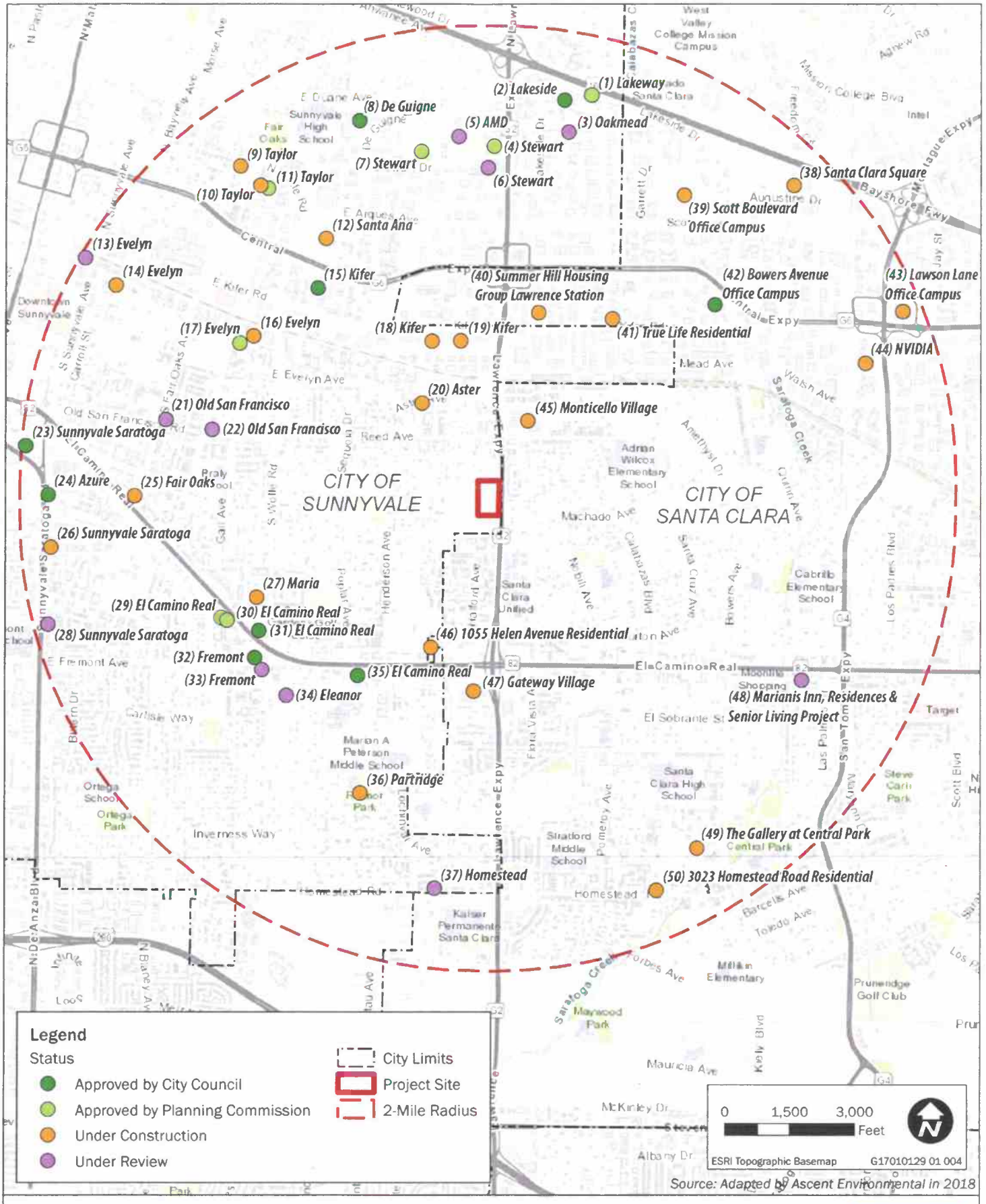
Project Number	Location	Description	Residential Units and/or Non-Residential Area	Project Status
33	898 E. Fremont Avenue	Demolish and reconstruct an existing gas service station and add a new 3,725 square building consisting of a 2,398 sf convenience store and 1,327 restaurant tenant and associated site improvements.	3,725 sf retail	Under Review
34	932 Eleanor Way	Change the zoning from R-1 (Low Density Residential) to R-0 (Low Density Residential) for two lots (932 Eleanor Way and 1358 Hampton).	N/A	Under Review
35	1008 E. El Camino Real	Rezone the property at 1314-1320 Poplar Avenue from R-1/ECR (Low Density Residential/Precise Plan for El Camino Real) to C-2/ECR (Highway Business Commercial/Precise Plan for El Camino Real) and redevelop former mobile home park (Conversion Impact Report certified and closure approved in January 2016) and existing duplex property comprising a project site of 2.1 ac into a 108-unit, 5-story mixed income (20% of units will be affordable to very low income households) rental housing complex with associated site improvements.	108 units	Approved by City Council
36	1515 Partridge Avenue	Allow up to 44 children for a preschool within an existing church building where 30 children was previously approved (UP 7277).	N/A	Under Construction
37	18771 E. Homestead Road	A request for a 5-lot subdivision and development of 5 new single-family homes on a 0.80-ac lot.	5 units	Under Review
51	1155 Aster Avenue	Proposed redevelopment of an existing construction materials site consisting of 16.93 acres that would consist of 412 apartments, 189 condominiums, and 140 townhomes with 1,500 square feet of retail uses.	742 units; retail uses	Under Review
City of Santa Clara				
38	2600-2016 Augustine Drive (Multiple Addresses on Augustine, Montgomery, Scott, Coronado and Octavious) [Santa Clara Square-Residential Mixed-Use]	The project proposes an infill, mixed-use residential development project on a 39.7-ac site that would consist of approximately 2,200 rental apartment units that would be developed in 8 apartment complexes located between Bowers Avenue and San Tomas Aquino Creek. The project includes parking garages as part of each residential complex. The retail component of the proposed apartment neighborhood will add approximately 40,000 sf of retail to the previously approved 125,000 sf adjacent retail center. The project also includes approximately 4,500 sf of leasing space, and approximately 38,000 sf of amenity space.	2,200 units; 40,000sf retail, 4,500sf leasing space; 38,000sf amenities	Under Construction
39	3333 Scott Boulevard (Scott Boulevard Office Campus)	Existing entitlements allow 735,000 sf of office space in five, four-story office buildings. An application to revise the project is under review and proposes a Variance and Tentative Parcel Map to allow an increase to a total building square footage of 1,350,713, developed in up to six, 12-story buildings with a total of 4,345 surface and garage parking spaces.	1,350,713 sf office	Under Construction
40	3505 Kifer Road (Summer Hill Housing Group Lawrence Station)	Construction of a 988 dwelling unit development consisting of approximately 35,225 sf of retail space and approximately 4,000 sf of amenity space.	988 units; 35,225 sf retail; 4,000 sf amenities	Under Construction
41	3305 Kifer Road (True Life Residential)	Construction of 45 dwelling units on 1.91 ac	45 units	Under Construction
42	3000 Bowers Avenue (Bowers Avenue Office Campus-Sobrato)	The Bowers Avenue Office Campus project consists of the construction of two office buildings, one commons building (300,000 sf office space), a parking structure; surface parking, landscaping along with general site improvements on 7.19 ac. This project also involves the demolition of an existing 100,042 sq. ft. two-story office building on the project site.	300,000 sf office	Approved by City Council

Table 6-2 Cumulative Projects List

Project Number	Location	Description	Residential Units and/or Non-Residential Area	Project Status
43	2215 and 2225 Lawson Lane (Lawson Lane Office Campus)	Phase 2 of an office campus development with structured and surface parking, landscaping and site improvements. Upon full build-out of the 16.4-ac site, the corporate campus would provide 648,116 sf of office/commons space and 2,948 parking spaces. Phase 1 construction was completed in 2013. Phase 2 includes construction of two 153,450 sq. ft., five-story office buildings, 17,158 sq. ft. with attached commons building, four-level parking garage, surface parking lot, landscaping and site improvements.	306,900 sf, office; 17,158 sf attached commons building	Under Construction
44	2600, 2800 San Tomas Expressway 2400 Condensa Street (NVIDIA)	The San Tomas Business Park Campus Project (NVIDIA Campus Redevelopment) amended the design concept of a previously-approved office campus development project. 1,950,000 sf of office space on a 35.6-ac site.	1,950,000 sf office	Under Construction
45	3515-3585 Monroe Street (Monticello Village)	The Monticello Village project consists of 825 apartment units on a 16.08-ac site, and includes approximately 43,849sf of retail space and 16,392sf of amenity space. The proposed small-format grocery store, free standing restaurant, and additional retail space for neighborhood commercial, access driveways, and small surface parking lot to serve the commercial uses would be located along the length of the site frontage on Monroe Street. The podium level of the residential complex would include landscaped walkways and paseos, courtyards, two 25-yard short-course swimming pools, and other recreational amenities.	825 apartment units; 43,849sf of retail space; 16,392sf of amenity space	Under Construction
46	1055 Helen Avenue	Subdivision of 0.23-ac property for development of four single-family townhomes and a private street.	4 units	Under Construction
47	3610 and 3700 El Camino Real (Gateway Village)	Mixed Use Master Development with housing, retail, a parking garage and open space on a 12.6-ac site.	476 Residential Units; 108,600 sf of retail	Under Construction
48	2500 El Camino Real (Marianis Inn, Residences & Senior Living Project)	The project proposes to demolish all existing commercial and residential structures and landscaping on a 7.14-ac site located on two city blocks, and construct a new mixed-use project within the City of Santa Clara. The proposed project includes demolition of approximately 105,523 sf of existing commercial and residential buildings, and construction of up to 262 multi-family and senior residential units, up to 20 two-story townhouse-style single-family units, and up to 311 hotel rooms in up to 215,074 sf of commercial space, including retail stores, restaurants, bars, meeting room areas, and associated outdoor dining and amenity areas. The commercial space would include two six-story hotels to provide a combined 311 hotel rooms, as well as an approximately 7,000-square-foot restaurant and up to 22,000 sf of ancillary uses (i.e., spa, fitness center, and meeting rooms). The project will be phased as part of a Development Agreement.	282 units; 311 guest rooms in 215,074 sf of commercial space.	Under Review
49	900 Kiely Boulevard (The Gallery at Central Park)	Master Community Planned Development residential project of mixed densities on a 27-ac site; includes a two ac public park	793 units	Under Construction
50	3023 Homestead Road (Residential)	Relocation and preservation of an existing historic house on the property, and construction of three additional two-story houses on a 0.39-ac site.	4 units	Under Construction

Notes: ac = ac, sf = sf

Source: City of Sunnyvale 2018, City of Santa Clara 2018, Compiled by Ascent Environmental 2018



Source: Adapted by Ascent Environmental in 2018

Exhibit 6-1 **Locations of Cumulative Projects**

6.1.3 Cumulative Impact Analysis

For purposes of this EIR, the project would result in a significant cumulative effect if:

- the cumulative effects of related projects (past, current, and probable future projects) are not significant and the incremental impact of implementing the project is substantial enough, when added to the cumulative effects of related projects, to result in a new cumulatively significant impact; or

- the cumulative effects of related projects (past, current, and probable future projects) are already significant and implementation of the project makes a considerable contribution to the effect. The standards used herein to determine a considerable contribution are that either the impact must be substantial or must exceed an established threshold of significance.

This cumulative analysis assumes that all mitigation measures identified in sections 4.1 through 4.9 to mitigate project impacts are adopted. The analysis herein analyzes whether, after adoption of project-specific mitigation, the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects. Where the project would so contribute, additional mitigation is recommended where feasible.

AESTHETICS

The geographic context of aesthetics is confined to those areas that would be visible in the landscape in the vicinity of the project. Therefore, cumulative impacts as related to visual resources would be confined to related projects within the vicinity of the proposed project (existing urban conditions), and to those areas where the project would be within the same viewshed. These projects would include 1122 Aster Avenue project, 1155 Aster Avenue project, Monticello Village project, and the 1055 Helen Avenue project, listed in Table 6-2, as well as planned development under the LSAP.

Visual resource impacts related to visual character and quality impacts and light and glare identified for the project are discussed below. As discussed in Section 4.1, "Aesthetics," the project would not result in impacts to scenic vistas or scenic resources and would therefore not combine to create considerable changes and cumulative effects on visual resources. Therefore, impacts related to scenic vistas or scenic resources are not further discussed.

Impact 6-1: Substantial Adverse Cumulative Effect on Visual Character and/or Quality

The existing project site consists of 8.8 acres of vacant and generally undeveloped land within the City of Sunnyvale. Areas surrounding the project site include a mix of both residential and commercial uses. In combination with other residential development planned or already being constructed within the project vicinity, the project could potentially result in visible construction impacts. As described in Section 4.1, "Aesthetics," Impact 4.1-1, construction activity associated with the project would be temporary in nature and would not result in permanent impacts to visual character and quality of the existing urban character of the area. Therefore, construction impacts in combination with other planned projects would not be cumulatively considerable. The project, in addition to other planned projects, would be required to be consistent with the City of Sunnyvale General Plan and LSAP policies and design guidelines that require compatible urban development and enhancement of the existing visual character of the LSAP area. Thus, the project's contribution to substantial changes to visual character and quality **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 6-2: Substantial Adverse Cumulative Effect on Light and Glare

The cumulative setting for light and glare impacts is confined to the area surrounding the project site. The project site is bound by existing development, including residential uses and existing roadways. Implementation of the project would create new nighttime lighting compared to existing conditions, however, new lighting and/or glare would be comparable and consistent with surrounding uses. Given the developed nature of the area, the project, in combination with surrounding uses and projects planned or currently under construction, would not result in substantial adverse impacts related to light and glare. Implementation of the project and other projects within the project site vicinity would be required to adhere to the City of Sunnyvale Municipal Code and design guidelines that would prevent any excess light and/or glare illumination and offset any lighting/glare impacts. Therefore, the project's contribution to substantial effects of light and glare **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

AIR QUALITY

The cumulative setting for air quality is the San Francisco Bay Area Air Basin. Development, industrial emissions, and mobile emissions in the basin have contributed to its nonattainment with state and federal standards for particulate matter (PM_{10} and $PM_{2.5}$) and ozone.

Impact 6-3: Cumulative Effect on Air Quality

The LSAP Final EIR identified that buildout of the LSAP area in combination with buildout of the City under the LUTE Update and regional growth would result in cumulatively considerable and significant and unavoidable air quality from increased air pollutant emissions (City of Sunnyvale 2016). As identified in Table 4.2-4 and 4.2-5 in Section 4.2, "Air Quality," the project's construction and operational emissions would not exceed the Bay Area Air Quality Management District's thresholds of significance. Further the project is consistent with the land use designations and development potential in the LSAP and LUTE Update. Thus, project's contributions to these traffic operation impacts were already disclosed in the LSAP Final EIR and would not result in a substantial increase in the severity of these impacts. Therefore, the project's contribution to new or increased cumulative air quality impacts **would not be cumulatively considerable**.

ARCHAEOLOGICAL, HISTORIC, AND TRIBAL CULTURAL RESOURCES

The cumulative context for the cultural resources analysis considers a broad regional system of which the resources are a part. The cumulative context for historic resources includes the City and the agricultural history within the project area. The cumulative context for archaeological resources and tribal cultural resources (TCRs) includes the Ohlone territory. The Ohlone inhabited lands which extended between the Carquinez Strait and San Pablo Bay on the north, southward along the coast beyond Monterey Bay to Carmel Valley, and inland to the coast range. Development of the region has resulted in the cumulative loss of historic, archaeological, tribal cultural resources.

Cultural impacts related to historic resources and previously undiscovered unique archaeological resources identified for the project are discussed below. As discussed in Section 4.3, "Archaeological, Historic, and Tribal Cultural Resources," the project would result in no impact to known tribal cultural resources and a less-than significant impact to previously unknown human remains and would therefore not combine to create considerable changes and cumulative effects on cultural resources. Therefore, cumulative impacts related to known tribal cultural resources and human remains are not further discussed.

All cultural resources impacts identified for the project are discussed below.

Impact 6-4: Cumulative Effect on Historic Resources

Because all significant historic resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant historical resources, all adverse effects erode a dwindling resource base. The loss of any one historical site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the historic system of which they are a part.

As discussed in Section 4.3, "Archaeological, Historic, and Tribal Cultural Resources," the project site appears eligible for California Register of Historic Resources (CRHR) and local listing. Implementation of the project would result in demolishment of existing site structures on the project site. The project site is considered to be one of very few remaining agricultural lands in Sunnyvale; and is a rare survivor of a family farm from the period when agriculture dominated the local economy. Mitigation Measures 4.3-1a and 4.3-1b would partially mitigate the project's impacts on this historic property, though not to a less than considerable level. Because the project would result in the loss of a historic resource within the City of Sunnyvale, the project's incremental contribution to these cumulative effects would be **cumulatively considerable**; therefore, this would be a **significant and unavoidable cumulative impact**.

Mitigation Measures

There are no additional feasible mitigation measures to reduce the project's contribution to cumulative historic resources to less than cumulatively considerable.

Impact 6-5: Cumulative Effect on Previously Undiscovered Unique Archaeological Resources

As indicated through the records search and pedestrian surveys, no known prehistoric or historic-period archaeological sites are present within the project site. Because cultural resources surveys and archival review did not result in the identification of any prehistoric or historic-period archaeological resources within the project site or a half-mile radius and the project site has been continually disturbed for agricultural production, the sensitivity of the project site and vicinity for known archaeological sites is considered low. Based on previous cultural resource surveys and research, the project is within an area historically occupied by the Ohlone. The proposed project, in combination with other development in Ohlone territory could contribute to the loss of undiscovered unique archaeological resources.

Implementation of the project, in combination with other proposed or planned projects within the Ohlone territory, would involve ground-disturbing activities which could result in discovery of or damage to previously undiscovered archaeological as defined in State CEQA Guidelines Section 15064.5. This could result in potentially significant cumulative impacts to previously undiscovered or unrecorded archaeological sites and materials. However, when considered in combination with the impacts of other projects in the cumulative scenario, the project would not be cumulatively considerable because implementation of Mitigation Measures 4.3-2 would reduce project impacts associated with accidental damage to unknown resources. Further, cumulative development would be required to implement similar mitigation to avoid/reduce impacts to archaeological resources. Therefore, the project's potential contribution to impacts related to previously undiscovered archaeological resources **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

BIOLOGICAL RESOURCES

The effects of the project and potential cumulative impacts of related projects are limited to the greater project area vicinity, including adjacent migration and movement corridors such as the San Francisco Bay. Development within the vicinity of the project can be placed into two categories, including residential development and commercial development (e.g. hotels, stores, offices, restaurants). Most of the projects involve development on land that has been previously developed within the context of a highly developed region (see Table 6-2). This condition has resulted in a significant and cumulative loss of natural habitat and special-status plant and wildlife species in the region.

Biological resource impacts related to disturbance or loss of Congdon's tarplant, a special-status plant species, burrowing owls, white-tailed kite, nesting raptors, and other birds identified for the project are discussed below. As discussed in Section 4.4, "Biological Resources," the project would result in no impact to sensitive natural communities, Waters of the Unites States, waters of the state, riparian habitat, wildlife movement corridors and nursery sites, and the Santa Clara Valley Habitat Plan area; therefore, cumulative impacts related to these resources are not further discussed.

Impact 6-6: Cumulative Effects Related to Disturbance or Loss of Special-Status Plants, Burrowing Owl, White-Tailed Kite, Nesting Raptors and Other Birds

As identified in Impact 4.4-1 through 4.3 of Section 4.4, "Biological Resources," implementation of the project would result in potential disturbance or loss of the following special-status plant and wildlife species: Congdon's tarplant, burrowing owls, white-tailed kite, nesting raptors, and other birds. Specifically, loss of grassland habitat on-site could result in the disturbance or loss of Congdon's tarplant and burrowing owls, both special-status species. Removal of on-site trees and vegetation could result in the disturbance or loss of nesting raptors, special-status birds, and other birds, if present.

Decades of growth and development in the vicinity have resulted in an overall significant cumulative effect related to disturbance or loss of these sensitive species and their habitat. Present and probable future projects in the vicinity are primarily infill development that would be less likely to result in adverse effects on special-status plants and burrowing owl due to previous habitat removal and degradation. Present and probable future development in the vicinity would likely result in removal of trees, potentially affecting nesting raptors and other birds. When combined with other past, present, and probable future projects with similar biological effects, implementation of the project would contribute to an adverse cumulative effect on special-status species and their habitat. However, all potential cumulative projects must comply with federal, state, and local regulations regarding listed or other protected species and habitats, and potential impacts to special-status plants and special-status wildlife will require mitigation to reduce project impacts to a less-than-significant level. With implementation of mitigation measures 4.4-1 through 4.4-3 to avoid, minimize, and compensate for project impacts to special-status species and their habitat, the project is not expected to substantially affect the distribution, breeding productivity, population viability, or the regional population of any special-status species; or cause a change in species diversity locally or regionally. Mitigation measures include conducting focused preconstruction surveys for special-status species, nesting raptors, and other birds, which would avoid, minimize, or compensate for the loss of individuals, burrows, nests, or roost sites of these species during construction. Therefore, the project's potential contribution to impacts on special-status species, nesting raptors, and other birds **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 6-7: Cumulative Effects Related to Consistency with City of Sunnyvale Tree Preservation Ordinance

As identified in Impact 4.4-4 of Section 4.4, "Biological Resources," implementation of the project would result in the removal of or damage to "protected trees" under the City of Sunnyvale Tree Preservation Ordinance. Growth and development in the project vicinity have resulted in an overall significant cumulative effect related to removal or damage of protected trees. Activities such as ground disturbance and vegetation removal could result in direct tree removal and indirect impacts to root systems which would conflict with the ordinance. When combined with other past, present, and probable future projects that result in disturbance or removal of "protected trees", implementation of the project would contribute to an adverse cumulative effect on "protected trees" if implementation was inconsistent with the City's Tree Preservation Ordinance. With implementation of Mitigation Measure 4.4-4, the applicant would be required to maintain compliance with the City of Sunnyvale Tree Preservation Ordinance and the project would offset impacts to "protected trees". Therefore, the project's potential contribution to impacts related to consistency with City of Sunnyvale Tree Preservation Ordinance **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

ENERGY

The cumulative context for energy is existing and projected energy use for California. Homes built between 2000 and 2015 used 14 percent less energy per square foot than homes built in the 1980s, and 40 percent less energy per square foot than homes built before 1950. However, the increase size of newer homes has offset these efficiency improvements. Primary energy consumption in the residential sector totaled 21 quadrillion Btu in 2009 (the latest year the EIA's *Residential Energy Consumption Survey* was completed), equal to 54 percent of consumption in the buildings sector and 22 percent of the U.S.'s total primary energy consumption. Energy consumption increased 24 percent from 1990 to 2009. However, because of projected improvements in building and appliance efficiency, the EIA 2012 Annual Energy Outlook forecast a 13 percent increase in energy consumption from 2009 to 2035 (EIA 2016). Though California's population and economy are expected to grow, gasoline demand is projected to decline from roughly 15.8 billion gallons in 2017 to less than 12.7 billion gallons in 2030. This decline comes in response to both increasing vehicle electrification and higher fuel economy for new vehicles (CEC 2017).

Impact 6-8: Cumulative Effects Related to Energy Use

As identified in Impact 4.5-1 of Section 4.5, "Energy," implementation of the project would increase electricity and natural gas consumption at the project site relative to existing conditions; however, the project would be constructed in compliance with the 2019 Title 24 Building Code which requires that renewable energy sources such as solar photovoltaic systems offset the electricity demand of new residential buildings. Additionally, the project is committed to zero net electricity residential units through the installation of photovoltaic systems and high efficiency appliances and lighting. The project is also located 0.46 miles of a major transit facility (Caltrain Lawrence Station) and would provide pedestrian (sidewalk) improvements in the project area. Therefore, the project's potential contribution to impacts related to energy use **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

HAZARDS AND HAZARDOUS MATERIALS

Significant cumulative hazards and hazardous materials impacts have historically occurred in the region from development and industrial uses that include manufacturing, improper storage of hazardous materials (e.g., fuel), and research and development activities. The extent of these impacts tend to be limited to individual sites or sub-areas where contamination of groundwater has occurred.

Hazards and hazardous materials impacts related to potential human health hazards from exposure to existing on-site hazardous materials identified at the project site are discussed below. As discussed in Section 4.6, "Hazards and Hazardous Materials," the project would result in no impacts related to hazardous emissions within one-quarter mile of an existing or proposed school, safety hazards associated with the operation of a public airport or private airstrip, and wildfire risk. The project would also result in a less-than-significant impact related to hazards to the public through routine, transport, use, and disposal of hazardous materials or interference with an adopted emergency response plan or emergency evacuation plan (see Impact 4.6-1 and 4.6-3). Past, present, and future probable projects in the region, including the project, would be required to comply with existing hazardous materials regulations and the application of any relevant city encroachment permits and code requirements. Therefore, cumulative impacts related to these issues are not further discussed.

Impact 6-9: Create Potential Human Health Hazards From Exposure to Existing On-Site Hazardous Materials

As identified in Impact 4.6-2 (see Section 4.6, "Hazards and Hazardous Materials" of this DEIR), potential human health hazards from exposure to existing on-site hazardous materials could occur during demolition, grading, and other construction-related activities of the project. On-site soil is contaminated with DDT, chlordane, and dieldrin due to past pesticide application. In addition, demolition of on-site historic structures could result in release of hazardous building materials (i.e., asbestos and lead-based paint) as well as an accompanying septic and well system. When combined with other past, present, and probable future projects with similar issues, implementation of the project would contribute to an adverse cumulative effect related to potential human health hazards from exposure to hazardous materials.

All potential cumulative projects must comply with federal, state, and local regulations related to hazards and hazardous materials that will require mitigation to reduce project impacts to a less-than-significant level. As discussed in Section 4.6, "Hazards and Hazardous Materials", the project applicant entered into a Voluntary Cleanup Program (VCP) agreement with the Santa Clara County Department of Environmental Health (DEH), on March 27, 2017, to remediate the project site. As part of the VCP agreement, a Feasibility Study/Remedial Action Workplan (FSRAWP) was developed and approved by DEH in March 2018. With implementation of Mitigation Measures 4.6-2 (see Section 4.6, "Hazards and Hazardous Materials" of this DEIR), the project applicant is required to direct that all activities listed in the FSRAWP are completed by the contractor before the start of construction and case closure has been granted by DEH. Implementation of this mitigation measure would offset the project's potential public health impacts. Therefore, the project's potential contribution to human health hazards from exposure to hazardous materials **would not be cumulatively considerable.**

Mitigation Measures

No mitigation is required.

TRANSPORTATION AND CIRCULATION

The cumulative context for transportation and circulation considers transportation conditions for the region and the City at buildout. The region includes projected roadway and state highways operating conditions for Alameda, Santa Clara, and San Mateo counties. At buildout, the LSAP area (the project is located within the LSAP) is currently planned to result in 3,523 residential dwelling units and 3.8 million square feet of commercial/office/industrial uses, while the City would have 72,100 residential dwelling units and 59.8 million square feet of commercial/ office/ industrial uses, The City is currently considering a proposed update to the LSAP to incorporate additional housing opportunities near the Caltrain Lawrence Station (1,000 to 2,800 additional units). The cumulative traffic impacts of this under both of the adopted LSAP and LUTE Update were evaluated in their associated EIRs (LSAP EIR State Clearinghouse No. 2013082030 and LUTE Update EIR State Clearinghouse No. 2012032003). These EIRs identified cumulative significant traffic operation impacts.

As discussed in Section 4.7, "Transportation and Circulation," the project would result in no impact to air traffic patterns and emergency access and would therefore not combine to create considerable changes and cumulative effects for these impact areas. Construction traffic impacts and transportation hazards would be localized to the roadways adjacent to the project site. Implementation of Mitigation Measure 4.7-5 would offset project construction impacts. Thus, the project's construction and hazard traffic impacts would not be cumulatively considerable.

Impact 6-10: Cumulative Effect on Traffic Operations

The LSAP Final EIR identified that buildout of the LSAP area in combination with buildout of the City under the LUTE Update and regional growth would result in the following significant traffic operations impacts (City of Sunnyvale 2016):

- Lawrence Expressway/Tasman Drive Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection)
- Lawrence Expressway/Lakehaven Drive Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection)
- Lawrence Expressway/Oakmead Parkway Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection)
- Lawrence Expressway/Arques Avenue Intersection in p.m. peak hour (Congestion Management Plan intersection)
- Wolfe Road/Arques Avenue Intersection in a.m. peak hour
- Wolfe Road/Kifer Road Intersection in a.m. and p.m. peak hour
- Wolfe Road/Reed Avenue Intersection in a.m. peak hour
- Wolfe Road/Fremont Avenue Intersection in a.m. and p.m. peak hour
- Lawrence Expressway/Cabrillo Avenue Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection located in the City of Santa Clara)
- Lawrence Expressway/Brenton Street Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection located in the City of Santa Clara)
- Lawrence Expressway/Homestead Road Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection located in the City of Santa Clara)
- Lawrence Expressway/Pruneridge Avenue Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection located in the City of Santa Clara)
- Lawrence Expressway/I-280 Southbound Ramp Intersection in a.m. and p.m. peak hour (Congestion Management Plan intersection)
- Bowers Avenue/Central Expressway Intersection in a.m. and p.m. peak hour
- Bowers Avenue/Kifer Road Intersection in p.m. peak hour
- Bowers Avenue/Monroe Street Intersection in p.m. peak hour
- SR 237 – Lawrence Expressway to Great American Parkway both directions in a.m. and p.m. peak hour
- US 101 southbound – Bowers Avenue/Great American Parkway to Montague Expressway/San Tomas Expressway in p.m. peak hour
- US 101 northbound –Montague Expressway/San Tomas Expressway to SR 237 in a.m. peak hour
- US 101 northbound high occupancy vehicle lane only – Fair Oaks Avenue to SR 237 in a.m. and p.m. peak hour
- I-280 – Lawrence Expressway to Saratoga Avenue both directions in a.m. and p.m. peak hour

The project is consistent with the land use designations and development potential in the LSAP and LUTE Update. Thus, project's contributions to these traffic operation impacts were already disclosed in the LSAP Final EIR and would not result in a substantial increase in the severity of these impacts. Thus, the project's impact **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 6-11: Cumulative Effect on Bicycle, Pedestrian, and Transit Facilities

The LSAP Final EIR identified that buildout of the LSAP area would not result in any significant bicycle, pedestrian, and transit facility and service impacts as the implementation of the LSAP would provide improvements to bicycle, pedestrian, and transit facilities and would not result in any significant delays to transit service (City of Sunnyvale 2016). The project would contribute to improvements pedestrian facilities in the LSAP area through new sidewalks and would not conflict with any existing or planned bicycle facilities. The project would also not result in significant delays to transit service due to increases in traffic volumes. Thus, the project's impact to bicycle, pedestrian, and transit facilities and services **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

GREENHOUSE GASES

Greenhouse gas impacts are cumulative in nature. The reader is referred to Subsection 4.8.3 of Section 4.8, "Greenhouse Gases" of this DEIR for a detailed discussion of project impacts and mitigation measures.

NOISE AND VIBRATION

Cumulative noise issues in the project area are associated with the traffic noise along major roadways including the Lawrence Expressway. The LSAP Final EIR and LUTE Final EIR both identify cumulative traffic noise contours for Lawrence Expressway in the project area from buildout of the City.

Impact 6-12: Cumulative Short-Term Construction-Generated Noise

Cumulative impacts from construction-generated noise could result if other future planned construction activities were to take place in close proximity to the project and cumulatively combine with construction noise from the project. The Monticello Village project, located at 1515 Monroe Street (Santa Clara), is the closest project (approximately 1,700 feet north east) to the project site and is currently under construction. As discussed in Impact 4.9-1 (see Section 4.9, "Noise and Vibration", of this DEIR, construction noise from the project could reach 86 dBA L_{eq} at existing receptors located within 50 feet of construction activity. Assuming similar levels of construction noise would occur at the Monticello Village project, noise levels from construction 1,700 feet away would attenuate, from distance alone, to approximately 55 dBA L_{eq}. If construction noise mitigation were in place at Monticello Village project, noise levels at the project site would be lower. Nonetheless, when combining 55 dBA L_{eq} with project-generated construction noise of 76 dba L_{eq} (assuming incorporated mitigation), due to the logarithmic nature of combining noise levels, noise levels would not increase. Specifically, it takes a doubling of a noise source to result in an increase in 3 dB. Thus, when combining a lesser noise level with a greater noise level, noise levels do not increase. All other ongoing and future anticipated development would be located further away (see Exhibit 6-1) and thus would influence the project site even less than the Monticello Village project. Further, construction-related noise is typically a site-specific impact that affects those in close proximity to the construction activities and construction activities would be temporary. Therefore, even though project construction would result in a significant and unavoidable impact at nearby receptors, no other nearby construction noise would combine with project construction to result in a cumulatively considerable impact. Therefore, the project's potential contribution to construction noise impacts **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 6-13: Cumulative Long-Term Ambient Noise Levels

Numerous development projects are underway and planned within the City of Sunnyvale and the City of Santa Clara (e.g., Monticello Village, Lawson Lane Office Campus, Gateway Village), surrounding the project area. For a complete list and location of each project, refer to Table 6-2 and Exhibit 6-1 above. These projects would result in additional traffic-related noise on surrounding roads and highways.

In December 2016, City Council approved the Lawrence Station Area Plan (LSAP), which includes the project site and guides future development of the area surrounding the Lawrence Caltrain Station. The LSAP designates the project site as Low-Medium Density Residential, consistent with the project. Subsequently, in April 2017, the City Council adopted an update to the City's Land Use and Transportation Element (LUTE) of its General Plan, including preparation of a DEIR (State Clearinghouse No. 2012032003). The DEIR evaluated anticipated traffic increases and associated traffic noise increases due to development anticipated within Sunnyvale, including the LSAP area and the project site. The DEIR determined that anticipated growth, including buildout of the project, traffic noise would result in a significant and unavoidable cumulative impact (City of Sunnyvale Land Use and Transportation Element DIER, Page 3.6-43)

However, as discussed in Impact 4.9-2 of this DEIR, the project would result in a daily increase of 629 vehicles and an associated noise increase of less than 1 dB, an increase that is imperceptible to the human ear. Thus, although a cumulatively considerable impact from traffic noise was determined as a result of all future anticipated development, the project's potential contribution **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

6.2 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Section 21100(b)(2)(A) of the State CEQA Guidelines provides that an EIR shall include a detailed statement setting forth "in a separate section: any significant effect on the environment that cannot be avoided if the project is implemented." Accordingly, this section provides a summary of significant environmental impacts of the project that cannot be mitigated to a less-than-significant level.

Section 4.1 through 4.9 of this EIR describe the potential environmental impacts of the project and recommend various mitigation measures to reduce impacts, to the extent feasible. Section 6.1, "Cumulative Impacts," determines whether the incremental effects of this project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. After implementation of the recommended mitigation measures, most of the impacts associated with development of the project would be reduced to a less-than-significant level. The following impacts are considered significant and unavoidable; that is, no feasible mitigation is available to reduce the project's impacts to a less-than-significant level.

ARCHAEOLOGICAL, HISTORIC, AND TRIBAL CULTURAL RESOURCES

- Impact 4.3-1: Impacts to historic resources
- Impact 4.3-2: Potential Impacts to Unique Archaeological Resources

NOISE AND VIBRATION

- Impact 4.9-1: Construction noise

CUMULATIVE IMPACTS

- Impact 6-4: Cumulative impacts on historic resources

6.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

CEQA specifies that growth-inducing impacts of a project must be addressed in an EIR (CCR Section 21100[b][5]). Specifically, CCR Section 15126.2(d) states that the EIR shall:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth inducement would result if a project involved construction of new housing, which would facilitate new population to an area. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

The State CEQA Guidelines do not distinguish between planned and unplanned growth for purposes of considering whether a project would foster additional growth. Therefore, for purposes of this EIR, to reach the conclusion that a project is growth inducing as defined by CEQA, the EIR must find that it would foster (i.e., promote, encourage, allow) additional growth in economic activity, population, or housing, regardless of whether the growth is already approved by and consistent with local plans. The conclusion does not determine that induced growth is beneficial or detrimental, consistent with Section 15126.2(d) of the State CEQA Guidelines.

If the analysis conducted for the EIR results in a determination that a project is growth-inducing, the next question is whether that growth may cause adverse effects on the environment. Environmental effects resulting from induced growth (i.e., growth-induced effects) fit the CEQA definition of "indirect" effects in Section 15358(a)(2) of the State CEQA Guidelines. These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Potential secondary effects of growth could include consequences – such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat – that are the result of growth fostered by the project.

The decision to allow those projects that result from induced growth is the subject of separate discretionary processes by the lead agency(ies) responsible for considering such projects. Because the decision to allow growth is subject to separate discretionary decision making, and such decision making is itself subject to CEQA, the analysis of growth-inducing effects is not intended to determine site-specific environmental impacts and specific mitigation for the potentially induced growth. Rather, the discussion is intended to disclose the potential for environmental effects to occur more generally, such that decision makers are aware that additional environmental effects are a possibility if growth-inducing projects are approved. The decision of whether impacts do occur, their extent, and the ability to mitigate them is appropriately left to consideration by the agency responsible for approving such projects at such times as complete applications for development are submitted.

6.3.1 Growth Variables

The timing, magnitude, and location of land development and population growth in a community or region are based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and nonresidential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. Because the General Plan of a community defines the location, type, and intensity of growth, it is the primary means of regulating development and growth in California.

6.3.2 Growth-Inducing Impacts of the Project

DIRECT GROWTH-INDUCING IMPACTS ASSOCIATED WITH POPULATION GROWTH

Implementation of the project would foster short-term and long-term economic growth within the City of Lincoln (City) as a result of new construction and increased residential units. Construction would likely begin in fall 2019 and extend for approximately 19 months. As described in Section 1.3.1, "Population and Housing," a large number of local workers commute in from other areas within the county. Therefore, it would be reasonable to expect that construction workers for the project would not relocate to the City for a temporary job. During operation, it is anticipated that approximately 166 new residents would occupy the on-site residences. This development and population has been assumed and planned for under the LSAP and General Plan LUTE. The environmental impacts associated with these direct growth-inducing effects are described throughout this EIR.

DIRECT GROWTH-INDUCING IMPACTS ASSOCIATED WITH REMOVAL OF BARRIERS TO POPULATION GROWTH

The project consists of an infill site that is surrounded on all sides with urban development. Implementation of the project would not remove barriers to population growth because the project is consistent with existing land use designations and planned growth described in the LSAP and General Plan LUTE. The project would eliminate an obstacle to growth through the extension and provision of utilities and services for residential uses on a site that was previously used for agricultural uses and three homes, including extension of water service and pipelines, wastewater collection systems, storm drainage pipelines, and roadways.

As described in Section 1.3.1, "Effects Found Not to be Significant", the LSAP DEIR concluded that development within the LSAP area, including the project site, would not require new water or wastewater treatment infrastructure, new or expanded water or wastewater entitlements to serve development under the LSAP, or result in wastewater that would exceed treatment requirements of the Regional Water Quality Control Board (City of Sunnyvale 2016b). The project would directly connect to existing utility infrastructure (water, wastewater, natural gas, and electricity) and would not facilitate additional development through

expansion of regional facilities (e.g., water treatment plants, wastewater treatment plants, electrical substations) beyond that which was planned for within the LSAP.

OTHER EMPLOYMENT GROWTH AND OTHER ECONOMIC-RELATED GROWTH IMPACTS

Vacancy rates are an indicator of housing supply and demand. Low vacancy rates influence greater upward price pressures and higher vacancy rates indicate downward price pressures. A five to six percent vacancy rate is generally considered healthy. Approximately 4.5 percent of City of Sunnyvale housing units were vacant as of January 1, 2018 estimates (California Department of Finance 2018). Thus, the City is currently considered to have a high demand for housing

The project is a residential development adjacent to existing residential development and transportation hubs. The project is consistent with the project site's existing land use designation and zoning. Homebuyers associated with the project are anticipated to originate from areas within the City or adjacent City of Santa Clara, because there is substantial demand for housing in the City and County (i.e., vacancy rates are considered low). Job growth projections and perceived demands are based on assumptions related to increased population growth. Thus, because the project would increase housing and population levels within the City, similar to that anticipated in the General Plan LUTE and LSAP, the project would not facilitate the need for new employment, as well as goods and services (e.g., restaurants, grocery, gas stations). Facilitation of new employment, goods, and services would result in increased economic growth within the City and would be considered an indirect growth-inducing effect. Potential secondary effects of growth could include environmental consequences, such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat. The environmental impacts of growth have been addressed by the City in the LSAP EIR and the LUTE EIR.

6.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines (Section 15126) require a discussion of the significant irreversible environmental changes which would be involved in a project should it be implemented. The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled or those that are consumed or reduced to unrecoverable forms.

The project would result in the irreversible and irretrievable commitment of energy and material resources during construction and operation, including the following:

- construction materials, including such resources as soil, rocks, wood, concrete, glass, roof shingles, and steel;
- land area committed to new project facilities;
- water supply for project operation; and
- energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction and operation.

The use of these nonrenewable resources is expected to account for a minimal portion of the region's resources and would not affect the availability of these resources for other needs within the region. Construction activities would not result in inefficient use of energy or natural resources (see Section 4.5, "Energy," for a further discussion of the project's energy use). Long-term project operation would not result in substantial long-term consumption of energy and natural resources.

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7 REFERENCES

Chapter 1, Introduction

California Department of Conservation. 1996. *Update of Mineral Land Classification: Aggregate Minerals in the South San Francisco Bay Production-Consumption Region*.

California Department of Finance. 2018, May. E-1 Population Estimates for Cities, Counties, and the State — January 1, 2017 and 2018. Available at: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/>. Accessed August 27, 2018.

Calrecycle. 2018. Calrecycle. Facility/Site Summary Details: Kirby Canyon Recycle & Disp. Facility (43-AN-0008). Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/43-AN-0008/Detail/. Accessed August 9, 2018.

City of Sunnyvale. 2016a (August). *City of Sunnyvale Land Use and Transportation Element Draft Environmental Impact Report*.

———. 2016b (August). *Draft Environmental Impact Report Lawrence Station Area Plan.* SCH No. 2015022059.

———. 2017. *City of Sunnyvale General Plan*. Adopted July 26, 2011; reflects amendments through April 2017. Sunnyvale, CA. Available: https://sunnyvale.ca.gov/government/codes/plan.htm.

———. 2018. Sunnyvale Municipal Code: 19.18.020. Residential zoning districts. Available: https://qcode.us/codes/sunnyvale/view.php?topic=19-3-19_18-19_18_020&frames=on. Accessed July 19, 2018.

Cornerstone Earth Group. 2016 (December 15). *Preliminary Geotechnical Investigation Corn Palace Residential Development.* Prepared for Trumark Homes, LLC. Sunnyvale, CA.

DOC. See California Department of Conservation.

Federal Emergency Management Agency. 2010 (February). Letter of Map Revision Determination Document.

Governor's Office of Emergency Services (Cal OES). 2015. My Hazards. Available: http://myhazards.caloes.ca.gov/. Accessed: August 8, 2018.

Natural Resource Conservation Service. 2018. Web Soil Survey. Available: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed August 8, 2018.

Chapter 2, Executive Summary

No references were used in this chapter.

Chapter 3, Project Description

City of Sunnyvale. 1990 (March). Certificate of Tentative Cancellation of Land Conservation Contract No. 76-026. Stamped by City Clerk on April 3, 1990.

———. 2008 (November). *Sunnyvale Parks of the Future Final Plan*. Appendix E: Design Guidelines Analysis. Sunnyvale Parks of the Future Plan. Prepared by Moore Iacofano Goltsman, Inc., Berkeley, CA.

Chapter 4, Affected Environment, Environmental Consequences, and Mitigation Measures

No references were used in this chapter.

Section 4.1, Aesthetics

California Department of Transportation. 2018. *Santa Clara County Designated Scenic Highways*. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed: April 2018.

Caltrans. See California Department of Transportation.

City of Sunnyvale. 2013. *Citywide Design Guidelines.* Updated 2013. Available at: https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?blobid=22779

———. 2016. *Lawrence Station Area Plan.* November 2016. Available at: https://sunnyvale.ca.gov/business/projects/lawrence.htm

———. 2017a. *City of Sunnyvale General Plan*. Land Use and Transportation Element. Adopted July 26, 2011; reflects amendments through April 2017. Sunnyvale, CA. Available: https://sunnyvale.ca.gov/government/codes/plan.htm.

———. 2017b. *City of Sunnyvale General Plan*. Adopted July 26, 2011; reflects amendments through April 2017. Sunnyvale, CA. Available: https://sunnyvale.ca.gov/government/codes/plan.htm.

———. 2018 (August). *Municipal Code.* Available at: https://sunnyvale.ca.gov/business/projects/lawrence.htm

Section 4.2, Air Quality

BAAQMD. See Bay Area Air Quality Management District.

Bay Area Air Quality Management.2014. *Updated CEQA Guidelines*. Available: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Last updated January 16, 2014. Accessed March 1, 2017.

———. 2017a. *Spare the Air, Cool the Climate*. Available: 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 August 31, 2018.

———. 2017b. *California Environmental Quality Act, Air Quality Guidelines*. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed August 31, 2018.

———. 2017c (November). *Proposed Regulation 11: Hazardous Pollutants, Rule 18: Reduction of Risk from Air Toxic Emissions at Existing Facilities*. Available: http://www.baaqmd.gov/~/media/dotgov/files/rules/regulation-11-rule-18/documents/20171115_fsr_1118-pdf.pdf?la=en. Accessed: August 31, 2018.

California Air Pollution Control Officers Association. 2009. *Health Risk Assessments for Proposed Land Use Projects*. Available http://www.capcoa.org/wp-content/uploads/downloads/2010/05/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf. Accessed August 31, 2018.

———. 2016. *California Emission Estimator Model Version 2016.3.2*. California Air Resources Board. 2003. *HARP User Guide*. Sacramento, CA.

California Air Resources Board. 2005a. *Particulate Matter – Overview*. Available: https://www.arb.ca.gov/research/aaqs/caaqs/pm/pm.htm. Last updated April 25, 2005. Accessed August 31, 2018.

———. 2005b (April). *Air Quality and Land Use Handbook: A Community Health Perspective*. California Environmental Protection Agency, California Air Resources Board, Sacramento, CA.

———. 2009. *The California Almanac of Emissions and Air Quality, 2009 Edition*. Available: http://www.arb.ca.gov/aqd/almanac/almanac09/almanac2009all.pdf. Accessed: August 31, 2018.

———. 2013. *The California Almanac of Emissions and Air Quality, 2013 Edition*. Available: https://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm. Accessed: August 31, 2018.

———. 2016a. *California Ambient Air Quality Standards (CAAQS)*. Available https://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed August 31, 2018.

———. 2016b. *iADAM: Air Quality Data Statistics*. Available at: http://www.arb.ca.gov/adam/. Accessed April 25, 2016.

CAPCOA. *See* California Air Pollution Control Officers Association.

CARB. *See* California Air Resources Board.

City of Sunnyvale. 2017. *City of Sunnyvale General Plan*. Adopted July 26, 2011; reflects amendments through April 2017. Sunnyvale, CA. Available: https://sunnyvale.ca.gov/government/codes/plan.htm.

———. 2018. *Final Transportation Operations Analysis for 1142 Dahlia Court (Corn Palace)*. Prepared by Wood Rodgers, Pleasanton, CA.

EPA. *See* U.S. Environmental Protection Agency.

OEHHA. *See* Office of Environmental Health Hazard Assessment.

Office of Environmental Health Hazard Assessment. 2015 (February). *Air Toxics Hot Spots Program Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*. Available: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed: August 31, 2018.

Roorda-Knape et al. 1999. *Traffic related air pollution in city districts near motorways*. Science of the Total Environment, Volume 235, Issues 1-3, Pages 339-341. Available: https://www.sciencedirect.com/science/article/pii/S004896979900217X. Accessed August 31, 2018.

Trumark Homes, LLC. 2018. *Feasibility Study / Remedial Action Workplan (RAP), 1142 Dahlia Court, Sunnyvale, California, 94086*. Prepared by TERRAX Environmental Engineering and Consulting, Huntington Beach, CA.

U.S. Environmental Protection Agency. 2016. Six Common Air Pollutants. Available: https://www.epa.gov/criteria-air-pollutants. Last Updated: March 30, 2016. Accessed April 25, 2016.

Western Regional Climate Center. 2002. *San Francisco, California, International Airport: Normals, Means, and Extremes*. Available: https://wrcc.dri.edu/cgi-bin/clilcd.pl?ca23234. Access August 31, 2018.

———. 2016. Santa Clara University, California (047912) Period of Record Monthly Climate Summary. Available: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7912. Accessed August 31, 2018.

WRCC. See Western Regional Climate Center.

Zhu Y, WC Hinds, S Kim, S Shen, and C Sioutas. 2002. Study of Ultrafine Particles Near a Major Highway with Heavy-duty Diesel Traffic. In *Atmospheric Environment* 36:4323–4335.

Section 4.3, Archaeological, Historic, and Tribal Cultural Resources

Carey & Co. 2017. *Corn Palace, 1142 Dahlia Court Historic Resource Evaluation.* Prepared May 17.

NIC. See Natural Investigations Company.

Natural Investigations Company. 2018 (August 21). *Cultural Resources Inventory for the Corn Palace Residential Development Project, City of Sunnyvale, Santa Clara County, California.*

Section 4.4, Biological Resources

California Department of Fish and Wildlife. 2012. *Staff Report on Burrowing Owl Mitigation.* Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843. Accessed May 9, 2018.

CDFW. See California Department of Fish and Wildlife.

California Natural Diversity Database. 2018. Rarefind 5. Commercial Version dated October 30, 2016. An online subscription database application for the use of the California department of fish and Wildlife's natural diversity database. California Natural Heritage Division, California Department of Fish and Wildlife, Sacramento, CA. Accessed July 2, 2018.

CNDDB. See California Natural Diversity Database.

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org. Accessed July 2, 2018.

CNPS. See California Native Plant Society.

eBird. 2018. eBird: An online database of bird distribution and abundance [web application]. *eBird*, Ithaca, New York. Available: http://www.ebird.org. Accessed July 12, 2018.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, & A. Pettler. (2010). *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration. Available online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18366. Accessed July 16, 2018.

Section 4.5, Energy

AFDC. See Alternative Fuels Data Center.

Alternative Fuels Data Center. 2017. Alternative Fueling Station Counts by State. Available: https://www.nass.usda.gov/Research_and_Science/Cropland/SARS1a.php. Accessed August 24, 2018.

Barr, Robert. *China Surpasses U.S. as Top Energy Consumer*. MSNBC. NBCNews.com June 8. 2001. Accessed August 6, 2012.

Bureau of Transportation Statistics. 2015. Table 7-1: Transportation Energy Consumption by Energy Source. Available: https://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/state_transportation_statistics/state_transportation_statistics_2014/index.html/chapter7/table7-1. Accessed August 24, 2018.

———. 2017. Figure 7-2: California Transportation Energy Consumption. Available: https://www.bts.gov/archive/publications/state_transportation_statistics/california/figure_07_02. Accessed August 30, 2018.

BTS. *See* Bureau of Transportation Statistics.

California Air Resources Board. 2017. *California's 2017 Climate Change Scoping Plan*. Available: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed August 30, 2018.

California Energy Commission. 2017. *2017 Integrated Energy Policy Report*. Available: https://www.energy.ca.gov/2017_energypolicy/. Accessed August 30, 2018.

———. 2018a. *2019 Building Energy Efficiency Standards*. Available: http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf. Accessed August 30, 2018.

———. 2018b. *Total System Electric Generation*. Available: http://www.energy.ca.gov/almanac/electricity_data/total_system_power.html. Accessed August 30, 2018.

Caltrans. *See* California Department of Transportation.

California Department of Transportation.2008. *2007 California Motor Vehicle Stock, Travel and Fuel Forecast*.

California State Board of Equalization. 2016. *Net Taxable Gasoline Gallons*. Available: http://www.boe.ca.gov/sptaxprog/reports/MVF_10_Year_Report.pdf. Accessed August 24, 2018.

CARB. *See* California Air Resources Board.

City of Sunnyvale. 2014. *City of Sunnyvale Climate Action Plan*. Available: http://www.pmcworld.com/client/sunnyvale/documents/final-ClimateActionPlan.pdf. Accessed August 30, 2018.

———. 2018. *Climate Action Plan 2018 Biennial Progress Report*. Available: https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?blobid=25798. Accessed August 30, 2018.

DOT. *See* U.S. Department of Transportation

EIA. *See* U.S. Energy Information Administration.

Pacific Gas & Electric. 2016. *PG&E's Power Mix*. Available: https://www.pge.com/pge_global/local/assets/data/en-us/your-account/your-bill/understand-your-bill/bill-inserts/2017/november/power-content.pdf. Accessed August 30, 2018.

PG&E. *See* Pacific Gas & Electric.

Silicon Valley Clean Energy. 2018 (July). *You've Lowered Your Carbon Footprint!*. Available https://www.svcleanenergy.org/wp-content/uploads/2018/09/Power-Label-Content_DIGITAL_spread.pdf. Accessed September 24, 2018.

State of California. 2018. *California Climate Change Legislation*. Available: http://www.climatechange.ca.gov/state/legislation.html. Accessed August 21, 2018.

SVCE. See Silicon Valley Clean Energy.

U.S. Department of Energy. 2012 (June). Annual Energy Outlook 2012 with Projections to 2035. Available: https://www.eia.gov/outlooks/aeo/pdf/0383(2012).pdf. Accessed August 24, 2018.

U.S. Energy Information Administration. 2016. *Monthly Energy Review June 2016*. Available: http://www.eia.gov/totalenergy/data/monthly. Accessed August 24, 2018.

———. 2018. *Annual Energy Outlook 2018*. Available: https://www.eia.gov/outlooks/aeo/. Accessed August 30, 2018.

U.S. Department of Transportation. 2014. *Corporate Average Fuel Economy Standards*. Available: https://www.transportation.gov/mission/sustainability/corporate-average-fuel-economy-cafe-standards. Accessed August 30, 2018.

United Nations. 2015. *The Paris Agreement*. Available: https://unfccc.int/sites/default/files/english_paris_agreement.pdf. Accessed August 30, 2018.

Section 4.6, Hazards and Hazardous Materials

Cornerstone. 2017 (January 5). *Phase I Environmental Site Assessment and Preliminary Soil Quality Evaluation*. 1142 Dahlia Court. Sunnyvale, California. Prepared for Trumark Homes, LLC.

DEH. See Santa Clara County Department of Environmental Health.

California Department of Toxic Substances Control. 2018. Sunnyvale Corn Palace (43010010). Available: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=43010010. Accessed: August 2018.

DTSC. See California Department of Toxic Substance Control.

Santa Clara County. 2017. *Santa Clara County OES Emergency Operations Plan*. Available: https://www.sccgov.org/sites/oes/partners/Documents/emergency-operations-plan-jan-2017.pdf. Accessed: August 2018.

Santa Clara County Department of Environmental Health. 2017. Agreement to Enter Voluntary Cleanup Program: Corn Palace, 1142 Dahlia Court, Sunnyvale, CA.

_____. 2018. Corn Palace, 1142 Dahlia Court, Sunnyvale, CA Site Mitigation Program Case No. 2018-02s.

State Water Resources Control Board. 2018. Corn Palace (T10000010280). Available: https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000010280. Accessed: August 2018

SWRCB. See State Water Resources Control Board.

Terrax. 2017. Memorandum: Environmental Impacts and Proposed Mitigation Measures for the Corn Palace Facility Located at 1142 Dahlia Court, Sunnyvale, California 94086.

_____. 2018 (March 13). *Feasibility Study/Remedial Action Workplan*. 1142 Dahlia Court, Sunnyvale, California 94086.

Section 4.7, Traffic and Transportation

City of Sunnyvale. 2017. *City of Sunnyvale General Plan*. Adopted July 26, 2011; reflects amendments through April 2017. Sunnyvale, CA. Available: https://sunnyvale.ca.gov/government/codes/plan.htm.

Transportation Research Board. 2000. *Highway Capacity Manual*.

TRB. See Transportation Research Board.

Section 4.8, Greenhouse Gas Emissions

BAAQMD. See Bay Area Air Quality Management District.

Bay Area Air Quality Management District. 2017. California Environmental Quality Act Air Quality Guidelines. May 2017 Update. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed August 2018.

California Air Pollution Control Officers Association. 2017. CalEEMod Version 16.3.2. Available: http://www.caleemod.com/. Accessed September 2018.

California Air Resources Board. 2014. Technical Evaluation of the Greenhouse Gas Emissions Reduction Quantification for the Association of Bay Area Governments' and Metropolitan Transportation Commission's SB 375 Sustainable Communities Strategy. Available: https://www.arb.ca.gov/cc/sb375/scag_final_staff_report_06_29_16.pdf. Accessed August 2018.

_____. 2016a (October). *2016 ZEV Action Plan*. Available: https://www.gov.ca.gov/wp-content/uploads/2017/09/2016_ZEV_Action_Plan.pdf. Accessed August 2018.

———. 2016b. *Facts about the Advanced Clean Cars Program*. Available: https://www.arb.ca.gov/msprog/zevprog/factsheets/advanced_clean_cars_eng.pdf. Accessed August 2018.

———. 2017a (November). *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target*. Available: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed August 2018.

_____. 2017b. California EMissions FACtor model. Available: https://www.arb.ca.gov/emfac/2017/. Accessed September 2018.

———. 2018a. *SB 375 Regional Greenhouse Gas Emissions Reduction Targets*. Approved by the California Air Resources Board March 22, 2018. Available: https://www.arb.ca.gov/cc/sb375/finaltargets2018.pdf. Accessed August 2018.

———. 2018b (July 11). California Greenhouse Gas Emission Inventory. 2018 Edition. Available: https://www.arb.ca.gov/cc/inventory/data/data.htm?utm_medium=email&utm_source=govdelivery. Accessed August 2018.

———. 2018c (July 11). *California Greenhouse Gas Emissions for 2000 to 2016: Trends of Emissions and Other Indicators*. Available: https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf. Accessed August 2018.

California Energy Commission. 2012. *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California*. Available: http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf. Accessed August 2018.

———. 2018a (March). *2019 Building Energy Efficiency Standards: Frequently Asked Questions*. Available: http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf. Accessed August 2018.

———. 2018b. Cal-Adapt Annual Averages Tool. Available: http://cal-adapt.org/tools/annual-averages/. Accessed August 2018.

_____. 2018c. Cal-Adapt Wildfire Tool. Available: http://cal-adapt.org/tools/wildfire/#climatevar=fire&scenario=rcp45&population=bau_mu&lat=37.40625&lng=-122.03125&boundary=locagrid&units=ha. Accessed August 2018.

_____. 2018d. Cal-Adapt Sea-Level Rise Tool. Available: http://cal-adapt.org/tools/slr-calflod-3d/. Accessed August.

California Natural Resources Agency. 2017 (May). *Draft Report: Safeguarding California Plan: 2017 Update.* Available: http://resources.ca.gov/wp content/uploads/2017/05/DRAFT Safeguarding California Plan-2017-Update.pdf. Accessed August 2018.

———. 2018 (January). *Safeguarding California Plan: 2018 Update.* Available: http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf. Accessed August 2018.

CAPCOA. *See* California Air Pollution Control Officers Association.

CARB. *See* California Air Resources Board.

CEC. *See* California Energy Commission.

City of Sunnyvale. 2014. *City of Sunnyvale Climate Action Plan*. Available: http://www.pmcworld.com/client/sunnyvale/documents/final-ClimateActionPlan.pdf. Accessed August 2018.

———. 2016. *Lawrence Station Area Plan.* November 2016. Available at: https://sunnyvale.ca.gov/business/projects/lawrence.htm

———. 2017. *City of Sunnyvale General Plan*. Adopted July 26, 2011; reflects amendments through April 2017. Sunnyvale, CA. Available: https://sunnyvale.ca.gov/government/codes/plan.htm.

———. 2018. *Sunnyvale Climate Action Plan Biennial Progress Report—2018*. Available: https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?blobid=25798. Accessed August 2018.

CNRA. *See* California Natural Resources Agency.

EPA. *See* U.S. Environmental Protection Agency.

Forest Trends. 2017. Unlocking Potential: State of the Voluntary Carbon Markets 2017. https://www.forest-trends.org/wp-content/uploads/2017/09/doc_5591.pdf. Accessed September 2018.

Governor's Office of Planning and Research. 2017a (November). *Proposed Updates to the CEQA Guidelines.* Available: http://opr.ca.gov/docs/20171127_Comprehensive_CEQA_Guidelines_Package_Nov_2017.pdf. Accessed August 2018.

———. 2017b (November). *Technical Advisory on Evaluating Transportation Impacts in CEQA*. Available: http://www.opr.ca.gov/docs/20171127_Transportation_Analysis_TA_Nov_2017.pdf. Accessed August 2018.

Intergovernmental Panel on Climate Change. 2013. Chapter 6, Carbon and Other Biogeochemical Cycles. Pages 465–570 in *Climate Change 2013: The Physical Science Basis*. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Available: http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed August 2018.

———. 2014. *Climate Change 2014 Synthesis Report: Summary for Policymakers*. Available: https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf. Accessed August 2018.

IPCC. *See* Intergovernmental Panel on Climate Change.

OPR. *See* Governor's Office of Planning and Research.

Santa Clara County Fire Department. 2016. *Santa Clara County Community Wildfire Protection Plan*. Available: http://www.sccfd.org/images/documents/fire_prevention/CWPP/CWPP_Strategic_Countywide_Document_08_29_16.pdf. Accessed August 2018.

State of California. 2018. California Climate Change Legislation. Available: http://www.climatechange.ca.gov/state/legislation.html. Accessed August 2018.

United Nations. 2015 (December 13). *Historic Paris Agreement on Climate Change: 195 Nations Set Path to Keep Temperature Rise Well Below 2 Degrees Celsius*. Available: https://unfccc.int/news/finale-cop21. Accessed August 2018.

U.S. Environmental Protection Agency. 2018 (April 2). *EPA Administrator Pruitt: GHG Emissions Standards for Cars and Light Trucks Should be Revised*. Available: https://www.epa.gov/newsreleases/epa-administrator-pruitt-ghg-emissions-standards-cars-and-light-trucks-should-be. Accessed August 2018.

Wade, Samuel. Branch chief. Transportation Fuels Branch, Industrial Strategies Division, California Air Resources Board, Sacramento, CA. June 30, 2017—e-mail to Austin Kerr of Ascent Environmental regarding whether the Low Carbon Fuel Standard applies to fuels used by off-road construction equipment.

———. May 4, 2018—e-mail to Austin Kerr of Ascent Environmental regarding the availability of renewable diesel fuel in the Bay Area.

Western States Oil. 2018. Government Fleets using Renewable Diesel Fuel. Available: http://www.government-fleet.com/search/?q=neste+renewable. Accessed September 2018.

Section 4.9, Noise and Vibration

California Department of Transportation. 2013a (September). *Technical Noise Supplement. California Department of Transportation Division of Environmental Analysis*. Sacramento, CA. Prepared by ICF Jones & Stokes.

_____. 2013b (September). *Transportation and Construction Vibration Guidance Manual*. Sacramento, CA: Noise, Division of Environmental Analysis. Sacramento, CA.

Caltrans. *See* California Department of Transportation

EPA. *See* U.S. Environmental Protection Agency.

Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5. Available for download at https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/purchasing_tnm/. Accessed April 4, 2017.

———. 2006 (January). *Roadway Construction Noise Model User's Guide*. Washington, D.C. Prepared by the Research and Innovative Technology Administration, Cambridge, MA.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/fta-noise-and-vibration-impact-assessment. Accessed July 3, 2017.

FHWA. See Federal Highway Administration.

FTA. See Federal Transit Administration.

Governor's Office of Planning and Research. 2017 (August). *State of California General Plan Guidelines*. Sacramento, CA. Available: http://www.opr.ca.gov/planning/general-plan/. Accessed January 4, 2017.

OPR. See Governor's Office of Planning and Research.

U.S. Environmental Protection Agency. 1971 (December). *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Washington, DC. Prepared by Bolt Baranek and Newman.

Chapter 5, Project Alternatives

City of Sunnyvale 2016. *Lawrence Station Area Plan.* November 2016. Available at: https://sunnyvale.ca.gov/business/projects/lawrence.htm

Chapter 6, Other CEQA Considerations

California Department of Finance. 2018 (May). E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2018 with 2010 Census Benchmark. Available at: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/>. Accessed August 30, 2018.

California Energy Commission. 2017. *2017 Integrated Energy Policy Report*. Available: https://www.energy.ca.gov/2017_energypolicy/. Accessed August 30, 2018.

City of Santa Clara. 2018. *City of Santa Clara: Development Projects Story Map*. Available at: <http://missioncity.maps.arcgis.com/apps/MapTour/index.html?appid=5afdbed13fad458cb6288c46a0bad060#>. Accessed August 21, 2018.

City of Sunnyvale, City Council. 1990 (March 13). Resolution No. 124-90: Resolution of the Council of the City of Sunnyvale Granting Tentative Approval of Agricultural Land Conservation Contract Cancellation for Certain Real Property Located near the Intersection of Lawrence Expressway and Lily Avenue ("Corn Palace" Property). Sunnyvale, CA.

———. 2018. *Sunnyvale New Development Projects*. Available at: <http://gis.sunnyvale.ca.gov/portal/apps/webappviewer/index.html?id=32e71fe86a724a19b1b979e6d3997852>. Accessed on August 21, 2018.

———. 2016. *Lawrence Station Area Plan Draft and Final EIR.* November 2016. Available at: https://sunnyvale.ca.gov/business/projects/lawrence.htm

EIA. See U.S. Energy Information Administration.

U.S. Energy Information Administration. 2016. *Monthly Energy Review June 2016.* Available: http://www.eia.gov/totalenergy/data/monthly. Accessed August 24, 2018.

8 REPORT PREPARERS

8.1 LEAD AGENCY

City of Sunnyvale

Shetal Divatia ..... Project Planner

8.2 ENVIRONMENTAL CONSULTANT

ASCENT ENVIRONMENTAL, INC. (CEQA COMPLIANCE)

Patrick Angell ..... Project Director
Kristen Stoner ..... Project Manager
Linda Leeman ..... Biological Resources (Senior Reviewer)
Allison Fuller ..... Biological Resources
Austin Kerr ..... Air Quality; Climate Change; Energy; Noise (Senior Reviewer)
Ricky Williams ..... Air Quality; Climate Change; Energy
Zachary Miller ..... Noise; Transportation and Circulations
Marianne Lowenthal ..... Aesthetics; Hazards and Hazardous Materials
Kirsten Burrowes ..... Archaeological, Historical, and Tribal Cultural Resources

NATURAL INVESTIGATIONS COMPANY (CULTURAL RESOURCES)

Cindy Arrington, M.S., RPA ..... Principal
Nancy E. Sikes, RPA ..... Principal Investigator

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