

CITY OF SUNNYVALE

LAWRENCE STATION AREA PLAN

DRAFT ENVIRONMENTAL IMPACT REPORT

SCH# 2013082030

Prepared for:

CITY OF SUNNYVALE
456 W. OLIVE AVENUE
SUNNYVALE, CA 94086

Prepared by:

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2729 PROSPECT PARK DRIVE, SUITE 220
RANCHO CORDOVA, CA 95670

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ES EXECUTIVE SUMMARY

This chapter provides a summary of the proposed Lawrence Area Specific Plan (LSAP) (the project) in the City of Sunnyvale, identification of the alternatives evaluated in this Draft Environmental Impact Report (Draft EIR), a discussion of areas of controversy and issues to be resolved associated with the project, and a summary of the environmental impacts of the project.

ES.1 PURPOSE AND SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

This Draft EIR provides an analysis of the potential physical environmental effects associated with the implementation of the proposed Lawrence Station Area Plan (LSAP), pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000–21177).

The analysis focuses on the physical environmental impacts that could arise from implementation of the project through development of the land uses within the project area as guided by the LSAP. The Draft EIR has been prepared as a Program EIR as provided for under CEQA Guidelines Section 15168.

ES.2 PROJECT CHARACTERISTICS

The purpose of the LSAP is to establish a framework for the future development of the Lawrence Caltrain Station area in order to improve the relationship between transit availability and land use for the long-term development of an economically, environmentally, and socially vibrant mixed-use district in Sunnyvale. The LSAP includes goals, policies, and urban design guidelines that will help guide development and buildout of the plan area.

The LSAP land use plan is built around the flexible mixed-use concept. Mixed-use refers to the practice of allowing different types of land uses within easy walking distance of each other. Such uses can be combined vertically, within the same building, or horizontally within different buildings but on the same block. Flexibility would allow properties north of Lawrence Station and the Peninsula Building Materials property just south of the station to have the option to develop a variety of uses such as office/research and development (R&D) or residential, depending on market demand and landowner preferences.

The LSAP would establish new General Plan land use categories for the plan area and would retain existing ones. Several of the categories are existing land use designations already in use by the City of Sunnyvale in the existing neighborhoods within the plan area. Others are existing land use designations available in the City of Sunnyvale General Plan and Zoning Code, but not previously applied in the plan area. These areas would require a change of zoning in order to be compliant with the LSAP. Others are new land use categories that do not currently exist in the Sunnyvale General Plan and Zoning Code.

Approximately 200 acres (63 percent) of the plan area would require a change in land use designation or rezoning in order to allow and encourage development in conformance with LSAP goals and policies. The greatest change would be associated with the change in land use designations and zoning for parcels currently designated Industrial and Service (i.e., areas north of the Caltrain tracks and the Calstone/Peninsula Building Materials site) to new land use designations and zoning for Mixed Use totaling approximately 142 acres.

The LSAP provides the basis for the City's consideration of all subsequent discretionary and ministerial project approvals and entitlements. The LSAP, in conjunction with the elements of the City's Zoning Code and other relevant requirements, will govern the design of individual projects in the plan area. To move forward with a particular project that implements the LSAP, the City will require full compliance with LSAP policies and design guidelines; EIR mitigation measures;

applicable chapters of the Municipal Code; and other City standards, policies, and regulations. Processing of individual development applications will be subject to review and approval by the City. Subsequent project applications may require environmental review that would tier off this program EIR.

Build out under the LSAP is anticipated to occur by the year 2035.

ES.3 PROJECT ALTERNATIVES SUMMARY

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project which could feasibly attain the basic objectives of the project and avoid and/or lessen the environmental effects of the project. Further, CEQA Guidelines Section 15126.6(e) requires that a “no project” alternative be evaluated in an EIR. The Draft EIR evaluates the following alternatives:

- **Alternative 1 –No Project Alternative.** Alternative 1 assumes development within the LSAP plan area would proceed in accordance with adopted General Plan land use designations and zoning.
- **Alternative 2 – Residential Emphasis.** Alternative 2 assumes new land uses within the LSAP plan area would be almost exclusively residential with a limited amount of neighborhood-serving retail, commercial, and office uses.
- **Alternative 3 – Office/Research and Development Emphasis.** Alternative 3 assumes new development areas north of the station in the LSAP plan area would be almost exclusively office and research and development (R&D), with a limited amount of support services. New residential development in the plan area would be limited to specific parcels south of the Caltrain tracks

ES.4 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

In accordance with Section 15082 of the CEQA Guidelines, the City of Sunnyvale prepared and distributed a Notice of Preparation (NOP) for this project that was circulated for public review on August 9, 2013. The NOP included a summary of probable effects on the environment from the implementation of the project. Written comments received in response to the NOP were considered in the preparation of the Draft EIR. The complete text of the NOP and NOP comments and where they are addressed in the Draft EIR are included as **Appendix A**.

Areas of controversy and issues raised to date regarding the project through the NOP process and public input in the LSAP process includes the following:

- Consideration of traffic impacts on local and regional facilities within and outside of Sunnyvale, including Lawrence Expressway
- Potential impacts on transit services
- Safety of highway-rail crossings, need for grade separation projects
- Use of proposed trails along Calabazas Creek and El Camino Storm drain relative to Santa Clara Valley Water District easements
- Whether the LSAP would result in the loss of existing homes

- Impacts on medical care facilities in Sunnyvale
- Impacts on air quality from traffic

ES.5 SUMMARY OF ENVIRONMENTAL IMPACTS

Implementation of the LSAP is anticipated to result in residential and nonresidential (retail, commercial, office, and other uses) development. This development, in combination with long-term, region-wide growth and development, has the potential to generate environmental impacts in a number of areas.

Table ES-1 summarizes the environmental impacts of the LSAP and proposed mitigation measures that would avoid or minimize potential impacts. In the table, the level of significance is indicated both before and after the implementation of each mitigation measure. For detailed discussions of these environmental impacts, refer to the appropriate environmental topic section (i.e., Sections 3.1 through 3.13).

SIGNIFICANT AND UNAVOIDABLE IMPACTS

Implementation of the proposed LSAP has the potential to generate significant and unavoidable impacts in the following resource areas:

- Construction air emissions
- Cumulatively considerable net increase in criteria air pollutants
- Transportation operations for project and cumulative conditions (intersections in the City of Santa Clara and freeway segments).

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**TABLE ES-1
LSAP IMPACTS AND PROPOSED MITIGATION MEASURES**

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
3.1 Land Use			
Impact 3.1.1 Subsequent projects developed under the LSAP would result in higher-intensity development consisting of mixed uses in areas that currently contain nonresidential office, R&D, and industrial uses.	LS	None required.	LS
Impact 3.1.2 The LSAP establishes a new mixed-use land use designation that provides for higher multi-family residential densities and increased floor area ratios for nonresidential development in the plan area.	LS	None required.	LS
Impact 3.1.3 The project would not conflict with any applicable habitat conservation plans or natural community conservation plan.	NI	None required	NI
Impact 3.1.4 Project implementation would not contribute to cumulative land use impacts associated with the division of an established community or conflicts with land use plans and regulations that provide environmental protection.	LCC	None required.	LCC
3.2 Population and Housing			
Impact 3.2.1 Subsequent projects developed under the LSAP would increase the number of housing units in the plan area by approximately 2,300 and would increase nonresidential office/R&D/industrial square footage by 1.2 million square feet.	LS	None required.	LS
Impact 3.2.2 Subsequent projects developed under the LSAP would not result in the displacement of housing or persons.	NI	None required.	NI
Impact 3.2.3 Cumulative development in Sunnyvale, including in the LSAP, would result in a cumulative increase in population and housing growth in Sunnyvale.	LCC	None required.	LCC

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City of Sunnyvale
May 2016

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**TABLE ES-1
LSAP IMPACTS AND PROPOSED MITIGATION MEASURES**

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
<p>Impact 3.2.4 Cumulative development could result in displacement of substantial numbers of housing or persons, but the LSAP does not include proposed changes in land use designations or zoning that would directly or indirectly result in such displacement.</p>	LCC	None required.	LCC
<p>3.3 Hazards and Human Health</p>			
<p>Impact 3.3.1 Subsequent projects developed under the LSAP would allow for land uses that would involve the routine use, transport, and disposal of hazardous materials in the plan area.</p>	LS	None required.	LS
<p>Impact 3.3.2 Subsequent projects developed under the LSAP would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.</p>	LS	None required.	LS
<p>Impact 3.3.3 Subsequent projects developed under the LSAP could encounter contaminated soil, soil vapors, or groundwater, which may pose a human health or environmental risk.</p>	PS	<p>MM 3.3.3 The City shall require a Phase I Environmental Site Assessment (ESA) prepared and submitted with any application for new development or redevelopment in any LSAP subarea north of the Caltrain tracks, the Peninsula subarea, the Lawrence/Reed/Willow subarea, or the Corn Palace property. The Phase I ESA shall be prepared by a qualified professional registered in California and in accordance with ASTM E1527-13 (or the most current version at the time a development application is submitted for the project).</p> <p>If determined necessary by the Phase I ESA, a Phase II ESA shall be conducted to determine the lateral and vertical extent of soil, groundwater, and/or soil vapor contamination, as recommended by the Phase I ESA.</p> <p>The City shall not issue a building permit for a site where contamination has been identified until remediation or effective</p>	LS

**TABLE ES-1
LSAP IMPACTS AND PROPOSED MITIGATION MEASURES**

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		<p>site management controls appropriate for the use of the site have been completed consistent with applicable regulations and to the satisfaction of the City of Sunnyvale, DTSC, or SFBRWQCB (as appropriate) prior to initiation of construction activities. Deed restrictions, if appropriate, shall be recorded.</p> <p>If temporary dewatering is required during construction or if permanent dewatering is required for subterranean features, the City shall not issue an improvement permit or building permit until documentation has been provided to the City that the Water Pollution Control Plant has approved the discharge to the sewer. Discharge of any groundwater removed from a construction site in any LSAP subarea north of the Caltrain tracks, the Peninsula subarea, the Lawrence/Reed/Willow subarea, or the Corn Palace property to the El Camino Storm Drain Channel, Calabazas Creek, or storm drain shall be prohibited. The City shall ensure all plans and permits state this prohibition.</p> <p>If the Phase I ESA determines there are no recognized environmental conditions (RECs), no further action is required. However, the City shall ensure any grading or improvement plan or building permit includes a statement if hazardous materials contamination is discovered or suspected during construction activities, all work shall stop immediately until a qualified professional has determined an appropriate course of action.</p>	
<p>Impact 3.3.4 Subsequent projects developed under the LSAP could involve the use, transport, disposal, and/or release of hazardous materials within one-quarter mile of an existing school site.</p>	LS	None required.	LS

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**TABLE ES-1
LSAP IMPACTS AND PROPOSED MITIGATION MEASURES**

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
<p>Impact 3.3.5 Construction of subsequent projects developed under the LSAP could temporarily interfere with emergency response or evacuation plans.</p>	PS	<p>MM 3.3.5 Prior to issuance of a permit for a specific development project or prior to approving a City-initiated roadway improvement identified in the LSAP, the City shall determine whether project construction activities have the potential to affect traffic conditions on roadways as a result of construction of the development project or roadway improvement(s). If there is the potential the activities could impair or inhibit emergency response or evacuation, a Construction Traffic Control Plan shall be prepared for City review and approval. The plan shall include, but not be limited to, schedule of construction and anticipated methods of handling traffic for each phase of construction to ensure the safe flow of traffic and adequate emergency access, including maintaining an open lane for vehicle travel at all times. All traffic control measures shall conform to City of Sunnyvale, Santa Clara County, and/or Caltrans standards, as applicable. The City shall ensure final approved plans for private development projects specify the requirement, as appropriate, to implement the construction traffic control plan.</p>	LS
<p>Impact 3.3.6 Occupancy and activities associated with subsequent projects developed under the LSAP would not interfere with adopted emergency response and evacuation plans.</p>	LS	None required.	LS
<p>Impact 3.3.7 Cumulative development, including the LSAP, could increase the use of hazardous materials and may involve project development on contaminated sites.</p>	LCC	None required.	LCC
<p>Impact 3.3.8 Cumulative development, including the LSAP, could affect emergency response and evacuation routes.</p>	LCC	None required.	LCC
<p>3.4 Transportation and Circulation</p>			

**TABLE ES-1
LSAP IMPACTS AND PROPOSED MITIGATION MEASURES**

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 3.4.1 Subsequent projects developed under the LSAP would be accommodated by transit services and facilities in the area. Traffic operations in the LSAP area would not adversely impact transit travel times.	LS	None required.	LS
Impact 3.4.2 Subsequent projects developed under the LSAP would increase the demand for bicycle facilities as well as include new facilities and improvements to support bicycle usage.	LS	None required.	LS
Impact 3.4.3 Subsequent projects developed under the LSAP would increase the demand for pedestrian facilities as well as provide for improved pedestrian facilities and opportunities.	LS	None required.	LS
Impact 3.4.4 Subsequent projects and roadway and pedestrian/bicycle facilities improvements developed under the LSAP would increase the number of people and vehicles in the plan area, which could increase the risk of vehicle and bicycle/pedestrian conflicts, and would intensify urban uses in adjacent to the Caltrain tracks.	LS	None required.	LS
Impact 3.4.5 The roadway improvements proposed in the LSAP would not adversely affect emergency access.	LS	None required.	LS
Impact 3.4.6 Implementation of the land uses under the LSAP would contribute to significant traffic operational impacts to intersections and freeway segments as compared to existing conditions.	S/CC	MM 3.4.6 Should the proposed Land Use and Transportation Element update not be adopted, the following roadway improvements are required as a component of the implementation of the LSAP: <ul style="list-style-type: none"> Wolfe Road & Kifer Road – Construction of a second southbound left-turn lane and a second westbound left-turn lane. Both left-turn lanes would need to have the same length as the original left-turn lane. Depending on the width of each travel lane, the north and east legs of the intersection will need to be widened between 8 feet and 11 feet. The through lanes at this intersection will be 	CC/SU

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LSAP IMPACTS AND PROPOSED MITIGATION MEASURES**

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		<p>realigned. The required right-of-way would need to be acquired from the northwest, northeast, and/or southeast quadrants of the intersection. Existing bicycle and pedestrian facilities will be retained. This improvement would be a requirement for projects within the LSAP only and not a city-wide requirement.</p> <p>With this improvement, the intersection would operate at an acceptable LOS D during the AM peak hour. There would be secondary deficiencies associated with this improvement such as increased pedestrian and bicyclist exposure to traffic when crossing the intersection. The increased exposure time would range from approximately 2 to 3 seconds for pedestrians and from 1 to 2 seconds for bicyclists. This increased exposure time would be minimal. Located in an industrial area and immediately between the rail tracks and Central Expressway, this intersection is also not expected to serve a considerable amount of pedestrian and bicyclist volume. The required right-of-way acquisition would be minimal and would not displace businesses or parking spaces.</p> <ul style="list-style-type: none"> • Wolfe Road & Fremont Avenue – Construction of an exclusive southbound right-turn lane for the length of the segment. The eastbound inner left-turn lane will require restricting the U-turn movement to allow a southbound overlap right-turn phase. Vehicles wishing to perform the eastbound U-turn movement would instead perform the U-turn at Eleanor Way. Depending on the extent of the median on the north leg that could be removed, the north leg would be widened between 3 and 11 feet. The north leg would be realigned to accommodate the southbound 	

**TABLE ES-1
LSAP IMPACTS AND PROPOSED MITIGATION MEASURES**

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		<p>right turn. There is existing right-of-way on the northeast quadrant of the intersection.</p> <p>With this improvement, the intersection would operate at an unacceptable LOS E during the PM peak hour, but would no longer have an LSAP intersection deficiency. Secondary deficiencies on the pedestrian and bicycle facilities associated with this improvement would not be considerable. The increased exposure time would range from approximately 1 to 3 seconds for pedestrians and from 1 to 2 seconds for bicyclists. This increased exposure time would be minimal. The required right-of-way acquisition would be minimal and would not displace businesses. This improvement would be a requirement for projects within the LSAP only and not a city-wide requirement.</p>	
3.5 Air Quality			
<p>Impact 3.5.1 Subsequent land use activities associated with implementation of the proposed Lawrence Station Area Plan would not conflict with the Bay Area 2010 Clean Air Plan.</p>	LS	None required.	LS
<p>Impact 3.5.2 Subsequent land use activities associated with implementation of the proposed Lawrence Station Area Plan would not conflict with the Bay Area 2010 Clean Air Plan.</p>	LS	None required.	LS
<p>Impact 3.5.3 The proposed project could result in short-term construction emissions that could violate or substantially contribute to a violation of federal and state standards.</p>	S	<p>MM 3.5.3a Prior to the issuance of grading or building permits, the City of Sunnyvale shall ensure that the Bay Area Air Quality Management District's (BAAQMD) basic construction mitigation measures from Table 8-1 of the BAAQMD 2011 CEQA Air Quality Guidelines (or subsequent updates) are noted on the construction documents. These basic construction mitigation measures include the following:</p>	SU

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LSAP IMPACTS AND PROPOSED MITIGATION MEASURES**

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		<p>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</p> <p>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</p> <p>3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.</p> <p>4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).</p> <p>5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</p> <p>6. All construction equipment shall be maintained and properly tuned 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.</p> <p>7. A publicly visible sign shall be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD’s phone number shall also be visible to ensure compliance with applicable regulations.</p> <p>MM3.5.3b In the cases where construction projects are projected to exceed the Bay Area Air Quality Management District’s (BAAQMD) air pollutant significance thresholds for NOx, PM10, and/or PM2.5, all off-road diesel-fueled equipment (e.g., rubber-tired dozers, graders, scrapers, excavators, asphalt paving equipment, cranes, and tractors) shall be at least California Air Resources Board (CARB) Tier 3 Certified or better.</p>	

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Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
<p>Impact 3.5.4 The proposed project would not contribute to localized concentrations of mobile-source CO that would exceed applicable ambient air quality standards.</p>	<p>LS</p>	<p>None required.</p>	<p>LS</p>
<p>Impact 3.5.5 The proposed project could result in increased exposure of existing or planned sensitive land uses to construction-source toxic air contaminant (TAC) emissions.</p>	<p>PS</p>	<p>MM 3.5.5 In the case when a subsequent project’s construction is span greater than 5 acres and is scheduled to last more than two years, the subsequent project shall be required to prepare a site-specific construction pollutant mitigation plan in consultation with the Bay Area Air Quality Management District (BAAQMD) staff prior to the issuance of grading permits. A project-specific construction-related dispersion modeling acceptable to BAAQMD shall be used to identify potential toxic air contaminant impacts, including diesel particulate matter. If BAAQMD risk thresholds (i.e., probability of contracting cancer is greater than 10 in 1 million) would be exceeded, mitigation measures shall be identified in the construction pollutant mitigation plan to address potential impacts and shall be based on site-specific information such as the distance to the nearest sensitive receptors, project site plan details, and construction schedule. The City shall ensure construction contracts include all identified measures and that the measures reduce the health risk below BAAQMD risk thresholds. Construction pollutant mitigation plan measures shall include, but not be limited to:</p> <ol style="list-style-type: none"> 1. Limiting the amount of acreage to be graded in a single day, 2. Restricting intensive equipment usage and intensive ground disturbance to hours outside of normal preschool hours, 3. Notification of affected sensitive receptors one week prior to commencing on-site construction so that any necessary precautions (such as rescheduling or relocation of outdoor activities) can be implemented. The written notification shall include the name and telephone number of the individual empowered to manage construction of the project. In the event 	<p>LS</p>

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		that complaints are received, the individual empowered to manage construction shall respond to the complaint within 24 hours. The response shall include identification of measures being taken by the project construction contractor to reduce construction-related air pollutants. Such a measure may include the relocation of equipment.	
<p>Impact 3.5.6 The proposed project could result in the development of housing units (sensitive land uses) near stationary or mobile-source TACs.</p>	PS	<p>MM 3.5.6 The following measures shall be utilized in site planning and building designs to reduce TAC and PM2.5 exposure where new receptors are located within 1,000 feet of emission sources:</p> <ul style="list-style-type: none"> • Future development with the LSAP that includes sensitive receptors (such as residences, schools, hospitals, daycare centers, or retirement homes) located within 1,000 feet from Caltrain and/or stationary sources shall require site-specific analysis to determine the level of health risk. This analysis shall be conducted following procedures outlined by BAAQMD. If the site-specific analysis reveals significant exposures from all sources (i.e., health risk in terms of excess cancer risk greater than 100 in one million, acute or chronic hazards with a hazard Index greater than 10, or annual PM2.5 exposures greater than 0.8 µg/m3) measures shall be employed to reduce the risk to below the threshold (e.g., electrostatic filtering systems or equivalent systems and location of vents away from TAC sources). If this is not possible, the sensitive receptors shall be relocated. • Future nonresidential developments projected to generate more than 100 heavy-duty trucks daily will be evaluated through the CEQA process or BAAQMD permit process to ensure they do not cause a significant health risk in terms of excess cancer risk greater than 10 in one million, acute 	LS

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		or chronic hazards with a hazard Index greater than 1.0, or annual PM2.5 exposures greater than 0.3 µg/m3.	
Impact 3.5.7 Future development within the LSAP would not result in exposure of sensitive receptors to substantial odorous emissions.	LS	None required	LS
Impact 3.5.8 The proposed project, in combination with cumulative development in the SFBAAB, could result in a cumulatively considerable net increase of criteria air pollutants for which the air basin is designated nonattainment.	CC	Implement Mitigation Measures MM 3.5.3a and MM 3.5.3b.	CC/SU
3.6 Noise			
Impact 3.6.1 The proposed project would not expose residents to traffic noise or stationary sources of noise in excess of established standards.	LS	None required.	LS
Impact 3.6.2 Project operation would generate increased local traffic volumes that could cause a substantial permanent increase in ambient noise levels in the project vicinity.	LS	None required.	LS
Impact 3.6.3 Planned development under the proposed LSAP would be required to comply with City noise standards set forth in the General Plan and the Municipal Code.	LS	None required.	LS
Impact 3.6.4 Planned development under the proposed LSAP would not result in the exposure of persons to or generation of noise levels in excess of the City of Sunnyvale’s noise standards, as short-term construction noise is exempt from all noise level standards and construction is limited to daytime hours. However, this temporary noise impact would be potentially significant.	PS	MM 3.6.4 Subsequent projects in the LSAP shall employ site-specific noise attenuation measures during construction to reduce the generation of construction noise. These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by the City of Sunnyvale Building Services Division. Measures specified in the Noise Control Plan and implemented during construction shall include, at a minimum, the following noise control strategies:	LS

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		<ul style="list-style-type: none"> • Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds; • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used; and • Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures. • Noise reducing pile-driving techniques shall be employed during Project construction. These techniques shall include: <ul style="list-style-type: none"> ○ Installing intake and exhaust mufflers on pile-driving equipment; ○ Vibrating piles into place when feasible, and installing shrouds around the pile-driving hammer where feasible; 	

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		<ul style="list-style-type: none"> ○ Implement “quiet” pile-driving technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions; ○ Use cushion blocks to dampen impact noise, if feasible based on soil conditions. Cushion blocks are blocks of material that are used with impact hammer pile drivers. They consist of blocks of material placed atop a piling during installation to minimize noise generated when driving the pile. Materials typically used for cushion blocks include wood, nylon and micarta (a composite material); and ○ At least 48 hours prior to pile-driving activities, the applicant shall notify building owners and occupants within 600 feet of the Project area of the dates, hours, and expected duration of such activities. 	
Impact 3.6.5 Project operation would not result in a substantial contribution to cumulative noise levels.	LCC	None required.	LCC
3.7 Geology, Soils, and Paleontological Resources			
Impact 3.7.1 Subsequent projects developed under the LSAP would result in the exposure of people, structures, and infrastructure to strong seismic groundshaking. However, California Building Code standards, as implemented by the City through Chapter 16.16 of the Municipal Code, would address seismic hazards.	LS	None required.	LS
Impact 3.7.2 Subsequent projects developed under the LSAP would involve construction and grading activities that could temporarily increase soil erosion. However, continued	LS	None required.	LS

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Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
implementation of the City’s Municipal Code would ensure that there are no adverse impacts from erosion.			
Impact 3.7.3 Subsequent projects developed under the LSAP occur on a geologic unit or soil that is unstable, thus creating substantial risks to life and property. However, continued implementation of the City’s Municipal Code and compliance with the CBC would ensure that potential development is not adversely impacted by unstable soils.	LS	None required.	LS
Impact 3.7.4 Construction of subsequent projects developed under the LSAP could affect paleontological resources.	PS	MM 3.7.4 All subsequent projects within the LSAP plan area shall be required to include information on the improvement plans that if, during the course of grading or construction fossils are discovered, work shall be halted immediately within 50 feet of the discovery, the Sunnyvale Community Development Department shall be notified, and the significance of the find and recommended actions are determined by a qualified paleontologist. In addition, prior to the commencement of project site preparation, all construction personnel shall be informed of the potential to discover fossils and the procedures to follow.	LS
Impact 3.7.5 Cumulative development, including the LSAP, could expose people and structures to seismic hazards, be located on soil or rock units that could be unstable, or cause or increase erosion.	LCC	None required.	LCC
Impact 3.7.6 Cumulative development, including the LSAP, could result in cumulative impacts on paleontological resources.	LCC	None required.	LCC
3.8 Hydrology and Water Quality			
Impact 3.8.1 Subsequent projects developed under the LSAP would include construction-related activities that could expose soil to erosion during storm events, causing degradation of water	LS	None required.	LS

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quality. Runoff from urban uses may contribute to the degradation of downstream water quality. Compliance with existing State regulations and City Municipal Code requirements would reduce these impacts.			
Impact 3.8.2 Subsequent projects developed under the LSAP would not interfere with groundwater recharge or flows or substantially deplete groundwater supplies.	LS	None required.	LS
Impact 3.8.3 Subsequent projects developed under the LSAP could result in the exposure of additional people and/or structures to potential risks from flooding hazards.	PS	MM 3.8.3 Prior to approving any subsequent projects in the LSAP at any location where fill is placed in the FEMA AO zone to elevate the ground surface above the base flood elevation, the project applicant shall submit a hydraulic analysis prepared by a California-registered professional engineer for City Engineer review and approval. The analysis shall, at a minimum, identify: (1) the specific locations where changes in water surface elevations due to fill encroachment could occur; and (2) drainage improvements that will be used to ensure placement of fill will not increase flood hazards in areas not previously subject to flooding during occurrence of the base flood discharge.	LS
Impact 3.8.4 Cumulative development, including the LSAP, could introduce additional non-point source pollutants to surface waters.	LCC	None required.	LCC
3.9 Biological Resources			
Impact 3.9.1 Construction of projects developed under the LSAP in the Southern Residential subarea (Corn Palace parcel) could result in substantial adverse effects, either directly or through habitat modifications, on special-status burrowing owl.	PS	MM 3.9.1 If clearing and construction activities will occur during the nesting period for burrowing owls (February 1 – August 31) on the vacant portion of the Corn Palace site, then a qualified biologist shall conduct focused surveys for burrowing owls on and adjacent to the project site. Surveys shall be conducted in accordance with the CDFW’s Staff Report on Burrowing Owl Mitigation, published March 7, 2012. Surveys	LS

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		<p>shall be repeated if project activities are suspended or delayed for more than 15 days during nesting season.</p> <p>If no burrowing owls are detected, then no further mitigation is required. If active burrowing owls are detected, the Project proponent will implement the avoidance, minimization, and mitigation methodologies outlined in CDFW's Staff Report prior to initiating project related activities that may impact burrowing owls.</p>	
<p>Impact 3.9.2 Construction of subsequent projects developed under the LSAP could result in substantial adverse effects, either directly or through habitat modifications, to special-status bats</p>	<p>PS</p>	<p>MM 3.9.2 Prior to the removal of trees or building demolitions, a bat survey shall be performed by a qualified biologist no more than 3 days prior to the start of construction activities. If bat roosts are identified, the City shall require that the bats be safely flushed from the sites where roosting habitat is planned to be removed. If maternity roosts are identified during the maternity roosting season (typically May to September) they must remain undisturbed until a qualified biologist has determined the young bats are no longer roosting. If roosting is found to occur onsite, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites removed. If no bat roosts are detected, then no further action is required if the trees and buildings are removed prior to the next breeding season.</p> <p>If a female or maternity colony of bats are found on the project site, and the project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after July 31 and before March 1).</p>	<p>LS</p>

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Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		If an active nursery roost is documented onsite and the project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after July 31 and before March 1 to prevent the formation of maternity colonies. Nonbreeding bats shall be safely evicted, under the direction of a bat specialist.	
<p>Impact 3.9.3 Construction of subsequent projects allowed under the LSAP could result in direct disturbance of nesting raptors and other migratory birds.</p>	PS	<p>MM 3.9.3 All construction and clearing activities shall be conducted outside of the avian nesting season (January 15–August 31), when feasible. If clearing and/or construction activities occur during the nesting season, preconstruction surveys for nesting raptors, special-status resident birds, and other migratory birds protected by the Migratory Bird Treaty Act shall be conducted by a qualified biologist, up to 3 days before initiation of construction activities. The qualified biologist shall survey the construction zone and a 250-foot radius surrounding the construction zone to determine whether the activities taking place have the potential to disturb or otherwise harm nesting birds.</p> <p>If an active nest is located within 100 feet (250 feet for raptors) of construction activities, the project applicant shall establish an exclusion zone (no ingress of personnel or equipment at a minimum radius of 100 feet or 250 feet, as appropriate around the nest). Alternative exclusion zones may be established through consultation with CDFW and the USFWS, as necessary. The City shall be notified if altered exclusion zones widths are authorized by these agencies prior to the initiation of work. The exclusion zones shall remain in force until all young have fledged.</p>	LS
<p>Impact 3.9.4 Subsequent projects developed under the LSAP could result in the construction of tall buildings, but would not pose an increased risk of bird collisions with buildings.</p>	NI	None required.	NI

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Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 3.9.5 Subsequent projects developed under the LSAP could result in the loss of riparian vegetation and/or sensitive natural communities.	LS	None required.	LS
Impact 3.9.6 Subsequent projects developed under the LSAP would not result in degradation of federally protected waters.	LS	None required.	LS
Impact 3.9.7 Subsequent projects developed under the LSAP would not result in significant impacts on the movement of native resident or migratory fish or wildlife species or established migratory corridors.	LS	None required.	LS
Impact 3.9.8 Construction of subsequent projects under the LSAP could result in the removal of trees, but implementation of Municipal Code requirements and LSAP policies and guidelines would ensure no net loss of trees.	LS	None required.	LS
Impact 3.9.9 The LSAP would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	LS	None required.	LS
Impact 3.9.10 Subsequent projects developed under the LSAP would not reduce the number or restrict the range of an endangered, rare, or threatened plant or animal species or biotic community, thereby causing the species or community to drop below self-sustaining levels.	NI	None required.	NI
Impact 3.9.11 Cumulative development, including the LSAP, could result in impacts on biological resources.	LCC	None required.	LCC
3.10 Cultural Resources			
Impact 3.10.1 There are no locally designated historic structures within the plan area. Further, compliance with resource	NI	None required.	NI

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protection policy provisions of the Sunnyvale General Plan and further project-level CEQA review of individual development projects would ensure potential impacts are avoided or mitigated.			
Impact 3.10.2 Construction of subsequent projects developed under the LSAP could indirectly result in the potential disturbance of undiscovered cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and unrecorded human remains.	PS	MM 3.10.2 All subsequent projects within the LSAP plan area shall be required to include information on the improvement plans that if, during the course of grading or construction cultural resources (i.e., prehistoric or historic sites) are discovered, work will stop in that area and within 100 feet of the find until a qualified archaeologist can access the significance of the find and, if necessary, develop appropriate treatment measures as part of a treatment plan in consultation with the City and all other appropriate agencies. The treatment plan shall include measures to document and protect the discovered resource. Consistent with CEQA Guidelines Section 15126.4 (b)(3), preservation in place will be the preferred method of mitigating impacts to the discovered resource. Pursuant to Government Code Section 6254.10, information on the discovered resource shall be confidential.	LS
Impact 3.10.3 Cumulative development, including the LSAP, could result in cumulative impacts on cultural resources.	LCC	Implement mitigation measure MM 3.10.2 .	LCC
3.11 Public Services and Utilities			
Impact 3.11.1.1 Subsequent projects developed under the LSAP could increase the demand for fire protection and emergency medical services.	LS	None required.	LS
Impact 3.11.1.2 Cumulative development, including the LSAP, would increase the demand for fire protection and emergency medical services.	LCC	None required.	LCC

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Impact 3.11.2.1 Development of subsequent projects under the LSAP would result in increased demand for law enforcement services.	LS	None required.	LS
Impact 3.11.2.2 Cumulative development, including the LSAP, would result in increased demand for law enforcement services.	LCC	None required.	LCC
Impact 3.11.3.1 The residential component of the LSAP could result in an increase in student enrollment in Sunnyvale schools.	LS	None required.	LS
Impact 3.11.3.2 Cumulative development, including the LSAP, could require new or expanded school facilities to accommodate projected growth.	LCC	None required.	LCC
Impact 3.11.4.1 Subsequent projects developed under the LSAP could increase the use of existing parks and recreation facilities in Sunnyvale and result in demand for new facilities.	LS	None required.	LS
Impact 3.11.4.2 Cumulative development, including the LSAP, would increase the use of existing parks and recreation facilities and could increase the demand for additional facilities.	LCC	None required.	LCC
Impact 3.11.5.1 Subsequent development under the proposed LSAP would increase the demand for water, but new water supply entitlements or expansion of local or regional water supplies would not be required.	LS	None required.	LS
Impact 3.11.5.2 Future development under the proposed LSAP would require extensions of water distribution infrastructure.	LS	None required.	LS
Impact 3.11.5.3 Cumulative development, including the LSAP, would increase the demand for water supplies.	LCC	None required.	LCC

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Impact 3.11.5.4 Cumulative development, including the LSAP, would require improvements to existing water distribution infrastructure.	LCC	None required.	LCC
Impact 3.11.6.1 Subsequent projects developed under the LSAP would increase wastewater generation in the city. However, projected wastewater flows would remain within the capacity of Sunnyvale’s wastewater collection and treatment system and would not exceed applicable wastewater treatment requirements of the RWQCB.	LS	None required.	LS
Impact 3.11.6.2 Subsequent projects developed under the LSAP would increase wastewater flows and require the use of infrastructure and treatment facilities to accommodate anticipated demands.	LS	None required.	LS
Impact 3.11.6.3 Cumulative development, including the LSAP, would contribute to the cumulative demand for wastewater service.	LCC	None required.	LCC
Impact 3.11.7.1 Subsequent projects developed under the LSAP would generate increased amounts of solid waste that would need to be disposed of in landfills or recycled.	LS	None required.	LS
Impact 3.11.7.2 Implementation of the LSAP would not result in conflicts with any federal, state, or local solid waste regulations.	LS	None required.	LS
Impact 3.11.7.3 Cumulative development, including the LSAP, would increase the amount of solid waste requiring disposal.	LCC	None required.	LCC
Impact 3.11.8.1 Development of subsequent projects under the LSAP would result in increased energy demand.	LCC	None required.	LCC
3.12 Visual Resources and Aesthetics			

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Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 3.12.1 Subsequent projects developed under the LSAP would not substantially degrade the visual character or quality of the plan area or its surroundings.	LS	None required.	LS
Impact 3.12.2 Subsequent projects developed under the LSAP could result in an increase of nighttime lighting and glare.	LS	None required.	LS
Impact 3.12.3 Subsequent projects developed under the LSAP could increase the amount of shade and shadow in public areas.	LS	None required.	LS
Impact 3.12.4 Implementation of the proposed LSAP would not result in a significant contribution to the cumulative conversion of open space or illumination of the night sky.	LCC	None required.	LCC
3.13 Greenhouse Gases and Climate Change			
Impact 3.13.1 The project would not conflict with an applicable plan adopted for the purpose of reducing GHG emissions.	LCC	None required.	LCC

1.0 INTRODUCTION

This Draft Environmental Impact Report (Draft EIR or DEIR) was prepared in accordance with and in fulfillment of the California Environmental Quality Act (CEQA) and the CEQA Guidelines. Public agencies are charged with the duty to consider and minimize environmental impacts of proposed development where feasible and have the obligation to balance economic, environmental, and social factors. As described in CEQA Guidelines Section 15121(a), an environmental impact report (EIR) is a public informational document that assesses the potentially significant environmental impacts of a project. The City of Sunnyvale (City) is the lead agency for the proposed Lawrence Station Area Plan (LSAP) (the project).

1.1 PURPOSE OF THE EIR

The City has determined that the proposed LSAP is a project under CEQA and that an EIR should be prepared. The LSAP is a planning document that contains policies and guidelines to guide the future redevelopment of the area surrounding the Lawrence Caltrain Station area. No specific projects are proposed under the LSAP. Development of land uses under the LSAP would be undertaken at the initiative and schedule of private landowners. The City would not acquire land for redevelopment.

The purpose of this Draft is to evaluate the direct and indirect environmental effects of subsequent development that could occur under the LSAP (i.e., residential and mixed use development, commercial, office/research and development (R&D), and infrastructure improvements).

The City has prepared this Draft EIR for the following purposes:

- To satisfy the requirements of CEQA (Public Resources Code, Sections 21000–21178) and the CEQA Guidelines (California Code of Regulations, Title 4, Chapter 14, Sections 15000–15387).
- To inform the general public, the local community, and responsible and interested public agencies of the nature of the Lawrence Station Area Plan, the possible environmental effects, recommended measures to mitigate those effects, and alternatives to the proposed project.
- To enable the City to consider environmental consequences when deciding whether to approve the Lawrence Station Area Plan.
- To provide a basis for preparation of future environmental documents for specific development projects proposed by private developers.
- To serve as a source document for information needed by several regulatory agencies to issue permits and approvals for future development that may occur within the Lawrence Station Area Plan area.
- To evaluate potential significant environmental effects of the project.

1.0 INTRODUCTION

1.2 TYPE OF DOCUMENT

The Lawrence Station Area Plan Draft EIR is a “Program EIR.” Program EIRs are defined by the CEQA Guidelines (Section 15168) as:

[A] series of actions that may be characterized as one large project and may be related either:

- 1) Geographically;*
- 2) As logical parts in the chain of contemplated actions;*
- 3) In connection with the issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program; or*
- 4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which may be mitigated in similar ways.*

The program-level analysis in this Draft EIR considers the broad environmental effects of the overall proposed project. This EIR will be used to evaluate subsequent projects (public and private) under the proposed LSAP consistent with CEQA and the CEQA Guidelines. When individual projects or activities under the LSAP are proposed, the City would be required to examine the projects or activities to determine whether their effects were adequately analyzed in this EIR as provided under CEQA Guidelines Sections 15168 and 15183.

The proposed Greystar project is within the proposed Transit Core subarea of the LSAP. The approximately 8-acre site has a one-story building, a portion of which is occupied by the Art Institute of Silicon Valley. If approved, the Greystar project would demolish the existing building and construct a five-story apartment building with 520 units and 10,000 square feet of retail space. Although this project is within the LSAP plan area, it is a stand-alone project independent of the LSAP and is subject to separate environmental review and City approvals, but is programmatically evaluated in this EIR as part of the overall LSAP development potential.

1.3 ORGANIZATION OF EIR

This Draft EIR is organized in the following sections:

SECTION ES – EXECUTIVE SUMMARY

This section provides a project narrative and identifies environmental impacts and mitigation measures through a summary matrix consistent with CEQA Guidelines Section 15123.

SECTION 1.0 – INTRODUCTION

This section provides an overview that describes the intended use of the EIR, as well as the review and certification process.

SECTION 2.0 – PROJECT DESCRIPTION

This section provides a detailed description of the proposed project and project objectives, along with background information and physical characteristics consistent with CEQA Guidelines Section 15124.

SECTION 3.0 – ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

This section contains technical analyses relative to each environmental topic. Included in this section is a comprehensive analysis related to impacts and mitigations that correspond to project implementation. Each subsection contains a description of the existing setting of the plan area. The environmental topics are summarized as follows:

- Land Use
- Population, Housing, and Employment
- Hazards and Human Health
- Transportation and Circulation
- Air Quality
- Noise
- Geology and Soils
- Hydrology and Water Quality
- Biological Resources
- Cultural and Paleontological Resources
- Public Services and Utilities
- Visual Resources and Aesthetics
- Greenhouse Gases and Climate Change Adaptation

SECTION 4.0 – PROJECT ALTERNATIVES

This section discusses alternatives to the proposed project that are intended to avoid or reduce significant environmental impacts of the proposed LSAP. This section also includes an evaluation of a “No Project” alternative, as required by CEQA.

SECTION 5.0 – OTHER CEQA ANALYSIS

This section contains discussions of significant irreversible environmental changes that would be involved in the proposed action should it be implemented as well as unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance.

1.0 INTRODUCTION

SECTION 6.0 – REPORT PREPARERS

This section lists all authors and agencies that assisted in the preparation of the report by name, title, and company or agency affiliation.

TECHNICAL APPENDICES

The appendices contain all technical material prepared to support the analysis.

1.4 ENVIRONMENTAL REVIEW PROCESS

The review and certification process for the EIR will involve the following general procedural steps:

NOTICE OF PREPARATION

In accordance with Section 15082 of the CEQA Guidelines, the City prepared a Notice of Preparation of an EIR for the project on August 9, 2013. The City was identified as the lead agency for the proposed project. The notice was circulated to the public, local, state, and federal agencies, and other interested parties to solicit comments on the proposed project. A scoping meeting was held on August 28, 2013, to receive additional comments. Concerns raised in response to the NOP were considered during preparation of the Draft EIR. The NOP and responses by interested parties are presented in **Appendix A**.

DRAFT EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the project, description of the environmental setting, identification of project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives. Upon completion of the Draft EIR, the City will file the Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161).

PUBLIC NOTICE/PUBLIC REVIEW

Concurrent with the NOC, the City will provide public notice of the availability of the Draft EIR for public review and invite comment from the general public, agencies, organizations, and other interested parties. The public review and comment period is required to be a minimum of forty-five (45) days. Public comment on the Draft EIR will be accepted both in written form and orally at public hearings. Notice of the time and location of the hearing will be published prior to the hearing. All comments or questions regarding the Draft EIR should be addressed to:

City of Sunnyvale
Community Development
456 West Olive Avenue
PO Box 3707
Sunnyvale, CA 94088-3707
Attention: Andrew Miner, Planning Officer

RESPONSE TO COMMENTS/FINAL EIR

Following the public review period, a Final EIR (FEIR) will be prepared. The Final EIR will respond to written comments received during the public review period and to oral comments made at any public hearing.

CERTIFICATION OF THE EIR/PROJECT CONSIDERATION

The City will review and consider the Final EIR. If the City finds that the FEIR is “adequate and complete,” the City may certify the FEIR. Upon review and consideration of the FEIR, the City may act upon the proposed LSAP. A decision to approve the project would be accompanied by written findings in accordance with CEQA Guidelines Section 15091 and, if applicable, Section 15093. The City would also adopt a Mitigation Monitoring and Reporting Program, as described below, for mitigation measures that have been incorporated into or imposed upon the project to reduce or avoid significant effects on the environment. The Mitigation Monitoring and Reporting Program will be designed to ensure that these measures are carried out during project implementation.

MITIGATION MONITORING

Public Resources Code Section 21081.6(a) requires lead agencies to adopt a mitigation monitoring and reporting program to describe measures which have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The specific “reporting or monitoring” program required by CEQA is not required to be included in the EIR; however, it will be presented to the City Council for adoption and incorporation into the LSAP.

1.5 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

The City received several comment letters on the Notice of Preparation for the LSAP Draft EIR. A copy of each letter is provided in **Appendix A** of this Draft EIR. The comments were incorporated into the Final Lawrence Station Area Plan, with attention given to the transportation and cumulative section sections of the Draft EIR. Comments were also further addresses through the public outreach process and at subsequent public meetings. Comments not pertaining to the CEQA process were provided to the City for consideration and were not incorporated in the Draft EIR analysis.

The City received letters from the following federal, state, and local agencies and other interested parties in **Table 1.0-1**. This table provides a summary of the comments received and where the comment is addressed in the Draft EIR.

**TABLE 1.0-1
LIST OF NOP COMMENTS**

Commenter	Date	Summary of Environmental Issue Comments	Location Addressed in Draft EIR
California Department of Transportation (Caltrans)	September, 2013	<ul style="list-style-type: none"> • The project may generate traffic at volumes sufficient to impact the operations of nearby State highway facilities and as such, it may be necessary to prepare a traffic impact study (TIS). • If a TIS is necessary, it should include pertinent mapping, trip generation, distribution and assignment, average daily trips, schematic illustration of traffic conditions, project site building potential, and traffic impact mitigations. • As the lead agency, the City is responsible for all mitigation, including those improvements needed to State highways. • The Area Plan streets should include walking and biking facilities to provide access to mass transit and to reduce reliance on single occupancy vehicles. • The Plan should include a Transportation Demand Management (TDM) program, which should include bicycle parking, reduced vehicle parking ratios, paid parking, subsidized transit passes, provide wider sidewalks, and bike facilities. • Any expansion of roads or rail lines should include an analysis of secondary impacts on pedestrians and bicyclists. 	Transportation impacts are addressed in Draft EIR Section 3.4.
California Public Utilities Commission (CPUC)	August 28, 2013	<ul style="list-style-type: none"> • The CPUC has jurisdiction over the safety of highway-rail crossings in California and all construction or alteration of rail crossings requires CPUC approval. • The Area Plan includes active railroad tracks. CPUC recommended that the City add language to the LSAP so that any future development adjacent to or near the railroad/light rail right-of-way (ROW) is planned with the safety of the rail corridor in mind. • Mitigations measures must include, but are not limited to, the planning for grade separations for major thoroughfares, 	Public safety associated with the LSAP and the Caltrain line is addressed in Draft EIR Section 3.4.

Commenter	Date	Summary of Environmental Issue Comments	Location Addressed in Draft EIR
		<p>improvements to existing at-grade crossing de to increase traffic volumes and continuous vandal resistant fencing or other appropriate barriers.</p>	
<p>City of Cupertino</p>	<p>August 28, 2013</p>	<ul style="list-style-type: none"> • The City of Cupertino has recently initiated a limited General Plan update process. This will include development which should be considered in the LSAP EIR preparation as follows: 2 to 3 million square feet of office allocation, 2 million square feet of commercial allocation and 1,000 to 1,500 rooms of hotel allocation. • Incorporate traffic projections for the allocations when evaluating the impacts of the LASP on the regional transportation system. • The traffic analysis and EIR should incorporate traffic from approved and pending projects within Cupertino. • The traffic analysis should follow all VTA Congestion Management Program requirements and thresholds on roadways and intersections in the City of Cupertino. • Provision of mitigation or fair share contribution for mitigation of impacts identified in Cupertino should be included in the EIR and the MMRP. All mitigation measures should be fully discussed, including financing, scheduling, and implementation. Mitigation for impacts within Cupertino should be consistent with the City's General plan, Bicycle Transportation Guidelines, Pedestrian Transportation Plan, and other City of Cupertino land use documents. • Impacts to transit, bicyclists, and pedestrians should be discussed including secondary impacts resulting from proposed traffic mitigation measures. 	<p>LSAP and cumulative traffic impacts to the regional transportation system is addressed in Draft EIR Section 3.4.</p>
<p>City of Santa Clara</p>	<p>September 5, 2013</p>	<ul style="list-style-type: none"> • All the major Santa Clara controlled intersections within the LSAP should be evaluated with mitigation provided as necessary. This should include all streets within a reasonable vicinity of the LSAP intersections. 	<p>LSAP traffic impacts to the transportation system and bicycle connectivity is addressed in Draft EIR Section 3.4.</p>

1.0 INTRODUCTION

Commenter	Date	Summary of Environmental Issue Comments	Location Addressed in Draft EIR
		<ul style="list-style-type: none"> • Pedestrian and bicycle connectivity should be reviewed in the LSAP, with an emphasis of safe routes to both Sana Clara Christian and Wilcox High schools. 	
<p>Santa Clara Valley Transportation Authority (VTA)</p>	<p>September 9, 2013</p>	<ul style="list-style-type: none"> • VTA supports the proposed land use intensification of the LSAP. This area is identified as a Station Area in the VTA's Community Design and Transportation (CDT) Program Cores, Corridors and Station areas framework. • The transportation analysis in the DEIR should discuss how local transit connections to, from and within the LSAP will be provided. • Given the existing land use patterns and limited connectivity of the roadway network in the station area, it is unlikely that VTA will provide enhanced transit service in the area in the near future. Therefore, the city should identify other options such as shuttles of public-private partnerships, including funding sources, o increase mobility options in the area to meet the goals for the LSAP. • The LSAP should identify measures to reduce single-occupancy automobile trips to, from and within the LSAP. • VTA supports the idea of estimated trip generation in the DEIR but recommends that a description of methodologies and all assumptions for trip generation and reductions be clearly documented in the DEIR. • VTA supports the two "Proposed Pedestrian/Bicycle Rail Crossings," however, it is unlikely that either Caltrain Joint Powers Board or VTA will be able to provide resources for ongoing maintenance and security of new rail crossings in this area. VTA recommends that the City identify resources for maintenance and security of any proposed rail crossings. 	<p>LSAP traffic and transit impacts are addressed in Draft EIR Section 3.4. Pedestrian access impacts are also addressed in this section.</p>
<p>Santa Clara Valley Water District</p>	<p>September 13, 2013</p>	<ul style="list-style-type: none"> • SCVWD expresses concern regarding the proposed multi-use trails along Calabazas Creek and the El Camino Storm Drain. Currently the Water District has easement rights along the two areas and uses 	<p>Potential trail impacts to Calabazas Creek and the El Camino Storm Drain are addressed in Draft EIR Sections 3.8 and 3.9.</p>

Commenter	Date	Summary of Environmental Issue Comments	Location Addressed in Draft EIR
		<p>those areas for maintenance.</p> <ul style="list-style-type: none"> • The Water District encourages the City to study the feasibility of the trails and how they would blend in with existing maintenance needs. • The Water District urges the incorporation of trail amenities or landscape features next to maintenance roads to enhance trail experiences. • The Water District offers its support to the City to develop trail plans along the channels within the plan area. 	
<p>McKenna & Aldridge (representing Costco Wholesale Corporation)</p>	<p>August 29, 2013</p>	<ul style="list-style-type: none"> • There is not a discussion of the potential economic impacts of the LSAP in the NOP or the possible inconsistencies between the LSAP and City's General Plan. • The EIR should include an analysis of the inconsistencies between the LSAP and the General Plan and provide mitigation. If necessary, to remove these inconsistencies. • Under CEQA, social or economic impacts may be relevant to the extent they contribute to or are caused by physical impacts on the environment (PRC, Section 21080(e)(2)). Operational impacts from any effort to re-develop Costco's property to include both the Costco warehouse and other uses. These impacts could make it impossible to operate the Sunnyvale warehouse in a manner that is the very foundation of the Costco business model. • Restrictions imposed by the land use change on Costco's ability to remodel or redevelop its property could jeopardize Costco's presence at the site. • The EIR should include an analysis of economic impacts. This economic analysis is also needed to identify and mitigate any inconsistency with Sunnyvale General Plan Policies LT-7.2, LT-7.3 and LT-7.5 and Sub-policy LT 7.1b. 	<p>Please note that the Draft EIR only evaluates the physical environmental impacts. Issues limited to economic or social concerns are not treated as significant effects on the environment (CEQA Guidelines Section 15131).</p> <p>Land use compatibility impacts that result in physical environmental impacts are addressed in Draft EIR Section 3.1.</p> <p>Draft EIR Sections 3.1 through 3.13 address potential project and cumulative impacts from existing land uses and proposed land uses associated with the LSAP.</p>

1.0 INTRODUCTION

Commenter	Date	Summary of Environmental Issue Comments	Location Addressed in Draft EIR
		<ul style="list-style-type: none"> • Costco is an existing land use and possible impacts for the warehouse to be placed in a mixed use land use could be exterior lighting, glare from the roof, noise, traffic, competing parking demands, odors and air contaminants. • Some of these impacts should be analyzed by including Costco existing impacts in the baseline conditions for purposes of studying cumulative impacts. • The scope of the EIR should be expanded to consider the impacts of the existing Costco and other existing uses on the new development proposed by the LSAP. • The General Plan acknowledges the dangers of incompatible development and the need for special design guideline standards. This is reiterated in the Land Use and Transportation Element (LUTE). • Express attention to impacts that Costco and other existing uses may have on the new uses proposed by the LSAP will reveal the need for design standards and other mitigation measures to be imposed on those new uses in order to maintain consistency with the LUTE. • The designated use of the Costco property should remain commercial and not be changed to mixed use and the scope of the EIR should be expanded to include analysis of (1) the economic impact of the LSAP in the existing uses in the project area, (2) impacts of the existing environment on the new uses proposed by the LSAP, and (3) mitigation measures to make those proposed new uses compatible with the existing uses. 	
Albert Gil	August 8, 2013	<ul style="list-style-type: none"> • I heard that there were not going to be any houses taken away or demolished with the LSAP. Has this changed? If, so does the City plan to buy my property and if I sell to an private buyer are there restrictions of any information that I should share with the perspective buyer. 	The proposed LSAP would not require the removal of any housing associated with its implementation.
Holly Lofgren	August 12,	<ul style="list-style-type: none"> • The preparation of the Lawrence Station EIR should include impacts 	Cumulative impacts in the Draft EIR are evaluated in

Commenter	Date	Summary of Environmental Issue Comments	Location Addressed in Draft EIR
	2013	related to other large developments such as the Apple II campus.	Sections 3.1 through 3.13 and includes consideration of large-scale projects such as Apple II campus and the Peery Park Specific Plan.
Martin Landzaat	September 8, 2013	<ul style="list-style-type: none"> • The LSAP EIR should examine the project’s impact on urgent medical care in Sunnyvale. Currently, Sunnyvale does not have a hospital or urgent care facility. • The EIR should determine if the existing urgent medical care facilities in Santa Clara and Mountain View can handle the impact of the LSAP. In addition, the EIR should address travel times to these facilities. Will the LSAP increase travel times to urgent care facilities? • Sunnyvale is the largest city in California without a hospital or urgent care facility. It appears that health care providers have redlined Sunnyvale. 	Public service impacts on the physical environment are addressed in Draft EIR Section 3.11, which includes emergency services.
Ray Crump	August 31, 2013	<ul style="list-style-type: none"> • The LSAP and EIR need to identify effect of increased traffic (both volume and efficiency) with respect to air quality. • The LSAP and EIR need to address the capacity and ability of Lawrence Expressway to be modified in manner to accommodate the LSAP. • Whether the population and housing increases will be convenient to 'near-by' services or create increased traffic to other areas for basic services. 	<p>Draft EIR Section 3.4 addresses traffic impacts (including impacts to the Lawrence Expressway).</p> <p>Draft EIR Section 3.5 addresses air quality impacts, and population and housing is addressed in Section 3.2.</p>

1.0 INTRODUCTION

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2.0 PROJECT DESCRIPTION

This section of the Draft EIR describes the location of the Lawrence Station Area Plan (LSAP), existing land uses, background information regarding the development of the LSAP, project objectives, components of the LSAP, and a summary of required approvals.

The section summarizes the key components of the LSAP. The complete LSAP is available for public review at City offices and online at <http://www.lawrencestationinsunnyvale.org/>.

2.1 REGIONAL AND LOCAL SETTING

PROJECT LOCATION

The LSAP is located in the east-central part of the City of Sunnyvale in Santa Clara County, adjacent to the City of Santa Clara (**Figure 2.0-1 and 2.0-2**) The Lawrence Caltrain Station is located at 137 San Zeno Way, directly below the Lawrence Expressway overpass. U.S. 101 to the north and Interstate 280 to the south provide regional access to the plan area, and a network of major streets (Kifer Road, E. Evelyn Avenue, and Reed Avenue/Monroe Street) provides local access.

Plan Area Boundary

The LSAP established a study area of a one-half-mile radius centered on the Lawrence Caltrain Station. The one-half mile radius contains lands in the cities of Sunnyvale and Santa Clara totaling approximately 629 acres. The study area was established during the planning process to ensure coordination of circulation systems and land uses between the two cities as it related to development of the LSAP. This distance is also representative of an approximately 10-minute walk that an average pedestrian is willing to walk on a regular basis to access a transit station and is widely recognized as a typical unit of measurement for station planning. The City of Santa Clara is currently in the process of developing its own area plan for their portion of the study area.

The boundary of the study area deviates from a circle to correspond to city boundaries east of Lawrence Expressway and to encompass a remnant agricultural parcel (Corn Palace) in the south. The portion of Sunnyvale within the study area is 372 acres. However, the proposed land uses, related General Plan amendment and zoning changes, and subsequent City approvals for any future development within the LSAP apply only to those lands within the geographic boundaries of the LSAP, as shown in **Figure 2.0-2**. This area totals approximately 319 acres (including railroad and utility corridors but not roadways) and is referred to as the “plan area” throughout this Draft EIR¹.

PROJECT SETTING

Plan Area

The plan area is generally bisected in a north-south direction by Lawrence Expressway, and by the Caltrain tracks in the east-west direction. It contains a combination of residential and non-residential uses.

¹ This Draft EIR uses the term “plan area” rather than “project site” as is typically used in CEQA documents because no specific project is being proposed.

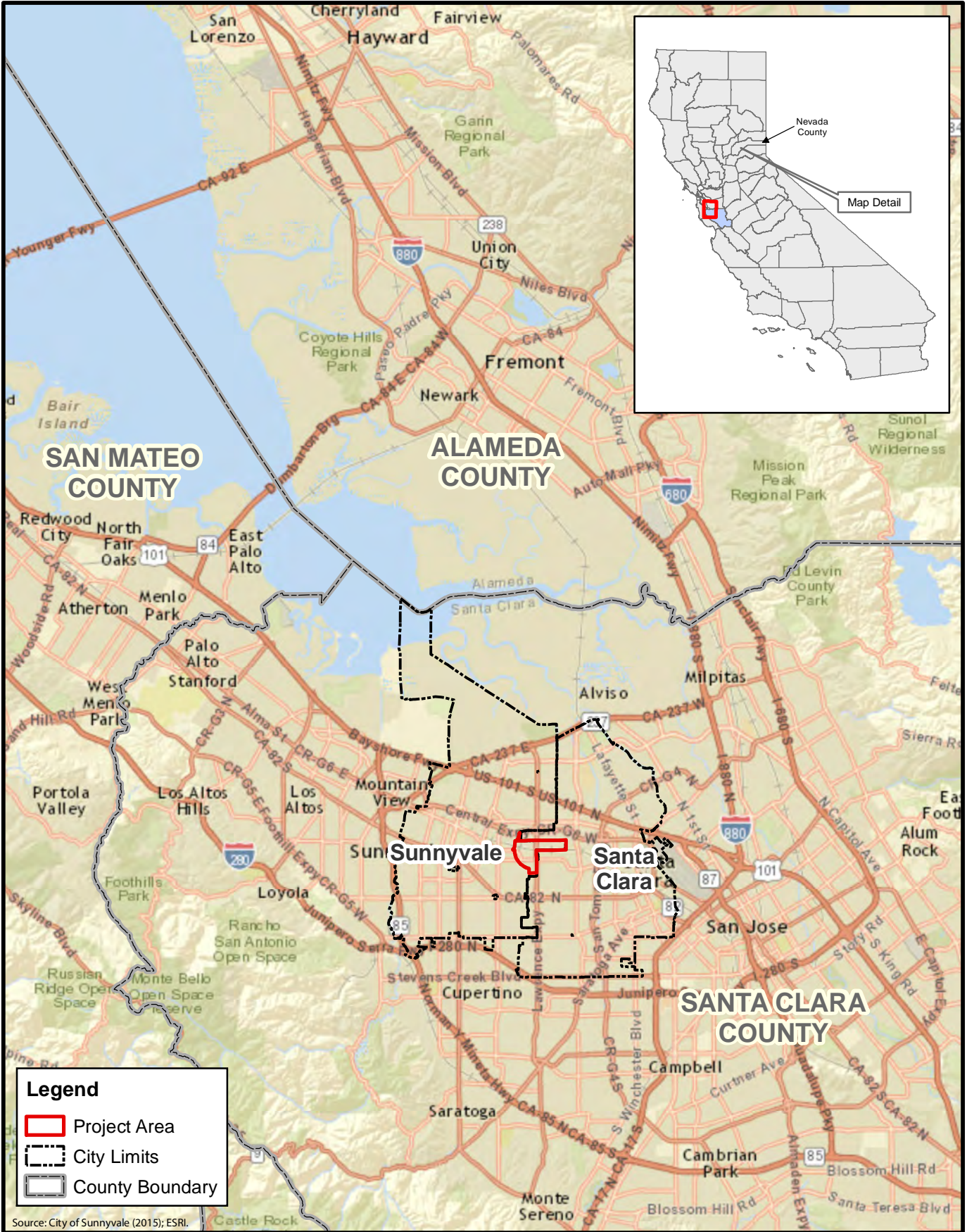
2.0 PROJECT DESCRIPTION

The area north of the Caltrain tracks is dominated by industrial and commercial uses on large parcels. Many of these date from the early years of Silicon Valley growth and consist of one-story structures. East of Lawrence Expressway, more recent development includes new office and research and development (R&D) uses. Major existing uses in the plan area north of the Caltrain tracks include Intuitive Surgical, along with auto-oriented retail such as Costco. Parking is typically in large surface lots. Roadways are wide, and pedestrian and bicycle facilities are generally lacking.

South of the Caltrain tracks, the plan area is primarily low-density neighborhoods consisting of single-family detached homes and areas of multi-family apartments and condominiums. There is some limited local-serving retail.

The plan area contains few distinguishing natural physical characteristics and is generally flat, with elevation relief provided only by the overpass of Lawrence Expressway at the Caltrain tracks. Calabazas Creek, which flows south-to-north to the San Francisco Bay, in a concrete channel along the eastern edge of the plan area. It has little to no vegetation within its approximately 65-foot right-of-way. The El Camino Storm Drain Channel traverses through the residential neighborhoods south of the station and along the south edge of the rail tracks before draining into Calabazas Creek. This channel, although mostly concrete, has stretches of grass and earthen banks along its 40- to 45-foot right-of-way. There are no public parks or open space and very little natural vegetation in the plan area. However, the streets and gardens of the existing residential areas and some of the non-residential areas contain mature planted street trees and ornamental plantings, including a stand of redwoods along Sonora Court one block north of the station.

Existing land uses and associated General Plan land use designations and zoning are summarized in **Table 2.0-1**.



Source: City of Sunnyvale (2015); ESRI.

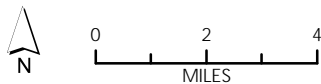


Figure 2.0-1
Regional Vicinity

**TABLE 2.0-1
EXISTING LAND USES – LSAP PLAN AREA**

Land Use	Acres	General Plan Land Use Designation	Zoning
<i>Residential</i>			
Low Density Residential	50.7	Low Density Residential (0-7 du/ac)	R-0
Low Medium Density Residential	15.1	Low Medium Density Residential (7–14 dua)	R-2/PD
Multi-Family Residential	48.6	Medium Density Residential (14–27 dua)	R-3/PD
--	0	High Density Residential	R-5
<i>Office/Residential</i>			
Office/Industrial/R&D	153.0	Industrial and Service (135.9 acres) Industrial to Residential (17.2 acres [Calstone property])	M-S (135.9 acres) M3-ITR
<i>Retail</i>			
Auto-Oriented Retail	24.3	Industrial and Service (20.4 acres) Industrial to Residential Medium Density (3.9 acres)	M-S (20.4 acres) M-S/ITRR3 (3.9 acres)
Auto-Serving Retail	2.7	Industrial and Service (1.5 acres) Industrial to Residential Medium Density (1.2 acres)	M-S (1.5 acres) M-S/ITRR3 (1.2 acres)
Office/Retail	0.6	Low-Medium Density Residential	
<i>Other</i>			
Drainage Channels/Calabazas Creek	4.5	Industrial and Service (2.0 acres) Medium Density (1.9 acres) Low Density (0.6 acres)	M-S (2.0 acres) R-3/PD (1.9 acres) R-0 (0.6 acres)
Railroads/Utility	19.4	Industrial and Service	M-S/PD
Totals Without Roads	319		

dua – dwelling units per acre

R-0 – low density residential up to 7 dua

R-2/PD – low medium density residential up to 12 dua planned development combining district

R-3/PD – medium density residential up to 24 dua planned development combining district

M-S – industrial and service

M-3/ITR – general industrial, industrial to residential combining district

There are currently approximately 1,200 residential units (single-family and multi-family combined), 2.4 million square feet of office/R&D and industrial uses, and approximately 200,000 square feet of retail uses.

2.0 PROJECT DESCRIPTION

Surrounding Land Uses

The area northwest, north, northeast, and east of the LSAP plan area, including areas within the City of Santa Clara, consists of non-residential uses similar in scale and intensity of development as those within the plan area north of the Caltrain tracks.

Similar to the plan area, residential development is the predominant land use to the south. The Santa Clara Christian Preschool in the City of Santa Clara is south of the plan area, east of Lawrence Expressway.

2.2 PROJECT BACKGROUND

DEVELOPMENT OF THE LAWRENCE STATION AREA PLAN

Lawrence Station is an existing Caltrain Station that serves regional ridership needs with moderate ridership levels. In 2009 the plan area was designated as a potential development area (PDA) by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) under MTC's "Focusing Our Vision" (FOCUS) program. This recognition was an endorsement of the area's development potential and its regional importance.

The Sunnyvale City Council approved a feasibility study for the Lawrence Station Area Plan in May 2009, which subsequently led to receipt of an MTC/ABAG grant to prepare a Phase 1 study. Phase I of the development plan was initiated in December 2010, which established a framework of the overall plan. The framework included a station area profile, land use alternative analysis, market demand analysis and transportation-oriented development parking policies. Phase 2 was initiated in 2012 and included a study of the proposed access, circulation and streetscape elements, as well as tools to accomplish LSAP's goals. A preferred alternative was also selected during Phase 2. Phase 3 was initiated in 2013, which included urban design and open space guidelines. Currently, Phase 4 includes the environmental review process and associated municipal zoning code changes for plan implementation. The development of the LSAP was timed to coincide with the City's update of its Land Use and Transportation Element (LUTE). The City's goals, policies and standards identified in the LUTE and General Plan are reflected in the LSAP.

There are four core principles that apply to all of the planning strategies outlined in the LSAP:

- All existing single- and multi-family residential areas would be preserved and protected.
- Redevelopment is optional (not required) for any parcel in the LSAP. All land use change in the plan area would be undertaken at the initiative and schedule of private landowners. The City of Sunnyvale has no intent to purchase land for redevelopment or force private landowners and businesses to change land use in order to meet the objectives of the LSAP.
- Existing uses would continue to be allowed. The LSAP focuses on opportunities for new development.
- In cases where acquisition of land or easements may be needed for the improvement of areawide and regional infrastructures (such as water and sewer improvements), improvements to the Lawrence Expressway and other circulation improvements), it is the intent of the City of Sunnyvale that such acquisitions will take place through development incentives and other implementation tools in conformance with existing City regulations and policies and state statutes.

Additionally, the Plan includes a cap on the possible development in the area to ensure the elements of the plan are met. Also, incentive zoning measures are included in the plan that establishes a minimum development amount with the potential to exceed the minimums to a maximum through the use of densities by incorporating items to accomplish goals of the plan. These include dedication of roadway and bike/pedestrian improvements, public open space, affordable housing, and sustainable features.

COMMUNITY INVOLVEMENT

Throughout the two-phase planning process, extensive input was received from the Sunnyvale community, business and property owners, specific focus groups, the Sunnyvale Planning Commission, the Sunnyvale City Council. Two community and business stakeholders meetings were held during Phase I. The first Community Vision Workshop was held in February 2011 and included a community visioning effort to define and understand residents and businesses needs. The community workshop was followed by a business outreach meeting in March 2011 to address the needs of the business community. The second community meeting was held in May 2011 to discuss land use scenarios, and a second business outreach meeting was held in June 2011. Two additional community meetings were held during Phase 2 during 2012 and 2013, where community members voted on LSAP elements and the preferred alternative. A series of Planning Commission meetings and community workshops were held during 2013 to discuss LSAP goals and visioning. Input was also received from a Citizens Advisory Group (CAG) established by the City Council during Phase II, and through regular meetings of a Technical Advisory Group (TAG) made up of representatives from the City of Sunnyvale, City of Santa Clara, County of Santa Clara, SamTrans, Valley Transportation Authority (VTA), and representatives from the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). In total eight CAG and five TAG meetings were held during the LSAP development process. The latest CAG meeting was held on April 16, 2014 as well as in 2015. The draft LSAP was released for public review in February 2015.

To encourage continuous community involvement, the City maintains a LSAP website that includes draft plans, meeting agendas and ways to get involved and provide feedback <http://www.lawrencestationinsunnyvale.org/>.

DEVELOPMENT POTENTIAL

The LSAP is a flexible mixed-use plan that would result in a blend of residential and non-residential uses. In many areas, the LSAP would allow for the development of significantly higher densities than currently allowed under existing General Plan land use designations and zoning. In other areas such as existing residential neighborhoods, however, the LSAP does not propose changes to current land uses and densities or retail space (e.g., Costco).

Because most of the land area is under private ownership, the flexible mixed-use concept of the LSAP was designed to help accommodate development in a way that would meet the timing and needs of the property owners and the marketplace. The LSAP is an incentive-based plan. Development incentives – in the form of density bonuses – would be a primary tool for ensuring financial feasibility of new development as well as achieving many of the goals of the LSAP. Developers would not be required to build with incentives; rather, they would have the option to choose which incentives best suit their business plans and economic goals.

Unlike traditional zoning, which typically establishes single-use districts with fixed densities, the LSAP allows a flexible mix of uses at a range of densities. As such, the number of residential units and amount of non-residential space could vary considerably. To account for this variability, the

2.0 PROJECT DESCRIPTION

development potential for the LSAP was estimated for three scenarios: minimum density, maximum density with incentives, and estimated likely development. All three scenarios included estimates for existing residential, industrial/R&D, and retail uses in the plan area that would not change.

The City concluded that full buildout of the LSAP would likely exceed the Minimum Density scenario, but would be unlikely to reach the number of residential units and non-residential space under the Maximum Density with Incentives scenario. Some property owners may choose not request a change in land use throughout the planning horizon year of the plan (year 2035), while others may choose not to fully use the development incentive opportunities for increased development. The City determined the Estimated Likely Development scenario represents an estimate of reasonable future transportation and infrastructure needs of the LSAP without planning for excessive development (and associated excessive infrastructure costs). The City determined this scenario is appropriate for purposes of the environmental analysis presented in this Draft EIR. **Table 2.0-2** identifies the development potential of the LSAP in comparison to existing development conditions. Development above **Table 2.0-2** will require future LSAP amendments and environmental review.

Estimated Likely Development

Under the Estimated Likely Development Scenario, it is assumed an average of 50% of the total development potential under the Maximum Density with Incentives scenario would be built within the planning horizon for the LSAP and that 50% of the existing industrial/office/R&D space would remain as-is (at least through 2035).

**TABLE 2.0-2
LSAP LAND USES AT YEAR 2035**

Land Use	Existing	LSAP (total)	Net Change
Residential Units	1,200 units	3,523 units	2,323 units
Office/R&D	2.4 million square feet (sf)	3.6 million sf	1.2 million sf
Retail	200,000 sf	216,600 sf	16,600 sf
Industrial	Included in office/R&D	26,503 sf	9,000 sf

2.3 PROJECT OBJECTIVES

The City of Sunnyvale has established "Vision" goals below that are the basis of the LSAP and are the project objectives for purposes of this EIR:

- Promote a diversity of land uses and densities that will support transit usage and neighborhood services.
- Locate highest intensity development closest to Lawrence Station.
- Improve connectivity for all modes of travel.
- Ensure the area has a character that is unique to its location while being compatible with the overall character of Sunnyvale and sensitive to existing environmental assets.

- Create a strong sense of place and community identify with the development of a vibrant neighborhood center.
- Allow the area to redevelop over time through a flexible system that is responsive to the goals, schedule, and needs of individual business and property owners, developers, and residents.
- Redevelop the area in a manner that is environmentally, economically, and socially sustainable.

2.4 PROJECT CHARACTERISTICS

PLAN OVERVIEW

The purpose of the LSAP is to establish a framework for the future development of the area in order to improve the relationship between transit availability and land use for the long-term development of an economically, environmentally, and socially vibrant mixed-use district in Sunnyvale.

The LSAP land use plan is built around the flexible mixed-use concept. Mixed-use refers to the practice of allowing different types of land uses within easy walking distance of each other. Such uses can be combined vertically, within the same building, or horizontally, within different buildings but on the same block. Flexibility would allow for properties north of Lawrence Station and portions of the Peninsula Building Materials property just south of the station to have the option to develop a variety of uses such as office/research and development (R&D) or residential, depending on market demand and landowner preferences.

The LSAP includes goals, policies, and urban design guidelines that will help guide the development and buildout of the plan area. The LSAP provides the basis for the City's consideration of all subsequent discretionary and ministerial project approvals and entitlements. The LSAP, in conjunction with the elements of the City's Zoning Code and other relevant requirements, will govern the design of individual projects in the LSAP. To move forward with a particular project that implements the LSAP, the City will require full compliance with the LSAP policies and design guidelines; EIR mitigation measures; applicable chapters of the Municipal Code; and other City standards, policies, and regulations. Processing of individual development applications will be subject to review and approval by the City.

LSAP LAND USE PLAN

The LSAP would establish new General Plan land use categories for the plan area and would retain existing ones. Several of the categories are existing land use designations already in use by the City of Sunnyvale in the existing neighborhoods within the plan area. Others are existing land use designations available in the City of Sunnyvale General Plan and Zoning Ordinance, but not previously applied in the plan area. These areas would require a change of zoning in order to be compliant with the LSAP. Others are new land use categories that do not currently exist within the Sunnyvale General Plan and Zoning Ordinance.

Approximately 200 acres (63%) of the plan area would require a change in land use designation and zoning in order to allow and encourage development in conformance with the goals and policies of the LSAP. The greatest change would be associated with land use designations and zoning currently designated Industrial and Service (i.e. areas north of the Caltrain tracks and the Calstone/Peninsula Building Materials site) to new land use and zoning designations for Mixed Use totaling approximately 142 acres.

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The land use classifications represent City of Sunnyvale policy and are intended to be broad enough to allow flexibility in implementation, but specific enough to provide sufficient direction to carry out the LSAP. Public uses, including parks, government offices, police and fire station, and public schools, are permitted in all land use classifications, subject to City approval.

Table 2.0-3 summarizes the proposed land use designations and zoning district changes and indicates whether the designation would be a new General Plan land use designation or an existing designation. The locations of the land use designations are shown in **Figure 2.0-3**. A description of the development assumptions for the proposed new land use and existing designations is presented below.

**TABLE 2.0-3
PROPOSED LSAP LAND USE DESIGNATIONS AND ZONING**

Proposed LSAP Land Use Designation	Acres	Proposed Zoning District	Existing or New Proposed Land Use/Zoning Designation or Redesignation
<i>Residential</i>			
Low Density Residential	50.7	No change	Existing (no change in acreage, land use, or density)
Low Medium Density Residential	16.8	No change	Existing, plus add one property along Aster Avenue currently designated Industrial to Residential
Medium Density Residential	48.6	No change	Existing (no change in acreage, land use, or density)
High Density Residential	1.3	R-5 – High Density Residential	Add two properties along Willow currently designated auto-oriented retail
<i>Mixed-Use</i>			
Mixed-Use Transit Core	60.5	LSAP MXD I - Flexible Mixed-Use	New designation (change from Industrial and Service)
Mixed-Use Transit Supporting North	64.6	LSAP MXD II - Flexible Mixed-Use II	New designation (change from Industrial and Service)
Mixed-Use Transit Supporting South	17.1	LSAP MXD III - Flexible Mixed Use III	New designation (change from General Industrial/Industrial to Residential)
<i>Office/R&D/Retail</i>			
Office/R&D – Single Use	34.8	M-S – Industrial and Service (no change)	Existing zoning (M-S) east of Calabazas Creek remains unchanged, only land use designation changed
Office/Retail	3.8	C-1/O – Neighborhood Commercial with Office combining district	Add designation to properties at Lawrence Expressway and redesignate office at corner of Lawrence Expressway to Mixed Use
<i>Other</i>			
Drainage channels/Calabazas Creek	4.5	No change	Existing (no change)
Railroads/Utility	16.2	No change	Existing (no change)
Total Without Roads	319		

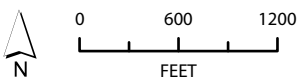
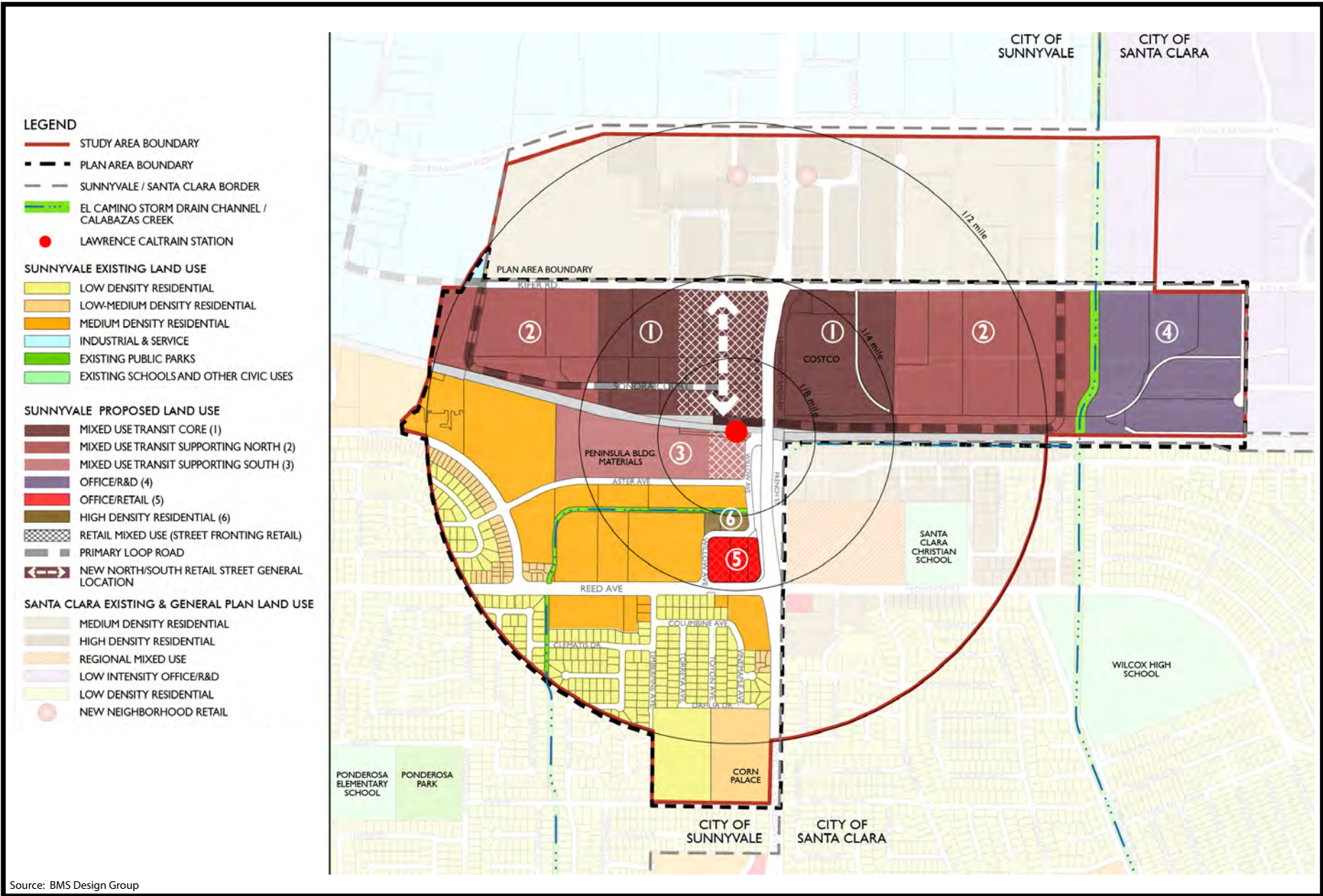


Figure 2.0-3
Proposed Land Use Designations

Key Elements of Proposed New Mixed Use Designation

The proposed land use and zoning designations proposed in the LSAP for mixed-use development would allow for high-density residential development in industrial-zoned areas where residential uses are not allowed under current zoning. The specific development densities are identified for each of the proposed new land use designations, below. Current zoning provides, generally, for a floor area ratio (FAR) of 0.35. The LSAP proposes increases ranging from 0.5 FAR to 1.5 FAR, depending on the location. The FARs for each specific designation are also listed below. To accommodate the increased densities in the Mixed-Use districts, the maximum building heights allowed under current industrial zoning for the plan area north of the Caltrain tracks (75 feet) would be increased to 85 feet. Although current zoning allows for building heights up to 75 feet at the Calstone/Peninsula Building Materials site, the LSAP proposes a maximum height of 55 feet to provide a transition between the taller buildings that could be constructed north of the Caltrain tracks and the existing multi-story residential development to the west and south.

Proposed New Land Use Designations

Mixed-Use Transit Core

This area, which is currently designated Industrial and Service, is located within one-quarter mile of Lawrence Station and would have the highest allowable density. The following land uses and densities would be allowed in this area:

- Residential: 36 DU/acre (minimum density) to 68 DU/acre with incentives
- Office/R&D: 0.5 FAR (minimum density) up to 1.5 FAR with incentives
- Required improvements: affordable housing per City code and open space

Mixed-Use Transit Supporting North

This area, which is currently designated Industrial and Service, is within one-quarter to one-half mile of Lawrence Station. It would have lower densities than the Mixed-Use Transit Core. The following land use and densities would be allowed in this area.

- Residential: 24 DU/acre (minimum density) up to 68 DU/acre with incentives
- Office/R&D: 0.5 FAR up to 1.5 FAR with incentives
- Required improvements: affordable housing per City code, open space, infrastructure and/or green building elements.

Mixed-Use Transit Supporting South

This designation would apply to the Calstone/Peninsula Building Materials site, which faces the recently constructed Aster Avenue townhomes to the south and multi-family apartments to the west. This area is currently designated Industrial to Residential. Development in this portion of the plan area would entail the transformation of existing industrial uses not compatible with the future character of the area. The LSAP designation would allow for the completion of the residential mixed-use development. The following land uses and densities would be allowed:

- Residential: 24 DU/acre (minimum density) up to 54 DU/acre with incentives

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- Office/R&D: 0.35 FAR up to 1.0 FAR with incentives
- Retail allowed and encouraged, with no minimum or maximum density

Office/R&D (Single Use)

This designation would apply to areas that are more than one-half mile of Lawrence Station on the eastern edge of the plan area, where a demand for mix of uses is not anticipated. This area is currently designated industrial and Service, and the new designation would allow this area to transition over time from existing lower-intensity industrial uses to office/R&D uses. The following densities would be allowed:

- Office/R&D: 0.35 FAR (minimum density) up to 0.5 FAR (no incentives available, except City green building incentives)

Office/Retail

This designation would apply to a small area located south of Lawrence Station near the intersection of Lawrence Expressway and Reed and Willow avenues. This area, which is currently designated Industrial to Residential, contains retail uses. This designation would provide for local-serving retail. The following land uses and densities would be allowed:

- Office/R&D: 0.5 FAR (maximum density)
- Retail: 0.25 FAR (maximum density)

High-Density Residential

This designation would apply to two parcels (approximately 1.3 acres total) on Willow Avenue south of the Caltrain tracks that are currently designated Industrial to Residential. The following density would be allowed:

- Residential: 24 DU/acre (minimum density) to 54 DU/acre with incentives

Existing Land Use Designations (No Changes)

Low-Density Residential

This land use designation consists of low-density, single-family detached residential uses with densities ranging from 1 to 7 DU/acre. All of the areas in the plan area with this designation are west of E. Evelyn Avenue and South of Reed Avenue and are already built out, including the parcel west of the Corn Palace. No changes in land use designation are proposed. There may be some minor changes to pedestrian and bicycle facilities to improve access and safety.

Low/Medium-Density Residential

This land use designation consists of low-density, single-family detached residential uses with densities ranging from 7 to 14 DU/acre. Areas with this designation are limited to the Corn Palace parcel and parcels located west of the plan area along E. Evelyn Drive. All areas are built out, and no changes in land use designation are proposed. There may be some minor changes to pedestrian and bicycle facilities to improve access and safety.

Medium-Density Residential

This land use designation consists of multi-family residential uses with densities ranging from 14 to 27 DU/acre. Areas with this designation are in the southwest quadrant of the plan area and are built out. No changes in land use designation are proposed. There may be some minor changes to pedestrian and bicycle facilities to improve access and safety.

Industrial and Service

This designation applies a portion of one parcel on the northwest border of the LSAP. The existing designation and 0.35 to 0.45 FAR would be retained.

Other Land Uses

Public Facilities

There are no public facilities (government, civic, educational and public services) in the plan area. However, such facilities would be needed to serve the development allowed by the proposed new LSAP land use designations. The LSAP does not propose land use designations or locations for these uses because the specific facilities that would be needed are not known. Some public facilities would be provided through mandatory fees and assessments consistent with existing Sunnyvale policy. Others would be provided through development incentives and bonuses for new development.

Parks, Recreation, and Open Space

The increased population associated with development allowed under the LSAP would increase the demand for parks, recreation, and open space facilities. There is very little public land available in the plan area that could be used for amenities such as parks and recreation. However, the LSAP has identified measures that could be used to meet this need and proposes an open space framework illustrating key elements of a parks and open space system for the plan area at a conceptual level (**Figure 2.0-4**). As with public facilities, no land use designations are proposed. Publicly owned creeks and drainage corridors, combined with Green Street linkages, would provide the backbone of the system. Land dedications resulting from the individual development application process would provide the major public open spaces, and their locations would be strategically located to be accessible from the backbone system.

LSAP SUBAREAS

The LSAP establishes eight subareas that generally correspond to the land use plan, each of which is expected to have its own unique neighborhood characteristics. The subareas are described below. **Figure 2.0-5** shows the location of the subareas.

The LSAP is structured such that change would not occur uniformly throughout the plan area. To achieve the overall goal of the LSAP, some areas would be encouraged to redevelop with diversity of uses and at higher densities than exist today. The LSAP refers to these as High Change Subareas. Other areas would experience varying degrees of change over the time horizon of the plan. These are referred to as Moderate Change Subareas and Low Change Subareas. The anticipated degree of change is identified for each of the subareas.

2.0 PROJECT DESCRIPTION

Transit Core

With its location directly adjacent to the Lawrence Station, the Transit Core subarea is envisioned as the most active and diverse subarea. The focus of the subarea would be the southern extension of San Ysidro Way, which would be the primary retail street in the entire LSAP, terminating in a transit plaza at Lawrence Station. Vertical mixed-use development would be encouraged along the San Ysidro Way extension. Definitive locations of road extensions will depend on future land use applications and possible road configurations associated with those improvements. Under Transit Core subarea guidelines, active ground-floor uses (preferably retail, restaurant, and entertainment uses) would be required along a large percentage of the ground-floor frontage along the street to promote a walkable, pedestrian-friendly street that provides goods and services to surrounding neighborhoods and access to Lawrence Station. The Transit Core also contains large redwood trees that line Sonora Court, which would be protected and would help contribute to this subarea's environment. The LSAP identifies the Transit Core subarea as a High Change Subarea.

The proposed Greystar project is within the proposed Transit Core subarea. The approximately 8-acre site has a one-story building, a portion of which is occupied by the Art Institute of Silicon Valley. If approved, the Greystar project would demolish the existing building and construct a five-story apartment building with 520 units and 10,000 square feet of retail space. Although this project is within the LSAP plan area, it is a stand-alone project independent of the LSAP and is subject to separate environmental review and City approvals, but is programmatically evaluated in this EIR as part of the overall LSAP development potential.

Peninsula

The Peninsula subarea currently comprises the existing Calstone/Peninsula Building Materials operations. This subarea would consist primarily of residential uses with open space and a small amount of support retail and office/R&D uses. The subarea is adjacent to existing low- and medium-density, low-scale residential uses on the south and west, and the goal for this subarea is to ensure new development is compatible with the existing surrounding neighborhood. Peninsula subarea guidelines specifically address building height transitions, landscaping, and pedestrian connectivity, among others. The LSAP identifies the Peninsula subarea as a High Change Subarea.

Transit Core Supporting

This area adjoins the Transit Core Neighborhood and is in close proximity to the station. This area is envisioned as a Flexible Mixed-Use area, suitable for both employment and residential uses. It is not envisioned as a long-term retail location, although it is likely that Costco would remain in this location for the foreseeable future. Improvements to provide pedestrian, bicycle, and vehicle routes would be needed to address the lack of north/south connectivity through this subarea to the station. These improvements are described under the "Circulation and Parking" subheading, below. The LSAP identifies the Transit Core Supporting subarea as a Moderate Change Subarea.

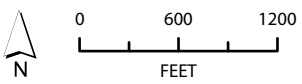
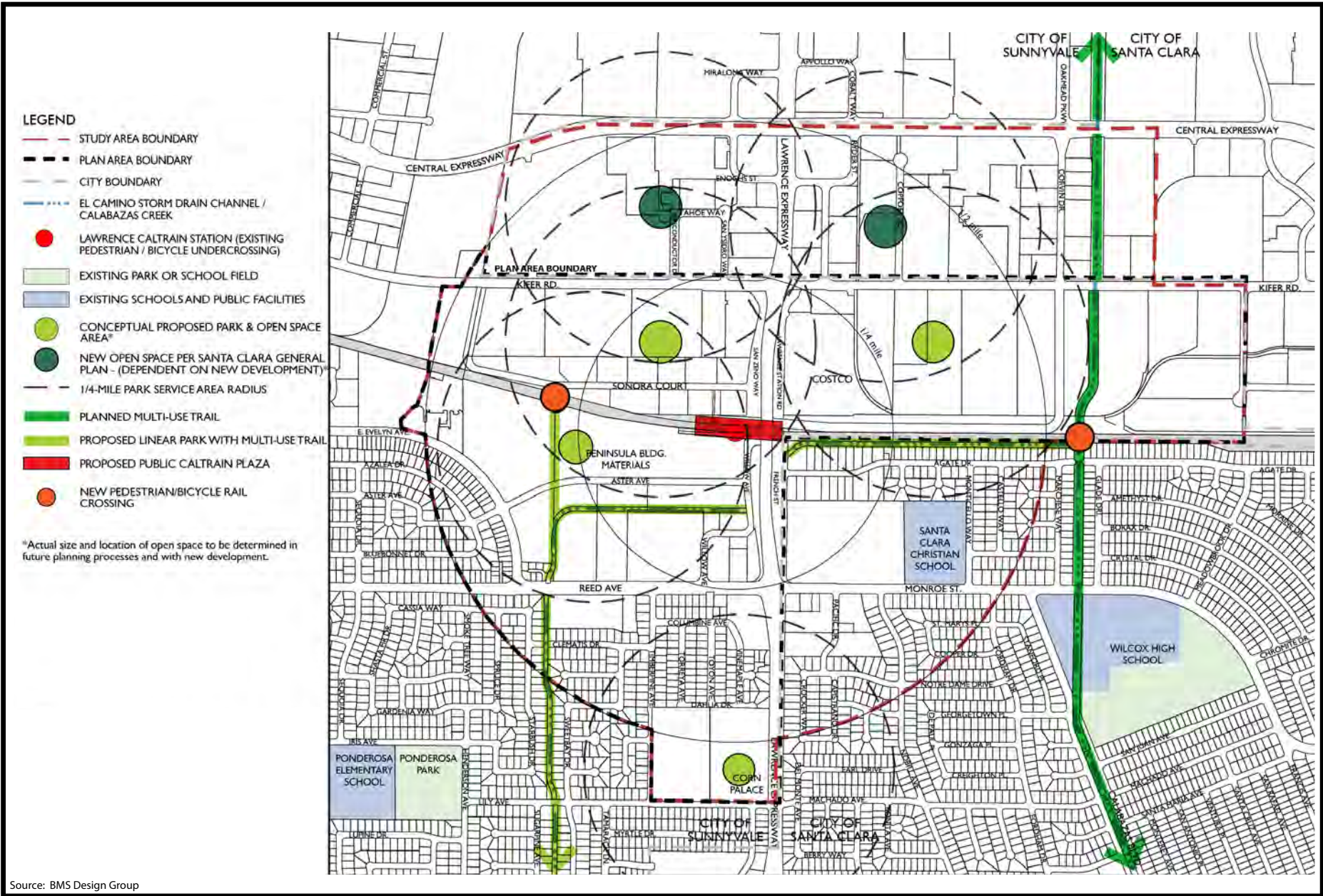


Figure 2.0-4
Proposed Open Space

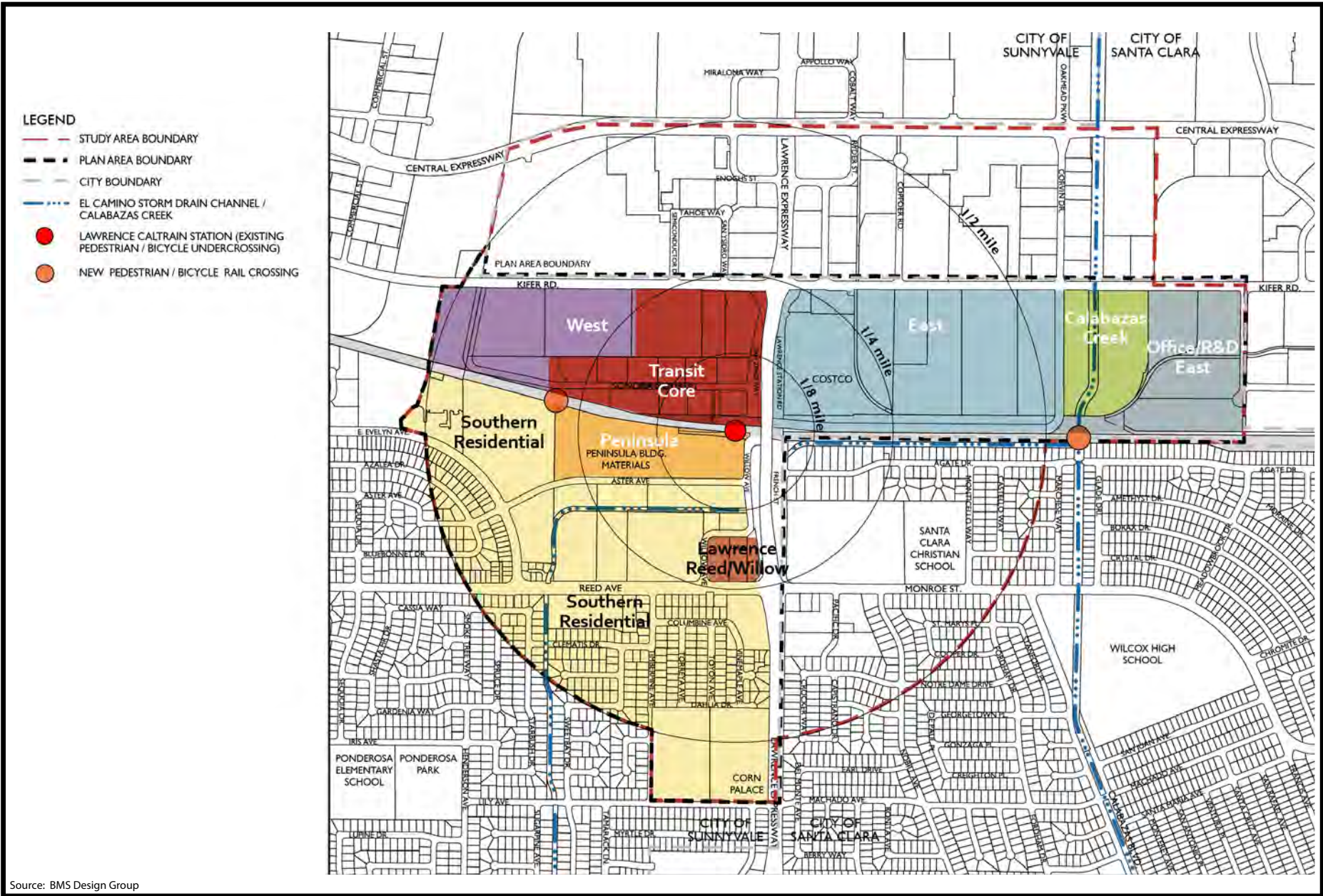


Figure 2.0-5
Proposed Subareas

Calabazas Creek

Calabazas Creek bisects this subarea. The creek flows north through a concrete channel, is fenced, and inaccessible to the public. West of the creek is envisioned as part of the Transit Core Supporting subarea suitable for employment and residential uses at relatively high densities. East of the creek, land uses are planned as Office/R&D with no residential uses. The creek is outside the half-mile walk radius, but long-standing plans have envisioned this segment of the creek as an attractive linear park and multi-use trail facility. The LSAP contains goals and design guidelines to ensure new development enhances the creek corridor and is compatible with future public access and linear park environment goals. The LSAP identifies the Calabazas Creek subarea as a Moderate Change Subarea.

Office/R&D East

The Office/R&D East subarea is furthest from the station and is also outside the half-mile walk radius. Because of its distance from Lawrence Station and adjacency to similar uses to the north and east, this area is envisioned to remain exclusively as an employment area with no residential or retail uses. The long-term development of this area is expected to support transit ridership through improved bicycle and pedestrian circulation facilities and increase development intensities that are compatible with the adjacent land uses in Santa Clara. This subarea would be allowed to transition over time to Office/R&D uses. The LSAP identifies the Office/R&D East subarea as a Moderate Change Subarea.

Southern Residential

The Southern Residential subarea comprises a large part of the LSAP south of the Caltrain tracks and west of the Lawrence Expressway. Uses in this subarea include single-family detached and multi-family residential areas. The LSAP envisions very little change in this subarea. Emphasis will be on protecting and enhancing the character and quality of the existing residential neighborhoods through pedestrian and bicycle enhancements to improve access throughout the neighborhood, across major streets, and to the Lawrence Station, and the provision of a new neighborhood-serving local park or open space. The LSAP identifies the Southern Residential subarea as a Low Change Subarea.

There are two primary development sites in the subarea: Corn Palace and the industrial operations at 1122-1134 Aster Avenue. One-half of the Corn Palace site developed as low-density residential, and the other half is designated for low/medium-density residential.

Lawrence/Reed/Willow

The Lawrence/Reed/Willow subarea contains a mix of small-scale retail and auto-oriented uses. Santa Clara County is currently studying options for grade-separating the Lawrence Expressway adjacent to this subarea, either by elevating the roadway above grade or by depressing the roadway below grade. This would likely change the configuration at this intersection and may alter access patterns to this subarea. This subarea is envisioned to remain as a mixed office/retail area serving mostly local needs. No residential uses would be allowed in order to avoid potential future impacts on homes if grade-separation activities are undertaken. The LSAP identifies the Lawrence/Reed/Willow subarea as a Low Change Subarea.

2.0 PROJECT DESCRIPTION

URBAN DESIGN GUIDELINES

The LSAP includes urban design goals and guidelines that would apply throughout the entire plan area, such as block size and pattern, site planning, open space and landscaping, parking (including streetscapes), and lighting. A key component of the areawide guidelines are building design guidelines that address: building height; massing and articulation; orientation, entries, and facades; design guidelines for specific building types; and building materials. The LSAP also contains goals and design guidelines for each of the eight subareas. New development proposals would be required to be designed in accordance with the guidelines, and the specific requirements would be based on the type and location of development. A complete list of urban design guidelines is included in Chapter 6 of the LSAP.

CIRCULATION

The LSAP incorporates a “complete streets” approach for circulation planning to accommodate all travel modes so that driving is an option, but not a necessity. Complete streets are designed and operated to enable safe and convenient access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. The LSAP addresses both the mobility and parking needs of existing uses while accommodating future development planned for the area. The circulation framework plan (**Figure 2.0-6**) illustrates the major new circulation elements of the LSAP. It includes existing streets as well as new major and minor streets that would be strategically located to allow multi-modal mobility throughout the plan area. The new street alignments are conceptual and do not represent specific alignments and would be funded/constructed by new development in the LSAP.

New Street Improvements

Primary Loop Road (“The Loop”)

This roadway would be a collector boulevard that would provide direct north-south access throughout the northern part of the plan area. On the west, it would connect with the Central Expressway at the Santa Clara city boundary, extending south across Kifer Road to Sonora Court where it would traverse eastward, parallel to the Caltrain tracks near Lawrence Station. East of Lawrence Expressway, it would extend north of the tracks to intersect with the Corvin Drive-Oakmead Parway/Central Expressway intersection in Santa Clara. The roadway would be multi-modal with two travel lanes with turn pocket, sidewalks, bike lanes, transit stops (the locations of which would be developed in coordination with VTA), and on-street parking where feasible.

San Ysidro Way Extension Retail Street

The focus of retail activities in the plan area would be along a new north-south roadway connecting Kifer Road in the vicinity of San Ysidro Way to Lawrence Station on the west side of Lawrence Expressway in the Mixed-Use Transit Core area. It would include two travel lanes, pedestrian zone, and parallel parking, and would be designed for low traffic speeds. This retail “main street” is envisioned to emulate Murphy Avenue in downtown Sunnyvale. The exact alignment of this connection would be determined as properties in the vicinity become candidates for new development.

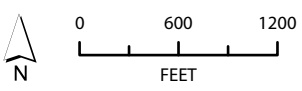
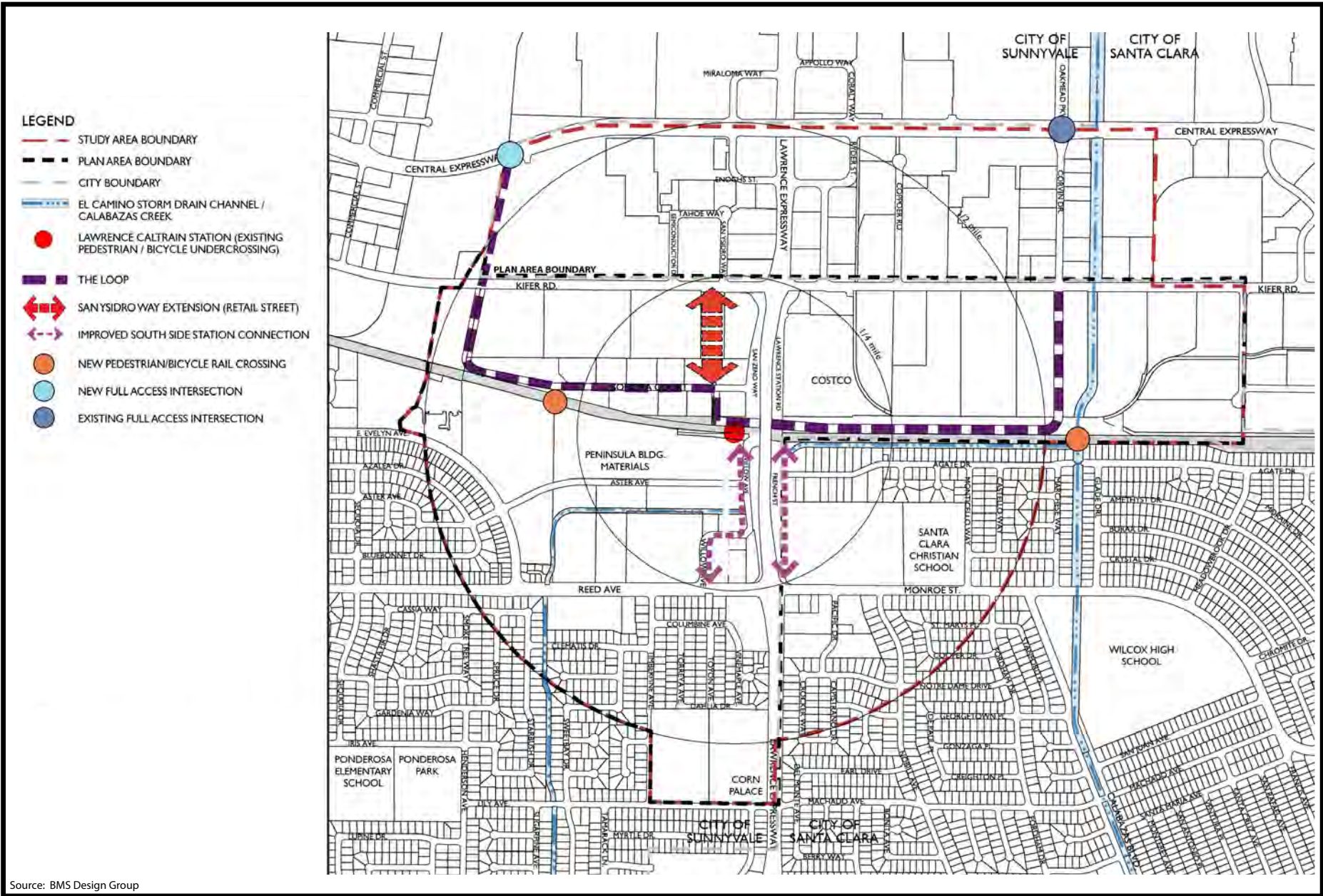


Figure 2.0-6
Proposed Circulation Framework

Secondary Streets

The secondary street network would include new streets, lanes, and alleys that would complete the multi-modal circulation system and would improve station access for motorists (where feasible), pedestrians, and bicyclists.

Existing Street Improvements

Implementation of the LSAP would result in the need for existing street and roadway improvements. Such improvements would include a road diet² on Kifer Road, which would reduce the number of travel lanes and add a wider sidewalk zone for pedestrians and continuous Class I bicycle lane. Although not part of the LSAP, the planned Lawrence Expressway grade separation project would reduce traffic congestion at local intersections and would improve east-west pedestrian and bicycle connections through the plan area. This project, currently in the planning stages by Santa Clara County, is anticipated to consist of depressing Lawrence Expressway under the Reed/Monroe, Kifer Road, and Arques Street intersections, the Central Expressway, and the Caltrain tracks. Additional signalized intersections may also be warranted at certain intersections would create controlled crossings for all modes of travel.

Pedestrian and Bicycle Facilities

Pedestrian and bicycle activity in the plan area is constrained by Lawrence Expressway, Caltrain tracks, high volume intersections, and the non-residential nature of large portions of the plan area. The planned street network for the LSAP and the Lawrence Expressway grade separation project would improve north-south connections. Two additional rail grade-separated crossings of Caltrain tracks are also planned. One crossing would be located east of Lawrence Expressway and is being evaluated as part of the City of Santa Clara Calabazas Creek Trail study. The second crossing west of Lawrence Expressway would align with the Primary Loop Road with a Class II bicycle facility that would connect to Kifer Road. These two additional crossings would provide greater connectivity to the station and to neighborhoods on either side of the station. Other pedestrian improvements would include crosswalk enhancements at major intersections, sidewalk extensions (bulbouts), increasing sidewalk width, and safety features. All new pedestrian facilities and improvements to existing ones would be designed to be fully ADA-compliant. The Central Expressway is also planned for bicycle improvements that will aid in area access. **Figure 2.0-7** identifies proposed pedestrian improvements.

Existing, planned, and proposed bicycle facilities would comprise a bicycle network that would provide a continuous system of Class I and Class II facilities that would allow safe connections throughout the plan area (see **Figure 2.0-8**). Planned bicycle facilities include those that are currently in the planning stages or are already part of adopted plans in Sunnyvale, the City of Santa Clara, or Santa Clara County, but are not yet built. These facilities are the City of Santa Clara's Calabazas Creek Trail (Class 1 Multi-Use) and the Monroe Street Class II improvements. The LSAP would close the gaps in the existing and planned bicycle network through the development of an interconnected system of Class I and Class II facilities, such as connections to the Calabazas Creek Trail and provision of Class II bicycle lanes along new primary street corridors and connections to facilities outside the plan area. The planned Lawrence Expressway grade

² "Road diets" are the re-design of existing streets that have been built wide than necessary for the volumes of traffic they are intended to carry. Narrowing such a roadway allows adequate vehicle mobility while improving access and mobility for pedestrians, bicyclists, and transit users.

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separation would also increase north-south connectivity for bicyclists, and on streets with Class II bicycle lanes, bicycle detection loops would be installed at signalized intersections to allow bicyclists to activate traffic signals without the need to dismount to use pedestrian push buttons and crosswalks. Bicycle parking and storage would also be provided in accordance with City of Sunnyvale and VTA requirements.

Transit

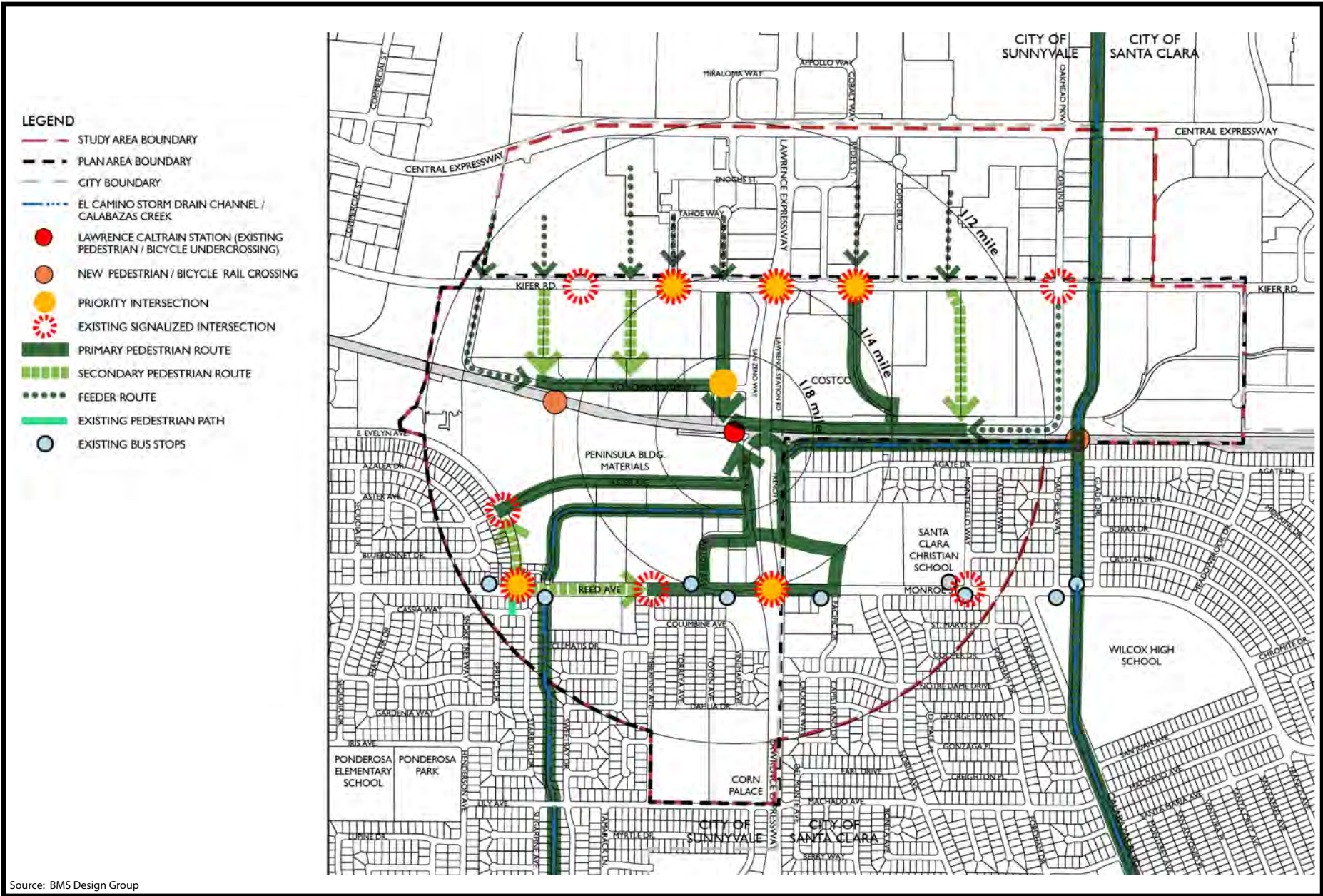
The Lawrence Caltrain Station was reconstructed in recent years. As the plan area develops and access to the station is improved, increased ridership would likely warrant the provision of additional amenities, such as more bicycle parking. In the plan area, bus service along three routes is provided by VTA, but none of the routes serves Lawrence Station directly. The VTA does not currently plan to add bus transit service within the plan area, but the agency will re-evaluate the need as the LSAP is implemented. The Primary Loop Road would increase the potential for transit connectivity, and, as noted above, the City would coordinate with VTA regarding transit stops and related amenities.

Parking

Parking would be accommodated in the plan area on a shared parking concept basis. The shared parking requirements would maximize the LSAP's mixed use plans by allowing for maximizing utilization of parking supply. For example, while office/R&D parking lots have higher demand during daytime, residential and commercial have peak demand during evening or night time. As such, rather than providing separate parking supplies for each distinct use the same parking supply would be used by employees during the day and residents at night. Shared parking, along with other project parking policies would be implemented as development moves forward. Where feasible, parking structures would be encouraged rather than surface lots. As identified in the LSAP, the most logical place for a parking structure would be near Sonora Court and the Lawrence Expressway, in the Transit Core. Parking structures could also be integrated into housing, but the shared parking concept would depend on the mix of uses.

TRANSPORTATION DEMAND MANAGEMENT

Sunnyvale has a codified Transportation Demand Management (TDM) requirement for certain sites. As part of the development incentive program in the LSAP, new development in the plan area would be required to implement a TDM program with robust monitoring measures. For example, office/R&D developments would be required to meet a daily trip reduction target of at least 20 percent and a peak hour trip reduction target of at least 35 percent. TDM trip reduction for residential and retail uses is more difficult to achieve than for office uses. However, residential and retail projects would also be required to develop TDM programs and meet specific targets. Initially, trip reduction targets for residential and retail uses would be approximately eight percent for trips during the peak hours. TDM strategies include providing shuttle service, providing bicycle parking and "end-of-trip" facilities (showers, lockers), marketing campaigns to discourage auto trips, offering transit passes to employees, providing dedicated carpool/vanpool parking spaces, offering cash in place of a free parking space (parking cash-out), and charging for parking.



Source: BMS Design Group



Figure 2.0-7
Proposed Pedestrian Routes

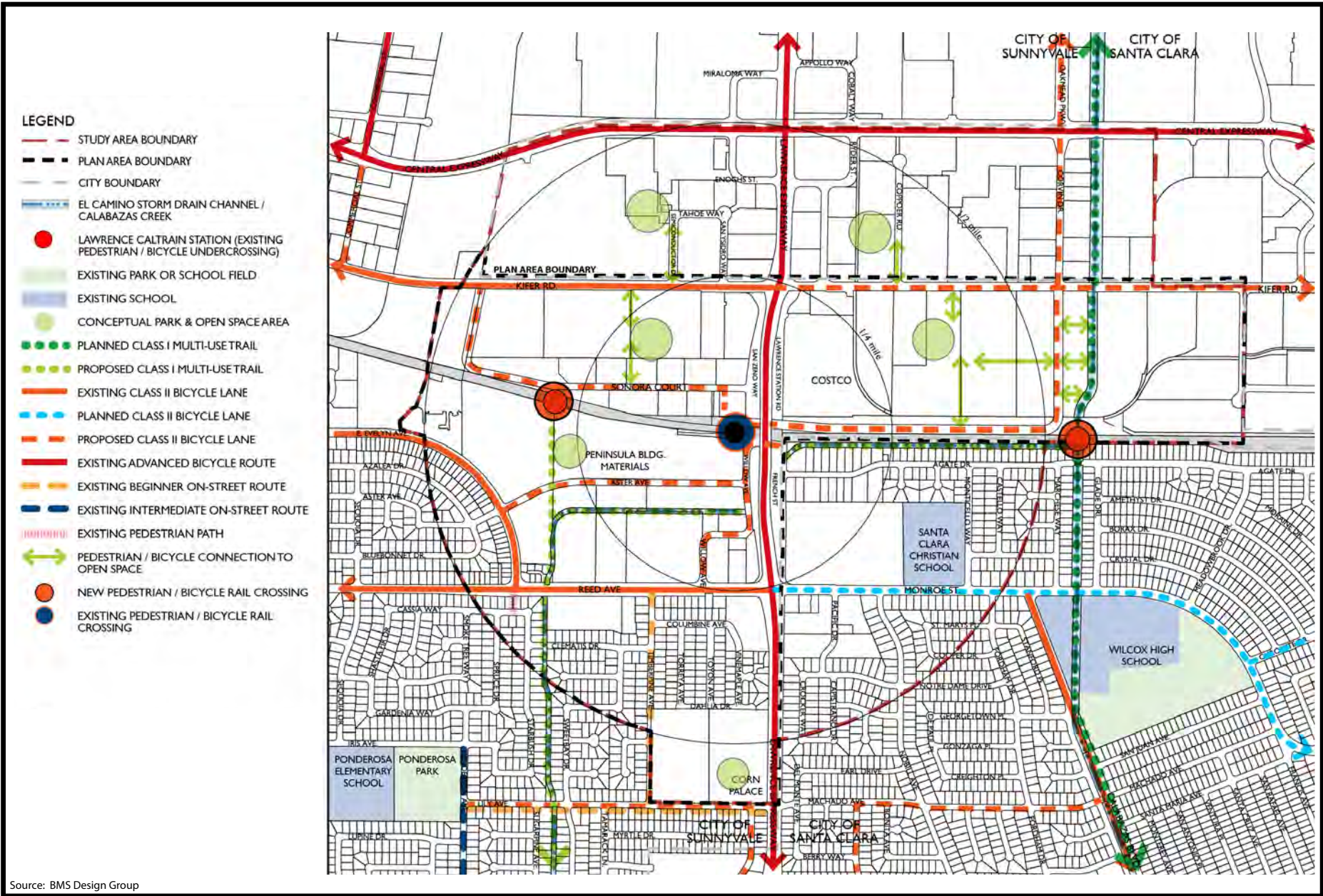


Figure 2.0-8
Proposed Bicycle Routes

UTILITY INFRASTRUCTURE

The capacity of existing City-owned utilities (potable water, sewer, and storm drainage) to accommodate planned growth was assessed for the plan area in early 2015. Water lines are mostly located within public street rights-of-way in the plan area, but locations with commercial uses with interconnected parking areas and no internal public streets have little potable water distribution infrastructure. As new projects are developed and public streets are constructed, improvements to the distribution system would be needed to provide meet domestic water and fire flow demand. The specific locations and line sizes would be determined based on hydraulic analysis for final land use plans, building types, water demand estimates, fire flow requirements, and phasing. The City is currently evaluating the availability of recycled water and associated infrastructure for the plan area. Local sewer and trunk conveyance lines may require upgrades as well the trunk line that conveys flows to the City's Water Pollution Control Plant. Local storm drainage infrastructure would need to be reconfigured to accommodate new development. New development creating or replacing more than 10,000 square feet of impervious surface would also be required to include drainage features that comply with stormwater quality protection requirements and would, where feasible, incorporate low impact design (LID) measures. As a result, the overall percentage of impervious surfaces within the plan area is expected to decrease, and upsizing of existing conveyance facilities are not expected to be necessary.

2.5 INTENDED USE OF THE EIR

This Draft EIR is intended to evaluate the environmental impacts of adoption and implementation of the LSAP. The document will serve as a source of information for City and other entities in the review of subsequent planning and development proposals, including subsequent environmental review of development projects, for infrastructure provision and individual development proposals, and for public facilities to serve new development.

The City of Sunnyvale (City) is the lead agency for the proposed Lawrence Station Area Plan (LSAP) (the project). In order to implement the LSAP, the following actions will be required:

- Certification of the EIR, which includes review of the actions listed below.
- Adoption of the LSAP.
- General Plan amendments consisting of:
 - Revisions to text, graphics, and figures related to land use, including the adopted General Plan to identify the LSAP as the land use policy for the plan area.
- Zoning Code amendments consisting of:
 - Revisions to text, graphics, and figures related to zoning, including the Zoning Map to reflect the land uses set forth in the LSAP.

TRUSTEE AND RESPONSIBLE AGENCIES

For the purpose of CEQA, the term "trustee agency" means a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California. Specifically, the following trustee agency may have an interest in the proposed LSAP and its implementation:

2.0 PROJECT DESCRIPTION

- California Department of Fish and Wildlife (CDFW)

In CEQA, the term “responsible agency” includes all public agencies other than the lead agency that may have discretionary actions associated with the implementation of the proposed project or an aspect of subsequent implementation of the proposed project. Because future implementation decisions may occur many years from now, they cannot be known with certainty. However, the following agencies have been identified as potential responsible agencies from which permits and/or approvals may be required:

- Bay Area Air Quality Management District (BAAQMD)
- California Department of Fish and Wildlife
- San Francisco Bay Regional Water Quality Control Board
- Santa Clara Valley Water District
- Santa Clara Valley Transportation Authority

3.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS AND ASSUMPTIONS USED

3.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS AND ASSUMPTIONS USED

This section describes the overall approach to the environmental analysis for the proposed Lawrence Station Area Plan (LSAP), including general assumptions concerning land use changes and growth, an explanation of the contents of the technical sections, how impact levels of significance were determined, and cumulative impact methodology. The reader is referred to the individual technical sections of Draft EIR (Sections 3.1 through 3.13 and 4.0) for further information on the specific assumptions and methodologies used in the analysis for each particular technical subject.

ANALYTICAL APPROACH USED TO EVALUATE THE IMPACTS OF THE PROPOSED PROJECT

Section 15125(a) of the California Environmental Quality Act (CEQA) Guidelines requires that an environmental impact report (EIR) include a description of the physical environmental conditions in the vicinity of a project as they exist at the time the Notice of Preparation (NOP) is published and the environmental analysis is begun. The CEQA Guidelines also specify that this description of the physical environmental conditions is to normally serve as the baseline physical conditions by which a lead agency determines whether impacts of a project are considered significant.

The environmental setting conditions of the plan area are described in detail in the individual technical sections of the Draft EIR (see Sections 3.1 through 3.13 and 4.0). In general, these sections describe the setting of the LSAP as it existed when the NOP for the proposed project was released on August 8, 2013. In addition, the Draft EIR also includes any relevant setting information that has been updated since the release of the NOP. This was the basis for evaluating ground disturbance impacts of the LSAP.

LAND USE AND DEVELOPMENT PHASING ASSUMPTIONS

As described in Section 2.0 (Project Description), the plan area is currently developed with urban uses. The LSAP establishes land use development principles, which are assumed in the analysis in this Draft EIR, as follows:

- All existing single- and multi-family residential areas would be preserved and protected.
- The LSAP does not propose specific development projects. Existing land uses would continue to be allowed. The LSAP focuses on opportunities for new development, and all land use changes in the LSAP would be undertaken at the initiative and schedule of private landowners, not by the City. The City would not purchase land for redevelopment or require private landowners and businesses to change land use.
- In cases where acquisition of land or easements may be needed for infrastructure such as water, sewer, and drainage, and roadway/circulation improvements (e.g., Lawrence Expressway), such acquisitions would take place through development incentives and other implementation mechanisms identified in the LSAP in conformance with existing City regulations, policies, and state law.

The analysis also assumes implementation of the development concepts in the LSAP would not occur all at once. As indicated in the LSAP, redevelopment of individual parcels would occur incrementally and would be market-driven. As identified in Section 3.2 (Population and Housing), the City's rate of growth since the year 2000 would not necessitate the need for the LSAP to reach build out in the near-term. With the exception of the Greystar project (proposed redevelopment of 7.99 acre site for the construction of 520 multi-family units and 10,000 square feet of retail uses), there are no development applications proposed for the plan area. Given growth conditions, the

3.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS AND ASSUMPTIONS USED

operational air quality, greenhouse gases, noise, utility service demand (e.g., water and wastewater service), and traffic impacts in this Draft EIR utilize year 2035 as the analysis year.

DEVELOPMENT ASSUMPTIONS

The LSAP defines the development assumptions for the Estimated Likely Development scenario through 2035, which is the basis for the analysis presented in this Draft EIR. As described in the LSAP, Estimated Likely Development potential varies, depending on the mix of uses and densities assumed for new development within the LSAP-recommended range of allowable densities.

The Draft EIR analysis is based on these buildout projections. Subsequent requests for increases in development potential beyond what is set forth in the LSAP would require approval of an amendment to the LSAP, and is outside the scope of the analysis of this EIR.

There are existing land uses within the project area. The LSAP identifies the total number of residential units and mixed-use square footage. In accordance with CEQA, for population-related impacts such as traffic and associated air emissions and noise, the project evaluated in this Draft EIR represents the difference between existing conditions and conditions with implementation of the planning principles, policies, and guidelines identified in the LSAP.

**TABLE 3.0-1
LSAP DEVELOPMENT ASSUMPTIONS AT BUILD OUT AT YEAR 2035**

Use/Demographics	Existing	LSAP (total)	Net Change
Residential Units	1,200 units – existing single family and multifamily,	3,523 units	2,323 units (multi-family development in new MXD designation)
Office/R&D	2.4 million square feet (sf)	3.6 million sf	1.2 million sf
Retail	200,000 sf	216,600 sf	16,600 sf
Industrial	Included in office/R&D	26,503 sf	9,000 sf
Population	3,204 ¹	8,826 ²	5,622 ³
Jobs ⁴	6,214	9,673	3,459

¹ Using a 2.67 persons per unit factor from California Department of Finance 2014 data.

² Blend of existing dwelling units by 2.67 persons per unit and the LSAP units by 2.42 persons per unit.

³ Using 2.42 persons per unit for the LSAP based on high density nature of residential units.

⁴ LSAP assumptions: 400 sf per employee retail; 420 sf per employee office/R&D/light industrial

CUMULATIVE IMPACT ANALYSIS

CEQA Guidelines Section 15130 requires that EIRs include an analysis of the cumulative impacts of a project when the project's effect is considered cumulatively considerable. Each technical section in the Draft EIR considers whether the project's effect on anticipated cumulative setting conditions is cumulatively considerable (i.e., a significant effect). The environmental effects of potential development within the city in the cumulative impact analysis are contained within each technical section.

3.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS AND ASSUMPTIONS USED

The cumulative setting conditions considered in this Draft EIR are based on the following:

- **Local and Regional Adopted Plans.** The existing land use plans of the City of Sunnyvale current General Plan and the proposed Land Use and Transportation Element (LUTE) Update, as well as the proposed Peery Park Specific Plan. This also includes regional land use plans associated with the cities of Cupertino (including the Apple II Campus expansion), Santa Clara, Los Altos, and Mountain View. However, this list is not all-inclusive for each environmental issue area and not all of the general plans listed are used for cumulative analysis for each section. For a discussion of the cumulative setting and the applicable plan(s) used for a specific issue area, please refer to Draft EIR Sections 3.1 through 3.13.
- **Proposed Projects in the City.** The cumulative setting and analysis considers proposed projects in the City (see **Appendix I** for a listing of proposed projects).
- **Effect of Regional Conditions.** The cumulative setting considers regional growth and background traffic volumes and patterns on state and regional roadways (e.g., State Route 237 and US Highway 101). Additionally, physical conditions in the region pertinent to each environmental issue area are considered in the cumulative setting. Those topics are discussed in Sections 3.1 through 3.13.

Each technical section in the Draft EIR considers whether the project's effect on anticipated cumulative setting conditions is cumulatively considerable (i.e., a significant effect). "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with effects of past projects, the effects of other current projects, and the effects of probable future projects (CEQA Guidelines Section 15065[a][3]). Cumulative impacts are based on the proposed project's contribution to development compared with the cumulative baseline condition. The determination of whether the proposed project's impact on cumulative conditions is considerable is based on a number of factors, including consideration of the cumulative context, which may be a jurisdictional boundary, a physiographic boundary (e.g., an air basin or watershed), the type of impact (e.g., site-specific or regional, applicable public agency standards, consultation with public agencies, and expert opinion. The cumulative context for each impact requiring consideration of cumulative impacts is defined in the analysis.

STRUCTURE OF THE ENVIRONMENTAL IMPACT ANALYSIS

Sections 3.1 through 3.13 and 4.0 of this Draft EIR contain a description of existing conditions (including applicable regulatory setting), and an evaluation of the direct and indirect environmental effects resulting from the implementation of the project. Sections 3.1 through 3.13 and 4.0 of this Draft EIR identify feasible mitigation measures and whether significant environmental effects of the project would remain after application of feasible mitigation measures.

The individual technical sections of the Draft EIR include the following information:

Existing Setting

This subsection includes a description of the physical setting associated with the technical area of discussion, consistent with State CEQA Guidelines Section 15125. As previously identified, the existing setting is based on conditions as they existed when the NOP for the proposed project was released on August 8, 2013.

3.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS AND ASSUMPTIONS USED

Regulatory Framework

This subsection consists of the identification of applicable federal, state, regional, and local plans, policies, laws, and regulations that apply to the technical area of discussion.

Impacts and Mitigation Measures

This subsection identifies direct and indirect environmental effects associated with implementation of the proposed project. Standards of significance are identified and used to determine whether the environmental effects are considered significant and require the application of mitigation measures. Each environmental impact analysis is identified numerically (e.g., Impact 3.7.7 – Seismic Hazards) and is supported by substantial evidence. Mitigation measures consist of performance standards that identify clear requirements that would avoid or minimize significant environmental effects (the use of performance standard mitigation is allowed under State CEQA Guidelines Section 15126.4(a) and is supported by case law in *Rio Vista Farm Bureau Center v. County of Solano* ([1st Dist. 1992] 5 Cal. App. 4th at pp. 371, 375–376 [7 Cal. Rptr. 2d 307])).

COMMON TERMINOLOGY USED IN THE DRAFT EIR

This Draft EIR uses the following terminology to describe the environmental effects of the proposed project:

Less Than Significant Impact: A less than significant impact would cause no substantial change in the physical condition of the environment (no mitigation would be required for project effects found to be less than significant).

Significant Impact and Potentially Significant Impact: A significant impact would cause (or would potentially cause) a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project effects using specified standards of significance provided in each technical section of the Draft EIR. Identified significant impacts are those where the project would result in an impact that can be measured or quantified, while identified potentially significant impacts are those impacts where an exact measurement of the project's effects cannot be made but substantial evidence indicates that the impact would exceed standards of significance. A potentially significant impact may also be an impact that may or may not occur and where a definite determination cannot be foreseen. Mitigation measures and/or project alternatives are identified to avoid or reduce project effects on the environment to a less than significant level.

Significant and Unavoidable Impact: A significant and unavoidable impact would result in a substantial adverse change in the environment that cannot be avoided or mitigated to a less than significant level if the project is implemented, even with the application of mitigation measures.

Less Than Cumulatively Considerable Impact: A less than cumulatively considerable impact would cause no substantial change in the physical condition of the environment under cumulative conditions.

Cumulatively Considerable Impact: A cumulatively considerable impact would result when the incremental effects of an individual project result in a significant adverse physical impact on the environment under cumulative conditions.

3.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS AND ASSUMPTIONS USED

Standards of Significance: A set of significance criteria to determine at what level or “threshold” an impact would be considered significant. Significance criteria used in this EIR include the State CEQA Guidelines; factual or scientific information; regulatory performance standards of local, state, and federal agencies; and City goals, objectives, and policies. Specified significance criteria used by the City of Sunnyvale are identified at the beginning of the impact analyses in each technical section of the Draft EIR.

Subsequent Projects/Activities: These are anticipated development projects (e.g., residential, commercial, industrial, or recreational projects) that could occur in the future as a result as a result of changes from the land use designations of the existing General Plan, or the change in the intensity of land uses proposed in the LSAP. These projects could also include public infrastructure and utility extension projects, including, but not limited to, roadway improvements and water, stormwater, and wastewater distribution improvements.

3.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS AND ASSUMPTIONS USED

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3.1 LAND USE

The project area studied in this DEIR, as it relates to policies and guidelines, is limited to the Sunnyvale portion of the overall study area, approximately 372 acres. However, this section describes existing land uses and land use trends within the project area and its vicinity including areas of both the cities of Sunnyvale and Santa Clara as well as relevant land use plans and policies. Much of the background information in this section is adapted from the Sunnyvale General Plan (2011) and Horizon 2035 Existing Land Use Conditions and Background (2010) as well as the Santa Clara General Plan (2010).

Impact Number	Impact Topic	Impact Significance
3.1.1	Physically Divide an Established Community	No impact
3.1.2	Conflict with Adopted Land Use Plan/Policies/Regulations	Less than significant
3.1.3	Conflict with Habitat Conservation Plan or Natural Community Conservation Plan	No impact
3.1.4	Cumulative Land Use Impacts	Less than cumulatively considerable

3.1.1 EXISTING SETTING

The plan area is generally bisected in a north-south direction by Lawrence Expressway, and by the Caltrain tracks in the east-west direction. It contains a combination of residential and non-residential uses. The area north of the Caltrain tracks is dominated by industrial and commercial uses on large parcels. Many of these date from the early years of Silicon Valley growth. East of Lawrence Expressway, more recent development includes new office and research and development (R&D) uses. Major existing uses in the plan area north of the Caltrain tracks include Intuitive Surgical, along with auto-oriented retail such as Costco. Parking is typically in large surface lots. South of the Caltrain tracks, the plan area is primarily low-density neighborhoods consisting of single-family detached homes and areas of multi-family apartments and condominiums. There is some limited local-serving retail. Calstone/Peninsula Building Materials is the only manufacturing/industrial use on the south side of the Caltrain tracks. Additional information about the specific land uses is provided below.

There are no public parks or public open space and very little natural vegetation in the plan area. Calabazas Creek, which flows south-to-north to the San Francisco Bay, is located in a concrete channel along the eastern edge of the plan area. The El Camino Storm Drain Channel flows through the residential neighborhoods south of the station and along the south edge of the rail tracks before draining into Calabazas Creek.

Existing land uses and associated General Plan land use designations and zoning are summarized in **Table 3.1-1** and shown in **Figures 3.1-1** and **3.1-2**.

3.1 LAND USE

**TABLE 3.1-1
EXISTING LAND USES – LSAP PLAN AREA**

Land Use	Acres	General Plan Land Use Designation	Zoning
<i>Residential</i>			
Low Density Residential	50.7	Low Density Residential (0-7 du/ac)	R-0
Low Medium Density Residential (includes approximately 8 acres of the undeveloped portion of the Corn Palace parcel)	15.1	Low Medium Density Residential (7–14 du/ac)	R-2/PD
Multi-Family Residential	48.6	Medium Density Residential (14–27 du/ac)	R-3/PD
--	0	High Density Residential	R-5
<i>Office/Residential</i>			
Office/Industrial/R&D	153.0	Industrial and Service (135.9 acres) Industrial to Residential (17.2 acres [Calstone property])	M-S (135.9 acres) M-3/ITR
<i>Retail</i>			
Auto-Oriented Retail	24.3	Industrial and Service (20.4 acres) Industrial to Residential Medium Density (3.9 acres)	M-S (20.4 acres) M-S/ITRR3 (3.9 acres)
Auto-Serving Retail	2.7	Industrial and Service (1.5 acres) Industrial to Residential Medium Density (1.2 acres)	M-S (1.5 acres) M-S/ITRR3 (1.2 acres)
Office/Retail	0.6	Low-Medium Density Residential	
<i>Other</i>			
Drainage Channels/Calabazas Creek	4.5	Industrial and Service (2.0 acres) Medium Density (1.9 acres) Low Density (0.6 acres)	M-S (2.0 acres) R-3/PD (1.9 acres) R-0 (0.6 acres)
Railroads/Utility	19.4	Industrial and Service	M-S/PD

Land Uses

Residential

Residential uses in the project area are located to the south of Lawrence Station and consist primarily of neighborhoods that were developed beginning in the 1970s. New townhouses fronting Aster Avenue and zero-lot line single-family dwellings fronting East Evelyn Avenue are also located in the plan area. The most recent single-family residential development was constructed beginning in 2011 on the western part of the Corn Palace parcel and is now occupied. There are approximately 1,200 residential units (single-family and multi-family combined) in the plan area.

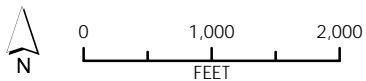
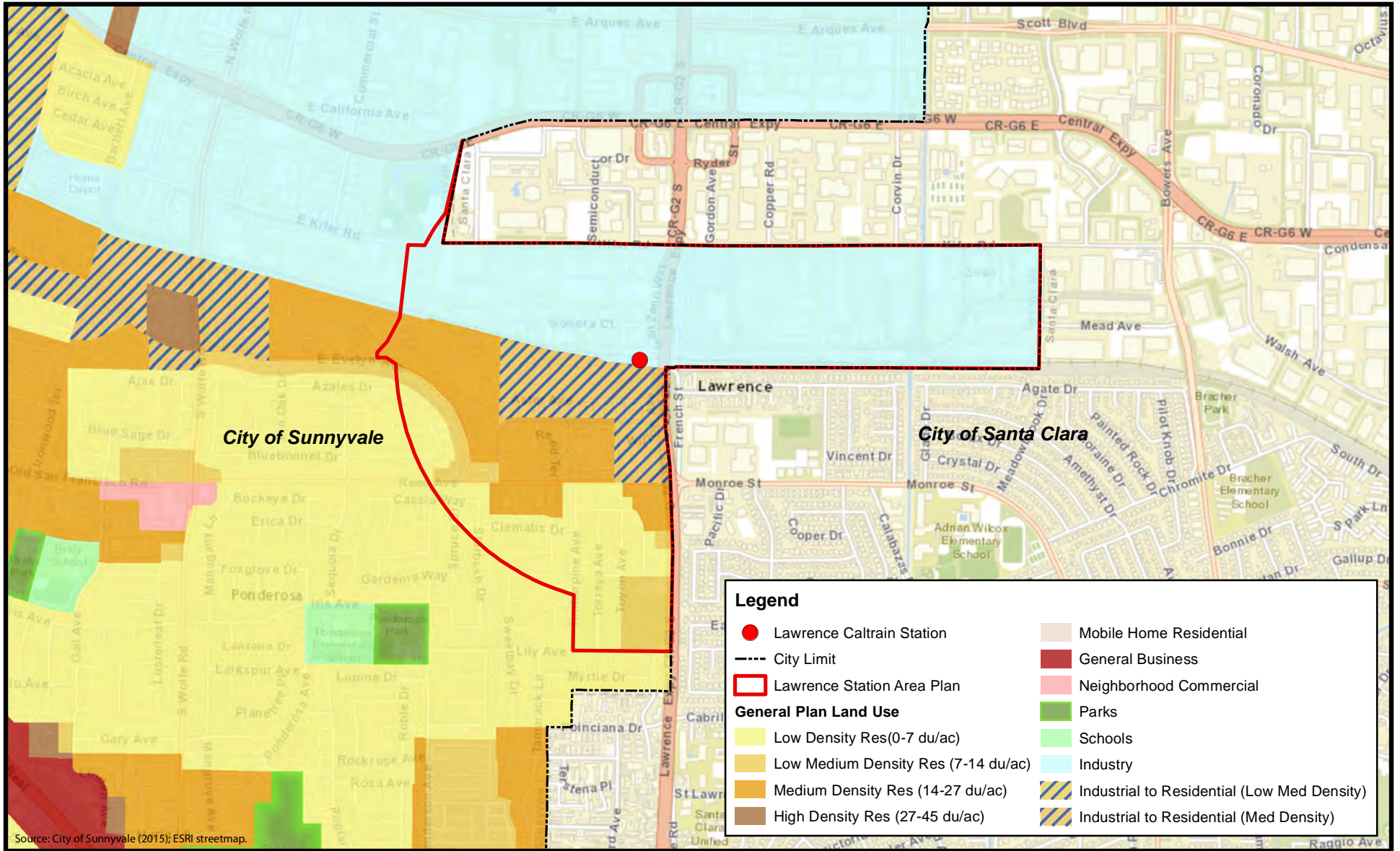


Figure 3.1-1
Existing General Plan Land Use Designations

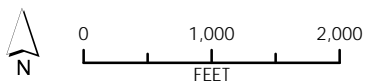
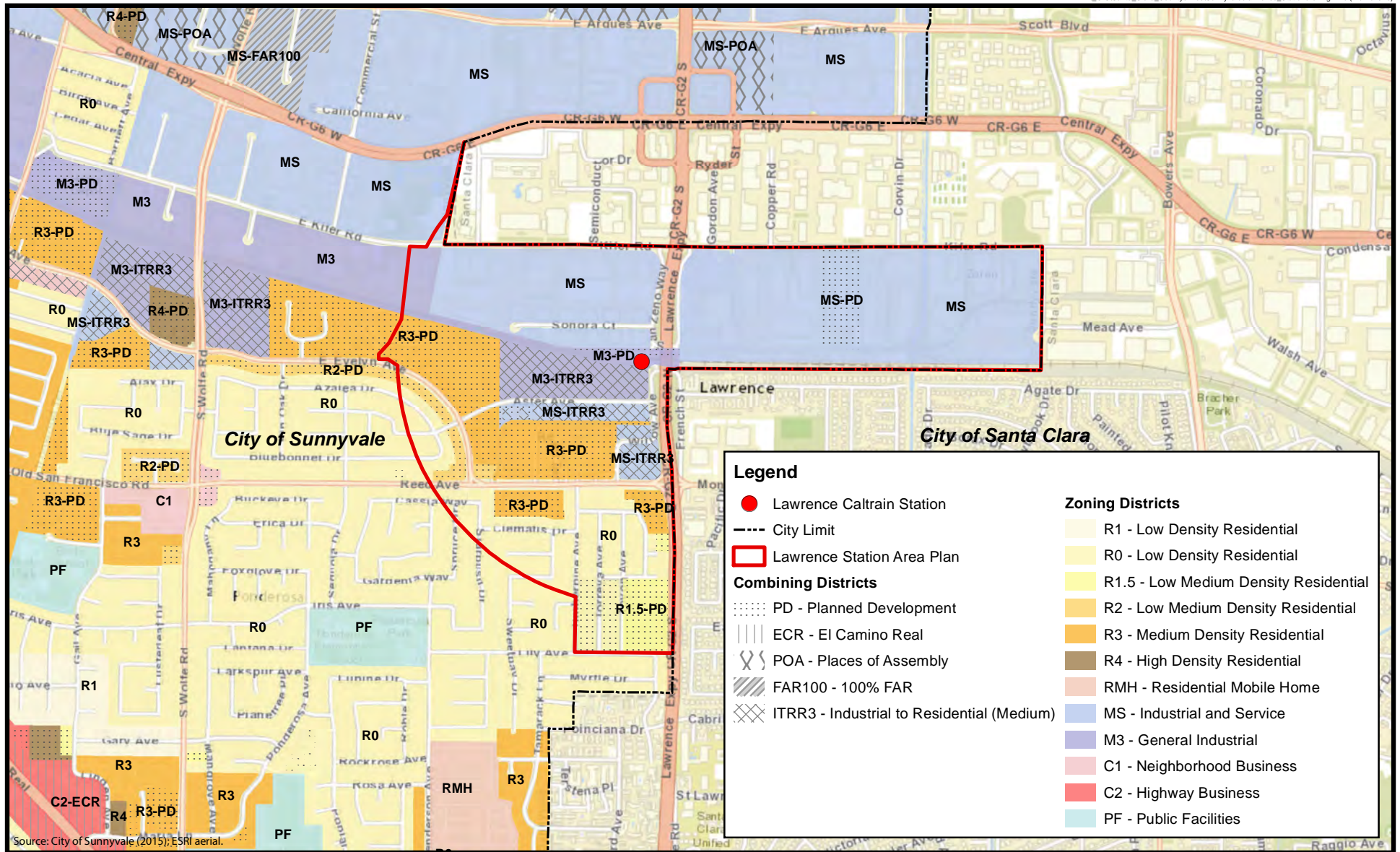


Figure 3.1-2
Existing Zoning Districts

Office/Industrial/Research and Development

R&D facilities typically include office space, manufacturing facilities, receiving and materials storage and staff amenities. Intuitive Surgical is an example of an R&D use that is located on several non-contiguous parcels along the south side of Kifer Road in the plan area. The prevailing density of these uses is approximately 0.3 to 0.45 FAR.

There is a large amount of light industrial use in the project area, distributed throughout the area, primarily north of the Caltrain tracks. Light industrial uses encompass a wide range of small-scale manufacturing, service, office and complementary retail. In some areas, such as Sonora Court just north of the Lawrence Caltrain Station, these uses occupy single buildings on individual parcels. In other areas, several businesses may occupy, through lease or ownership, one or more buildings on a larger parcel.

Calstone/Peninsula Building Materials, located on Aster Road south of the tracks and immediately adjacent to the station, is the most recognizable heavy commercial/manufacturing use in the area and is notable for its proximity to residences and its large site size (17 acres). Although the existing land use is non-residential, the General Plan designation is Industrial to Residential (medium density residential 14 to 27 du/ac), and the area is also identified in the General Plan as Futures 4B.¹

There are approximately 2.4 million square feet (sf) of office/industrial/R&D uses in the plan area.

Retail

Retail uses in the plan area total approximately 200,000 sf in and are limited to auto-oriented and auto-serving uses. Costco is the primary retail use north of the Caltrain tracks. South of the tracks, there is a small retail complex along Willow Avenue north of Reed Avenue and just west of Lawrence Expressway.

Educational Facilities

The International Culinary School at the Art Institute of California, which occupies a portion of a building on Kifer Road, is the only educational or civic use in the plan area. The City is currently processing an application for the Greystar project, which would demolish the existing building and construct a five-story apartment building with 520 units and 10,000 sf of retail space.

Open Space

There are no public parks or open space, and the General Plan does not designate any land for such uses.

¹ In 1993, the City completed the Futures Study, which resulted in the establishment of the Industrial to Residential combining district, the purpose of which is to allow industrial, office, commercial and residential uses to exist within the same zoning district, and to encourage ITR areas to gradually convert to residential uses.

3.1 LAND USE

Vacant Land

The only vacant, undeveloped property in the plan area is one parcel comprising half the original the Corn Palace (approximately 4 acres). Existing land use designations and zoning, which would remain unchanged under the LSAP, provide for low medium density single family detached homes.

Agricultural and Timber Resources

Although the Corn Palace was historically used for agriculture, it is not designated for agricultural uses, as noted above. The soils at the site (Urban Land-Bayshore complex) are not Prime Farmland (NCRS 2014). There is no Williamson Act contract for the site. There are no timber resources in the plan area.

SURROUNDING LAND USES

The area northwest, north, northeast, and east of the LSAP plan area north of the Caltrain tracks, including areas within the City of Santa Clara north of the Caltrain tracks, consists of non-residential uses similar in scale and intensity of development as those within the plan area. Residential development is the predominant land use to the south (in Sunnyvale) and southeast (in Santa Clara).

3.1.2 REGULATORY FRAMEWORK

STATE/REGIONAL

Plan Bay Area

Senate Bill 375 (SB 375), known as the Sustainable Communities Strategy and Climate Protection Act, was signed into law in September 2008. SB 375 calls on each of the state's 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce greenhouse gas emissions from cars and light trucks. Plan Bay Area was jointly approved by the Association of Bay Area Governments (ABAG) Executive Board and the Metropolitan Transportation Commission (MTC) in 2013. The plan is a long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. It includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan.

In 2009 the Lawrence Caltrain Station area was designated as a potential development area (PDA) by the ABAG and MTC under MTC's "Focusing Our Vision" (FOCUS) program. This recognition was an endorsement of the area's development potential and its regional importance.

LOCAL

City of Sunnyvale General Plan

The General Plan is the comprehensive planning document governing development within Sunnyvale, and it articulates the community's vision for the future through a description of goals, policies, and actions. The current General Plan projects growth in the City through 2025. The Land

Use and Transportation Element (LUTE), last adopted in 1997, is currently being updated to reflect growth through 2035.

Section 15125(d) of the Guidelines states that EIRs shall discuss any inconsistencies between the proposed project and applicable General Plans in the Environmental Setting section of the document.

City of Sunnyvale Zoning Code

The Zoning Map and the Zoning Code (Title 19 of the Zoning Ordinance) are tools that allow Sunnyvale to regulate the location and development of land uses in a more precise manner than through the General Plan. The Zoning Code identifies and defines zoning districts and development standards, and regulates such issues as uses, setbacks, building heights, building additions, population densities, parking requirements, landscaping, and land use compatibility.

Currently, the zoning code allows residential development by right in residential districts. Residential development is also allowed in other zoning districts, but a use permit must be obtained. For example, residential uses are allowed with a permit in commercial zoning districts C-1, C-2, and C-3. Residential uses, alone or combined with other uses compatible with the zoning district, and some other types of residential uses are allowed in industrial zoning districts.

For residential development, the current maximum allowable density for residential-only development is up to 36 dwelling units per acre in R-4 zoning district. A higher density is allowed in the R-5 zoning district (up to 45 du/ac), where residential can be the exclusive use or combined only with hotels and motels. The ITR zoning at the Calstone/Peninsula Building Materials site allows for 14 to 27 du/ac.

Plan Bay Area

Consistent: The project encourages development in an area identified in Plan Bay Area as a future growth zone. The project would add housing and jobs that would accommodate the projected population and employment growth in the area and in the City. Further, the project would guide growth in a sustainable manner that would emphasize a complete streets type neighborhood with complementary services to serve the neighbors needs.

General Plan

Consistent: The project would guide growth in a manner consistent with the City's vision as outlined in the General Plan. By encouraging a mixed-use, pedestrian friendly development the project would help realize the General Plan's vision for the area as a mixed-use, well connected area. The project would help develop a transportation network that would be pedestrian and bicycle friendly, while improving public transit and vehicular travel. Further, the project would allow for redevelopment of areas in the project area that would match the City's vision. The development of new housing will help the City meet its housing needs allocation, while the development of new employment centers would allow the city to accommodate projected growth.

3.1 LAND USE

3.1.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The impact analysis presented in this section was based on a review of the City's General Plan and Zoning Code, land use descriptions, and proposed policies and guidelines in the LSAP. Acreages for land uses were determined through City staff review of census tract data.

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, land use impacts are considered to be significant if the following could result from the implementation of the proposed Lawrence Station Area Plan:

- 1) Physically divide an established community.
- 2) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- 3) Conflict with any applicable habitat conservation plan or natural community conservation plan.

Conflicts with a General Plan do not inherently result in a significant effect on the environment within the context of CEQA. As stated in Section 15358(b) of the CEQA Guidelines, "[e]ffects analyzed under CEQA must be related to a physical change." Thus, the focus of the impact analysis is whether project implementation would result in significant physical environmental impacts associated with land use. Specific impacts and issues associated with population and housing, hazards, geology and soils, hydrology, aesthetics, recreation, cultural resources, biological resources, and public services and utilities are addressed in each technical section, and the reader is referred to other EIR sections for detailed analyses of other relevant environmental effects.

Conflicts between a project and applicable policies do not constitute a significant physical environmental impact in and of themselves; as such, the project's consistency with applicable policies is discussed separately from the physical land use impacts associated with the project.

PROJECT IMPACTS AND MITIGATION MEASURES

Physically Divide an Established Community (Standard of Significance 1)

Impact 3.1.1 Subsequent projects developed under the LSAP would result in higher intensity development consisting of mixed uses in areas that currently contain non-residential office/R&D/industrial uses. This is a **less than significant impact**.

The plan area is currently developed with a combination of residential and non-residential uses. The existing Caltrain tracks bisect the plan area, with Lawrence Expressway providing the only north-south connection between the areas to the north and the areas to the south.

- The LSAP would preserve the existing residential uses located in the southern portion of the plan area (Southern Residential subarea). No land use changes are proposed in this area that would allow additional development in established residential neighborhoods. The LSAP maintains the existing General Plan land use and zoning for the Corn Palace parcel, which would allow only for single-family detached residential uses at a density consistent with the adjoining residential development to the west. Development in that location would only require internal streets to connect to the existing roadway network. As such, there would be no physical division of those residential areas as a result of implementing the LSAP.

The conversion from non-residential to residential uses in the Peninsula subarea (Calstone/Peninsula Building Materials site) would result in development consistent with the adjoining residential areas, and no physical division would occur.

The mixed-use areas comprising the Transit Core, West, and East subareas would represent a change from the non-residential uses.

From an overall land use planning perspective, the planned transportation improvements would enhance, rather than divide, the plan area's connectivity by implementing a complete streets approach to the transportation system.

The Land Use Plan also identifies seven unique neighborhoods, which would have their own character:

- **Mixed-use Transit Core:** This neighborhood adjoins Lawrence Station directly north of the tracks. This area would contain mixed use development with an emphasis on improving connectivity to the station for all modes. This area is envisioned to develop into a "main street" neighborhood. This area also contains the landmark Redwood trees that link Sonora Court. As such, improvements to the area would create the opportunity to establish the unique character defining environment that the trees evoke.
- **Mixed-use Transit Core Supporting:** This area adjoins the Transit Core Neighborhood on the east and west of Lawrence Expressway and is in close proximity to the station. This area is envisioned to create higher north-south connectivity and offer higher density office and residential. The area to the east of Lawrence Expressway currently accommodates Costco and Intuitive Surgical, and would provide higher north to south multimodal connectivity.
- **Mixed-use Transit Supporting South:** This district is located on the Peninsula Building Materials and Calstone operations and would include new housing developments as a result of relocating these industrial uses.
- **Southern Residential:** This neighborhood is currently located to the south of Lawrence station and comprises current residential uses. Although no land use changes are planned in this area, transportation and parking improvements are planned, as well as development of a healthy pedestrian and bicycle network.
- **Lawrence/Reed/Willow:** These parcels adjoin Lawrence Expressway and the plan encourages more retail and offices uses in this area.
- **Calabazas Creek:** This area includes improvements to Calabazas Creek drainage and introducing bicycle and pedestrian facilities in the area.

3.1 LAND USE

- **Industrial East:** This neighborhood is located on the east side of the project area, which is currently occupied by industrial uses. This zone will transition over time to office and R&D uses.

Project policies implementation would ensure that new land uses in the project area would not divide an establish community and would enhance the project areas connectivity with the City as a whole. Therefore, the project would have **no impact** regarding the division of an established community.

Mitigation Measures

None required.

Conflict with Adopted Land Use Plans/Policies/Regulations (Standard of Significance 2)

Impact 3.1.2 The LSAP establishes a new mixed-use land use designation that provides for higher multi-family residential densities and increased floor area ratios for non-residential development within the plan area. This is considered a **less than significant** impact.

The LSAP would establish new General Plan land use categories for the plan area as well as retain some of the existing designations associated with existing residential uses in the southern portion of the plan area. Several of the categories are existing land use designations already in use by the City of Sunnyvale in the existing neighborhoods within the plan area. Others are existing land use designations available in the City of Sunnyvale General Plan and Zoning Ordinance, but not previously applied in the plan area. These areas would require a change of zoning in order to be compliant with the LSAP. Others are new land use categories that do not currently exist within the Sunnyvale General Plan and Zoning Ordinance.

Approximately 200 acres (63%) of the plan area would require a change in land use designation rezoning in order to allow and encourage development in conformance with the goals and policies of the LSAP. The greatest change would be associated with the change in land use designations and zoning from 153 acres currently designated Industrial and Service (i.e. areas north of the Caltrain tracks and the Calstone/Peninsula Building Materials site south of the tracks) to new land use and zoning designations for Mixed Use totaling approximately 142 acres.

The land use classifications are consistent current with City land use policies and are intended to be broad enough to allow flexibility in implementation, but specific enough to provide sufficient direction to carry out the LSAP. Public uses, including parks, government offices, police and fire station, and public schools, are permitted in all land use classifications.

The project's main goal is to develop the plan area into a mixed-use, multi-modal area that would provide housing and enhance local and regional connectivity. Project implementation would ensure integration and compatibility of new development with City's sustainable growth vision, thus further integrating the project area into the City as a whole. Policies contained within the project plan through its land use, transportation and urban design and streetscaping guidelines, which would become enforceable requirements, would further enhance connectivity and cohesiveness of the project area.

The project is proposing to increase densities in the project area. The City's goals for sustainable growth include higher density and a variety of uses. Therefore, the proposed increase in density and the change in zoning designation would be consistent with the City's current land use policies

and vision (including those proposed the draft LUTE that is currently in process). Therefore, the project's density is consistent with the City's vision for development in the area and would not be inconsistent or create land use impacts due to the increased density.

City of Sunnyvale General Plan

The City of Sunnyvale General Plan provides the united vision meant to guide comprehensive development in the City. The project proposes the development of a mixed-use, compact and well-connected urban form that would further increase housing and employment opportunities in the City. The project would change land use designations in certain areas of the project area to accommodate project growth and to realize the City's vision. Further, the project outlines transportation and design guidelines that would mold the area to fit the sustainable growth vision. The project would require an amendment to the City of Sunnyvale General Plan for the change of land use designation. With the approval of the General Plan amendments the project would be consistent with the City of Sunnyvale General Plan regarding land use designations.

City of Sunnyvale Zoning Code

The City of Sunnyvale Zoning Code regulates the development of land uses within the plan area. The LSAP includes amendments to the Zoning Code to establish zoning for the plan area to regulate the allowed densities and types of development specific to the LSAP. The LSAP also outlines strategies to manage parking supply and demand as outlined in Section 5 of the LSAP. The strategies include adoption of a reduced parking standard for the project area, promotion of flexible shared parking and transportation demand management programs to reduce the need for parking, and promotion of underground parking. All increases in FAR, parking policies and intensity of development would need to be approved through zoning code amendments.

With the approval of the LSAP and zoning amendments the project would be consistent with the City of Sunnyvale Zoning ordinance regarding FAR, maximum and minimum density requirements, parking requirements and circulation requirements.

Therefore, the project would not conflict with the policy initiatives described above that were adopted for the purpose of avoiding or mitigating an environmental effect. As the project would not conflict with any applicable adopted land use plans, policies, or regulations, this impact would be **less than significant**.

Mitigation Measures

None required.

Conflict with Habitat Conservation Plan or Natural Community Conservation Plan (Standard of Significance 3)

Impact 3.1.3 The project would not conflict with any applicable habitat conservation plans or natural community conservation plan, therefore there would be **no impact** related to such plans.

The Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan was approved and adopted in 2013. The plan encompasses all of unincorporated Santa Clara County, the Santa Clara Valley Water District, and the Santa Clara Valley Transportation Authority, as well as the cities of Gilroy, Morgan Hill, and San Jose. However, Sunnyvale is not in the SCVHP planning

3.1 LAND USE

area. Therefore, there would be **no impact** related to conflict with a habitat conservation plan or natural community conservation plan.

Mitigation Measures

None required.

3.1.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

Land use impacts are typically isolated to a jurisdiction, except where land uses may interact or conflict with adjacent jurisdictions.

Expected population and employment growth in the region would result in further urbanization of land uses at the regional level. Plan Bay Area is a long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. On July 18, 2013, the Association of Bay Area Governments (ABAG) Executive Board and the Metropolitan Transportation Commission (MTC) jointly approved the plan. The plan includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan and represents the next iteration of a planning process that has been in place for decades. The Sustainable Communities Strategy (SCS), has identified alternative growth strategies for the region to accommodate this growth. One such strategy calls for population and employment growth to be directed to urban areas, in close proximity to regional transportation nodes and job centers. Increased growth is projected for downtown San Jose and at Santa Clara Valley Transportation Authority (VTA) and Caltrain stations in the cities of Palo Alto, Mountain View, Santa Clara, Sunnyvale, and Milpitas.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Land Use Impacts (Standards of Significance 1 and 2)

Impact 3.1.5 Project implementation would not contribute to cumulative land use impacts associated with the division of an established community or conflicts with land use plans and regulations that provide environmental protection. This would be a **less than cumulatively considerable** impact.

Expected population and employment growth in the region would result in land use changes at the regional level. However, urban growth that would occur in the City as a result of the project would be generally consistent with the SCS, in that growth would be focused in a change area that is already urbanized, located in close proximity to transit, and can accommodate additional residential and employee populations without adversely affecting sensitive natural resources. Furthermore, the project would increase the density of Sunnyvale within its city limits and would encourage transit-oriented development. The project would not result in the division of any communities in cities adjacent to Sunnyvale, and would enhance regional connectivity among communities as well as consistent with SCS and associated Planned Development Area designation for the area.

As identified under Impacts 3.1.1 through 3.1.4 above, the project would not conflict with any applicable land use plans, policies, or regulations and would not divide any established communities. Similarly, the project would not add to any existing physical divisions of communities. The project would complement the general plans of surrounding jurisdictions, as the project as a whole ensure a regional approach to land use and transportation planning in the city and improve regional connections. Thus, the project would have a **less than cumulatively considerable** contribution to regional land use impacts.

Mitigation Measures

None required.

3.1 LAND USE

REFERENCES

- City of Sunnyvale. 2010. *Horizon 2035 Existing Land Use Conditions and Background*.
- . 2011. *Lawrence Station Area Plan*.
- . 2011. *Sunnyvale General Plan* (consolidated in 2011).
- NRCS (Natural Resources Conservation Service). 2014. Web Soil Survey, Santa Clara County, Western Part. <http://websoilsurvey.sc.egov.usda.gov>.
- Santa Clara County. 2012. *Final Draft Comprehensive Land Use Plan Santa Clara County Moffett Federal Airfield*.
- Santa Clara Valley Habitat Plan. 2012. *Santa Clara Valley HCP/NCCP*. Accessed June 2013. <http://www.scv-habitatplan.org/www/default.aspx>.

3.2 POPULATION AND HOUSING

3.2 POPULATION AND HOUSING

This section evaluates the socioeconomic conditions in the project area, including population characteristics, housing, and employment.

A summary of the impact conclusions related to population, housing, and employment is provided below.

Impact Number	Impact Topic	Impact Significance
3.2.1	Substantial Increase in Population and Housing either Directly or Indirectly	Less than significant
3.2.2	Displacement of a Substantial Number of Persons or Housing	No impact
3.2.3	Cumulative Population and Housing Increases	Less than cumulatively considerable
3.2.4	Cumulative Displacement of People or Housing.	Less than cumulatively considerable

3.2.1 EXISTING SETTING

POPULATION

City of Sunnyvale

Sunnyvale is the second largest city in Santa Clara County, behind only San Jose, which comprises over half the county's population. Sunnyvale's population grew steadily from 1970 to 2000, increasing between 10% and 12% each decade. Since 2000, however, population growth in Sunnyvale has slowed, due in part to the economic downturn between 2008 and 2010. Sunnyvale's population grew by approximately 6% between 2000 and 2010, comparable to the countywide growth rate during that decade (Sunnyvale 2014). **Table 3.2-1** presents historic population growth trends in Sunnyvale and compares this growth to the County of Santa Clara.

**TABLE 3.2-1
CITY AND COUNTYWIDE HISTORIC GROWTH TRENDS**

Jurisdiction	1990	2000	2010	2014	Percentage Change	
					1990–2000	2000–2010
Sunnyvale	117,229	131,760	140,081	146,724	12.4%	6.3%
Santa Clara County	1,497,577	1,682,585	1,781,642	1,868,038	12.4%	5.8%

Sources: Sunnyvale 2014; DOF 2015.

Plan Area

The plan area is estimated to have a current residential population of 3,204¹.

¹ It is estimated that there are 1,200 residential units in the plan area. This population estimate is based on using a 2.67 persons per unit factor from California Department of Finance 2014 data for the City.

3.2 POPULATION AND HOUSING

HOUSING

City of Sunnyvale

Table 3.2-2 shows housing unit data. The number of housing units in Sunnyvale increased from 48,592 units in 1990 to 55,791 units in 2010 (US Census, 2014). The rate of housing growth decreased from 7.5 percent between 1990 and 2000 to 5.4 percent between 2000 and 2010. As of 2014, 4.2% of units were vacant in the City compared with 4.3% in 2010. The 2010 and 2014 vacancy rates are similar with the Santa Clara County rate of 4.4% and 4.1% for 2010 and 2014, respectively (DOF 2015).

Between 2000 and 2010 the City's housing stock increased 4% slower than the countywide growth. From 2010 to 2013 housing stock in the City grew 2% faster than Countywide and surrounding jurisdictions. As of 2014 Sunnyvale had a housing stock of 56,898 units. Approximately 47% of the housing stock is single-family units, 46% multi-family and 7% mobile homes (Sunnyvale 2014).

All neighborhoods within the City experienced declines in household² size between 1970 and 1990, while household size increased between 1990 and 2010. According to US Census data, the City's average household size in 2010 was 2.61 persons, which was less than in the County average at 2.9 persons and likely attributable to more single-person households and lower proportion of family households (Sunnyvale 2014). **Table 3.2-3** shows the average household size in Sunnyvale in the years 1990, 2000, 2010, and 2014.

TABLE 3.2-2
CITY OF SUNNYVALE HOUSING TRENDS

Year	Housing Units	Household Size
1990	48,592	2.42
2000	53,753	2.49
2010	55,791	2.61
2014	56,898	2.67

Source: Sunnyvale 2014; DOF 2015

LSAP Plan Area

There are approximately 1,200 housing units in the plan area. These units are in residential neighborhoods south of the Caltrain tracks and comprise the LSAP Southern Residential subarea, where the predominant type of residence is detached single-family dwellings. There are some multi-family units and condominiums in the northern part of the subarea as well. There are no dwellings north of the Caltrain tracks. The only vacant parcel in the plan area is an approximately 8-acre parcel that is zoned for low medium-density residential development. All existing single- and multi-family residential areas would be preserved and protected under the LSAP. No changes

² As defined by ABAG, "household" is another term for an occupied dwelling unit. A household includes all persons who occupy a housing unit. A housing unit is a group of rooms or a single room occupied as separate living quarters where occupants live separately from other persons in the building and have direct access from outside the building or through a common hall. A household can include more than one family.

in land use designations or zoning are planned. Another 600 units could be developed in the plan area based on existing General Plan land use designations and zoning.

3.2.2 REGULATORY FRAMEWORK

STATE

California Government Code Section 65302(c) requires each county and city in the state to include a housing element as part of its adopted general plan. The legislation further states that the element must identify adequate sites for housing, including rental housing, factory-built housing, and mobile homes, and make adequate provision for the existing and projected needs of all economic segments of the community.

The California Department of Housing and Community Development (HCD) allocates regional housing needs to cities and counties their "fair share" of the region's projected housing needs, also known as the Regional Housing Needs Allocation (RHNA). The housing needs are assigned based on household income groupings over the planning period for each specific jurisdiction's housing element.

A Regional Housing Needs Plan (RHNP) is required under California Government Code Section 65584 to enable regions to address housing issues and meet housing needs based on future growth projections for the area. The State of California determines the number of total housing units needed for each region.

REGIONAL

Association of Bay Area Governments

ABAG allocates housing needs among cities and counties within the nine-county ABAG region. The determination of housing need is based on existing need and estimated population growth. Need is determined for households in all income categories: very-low, low, moderate and above-moderate incomes. Once the total regional need is determined, ABAG works with local governments and others to allocate the total need to individual cities and counties. Local governments are then required to plan where and how the allocated housing units will be developed within their communities. This is done through the Housing Element of each local government's General Plan.

Based on a methodology that weighs a number of factors (e.g., projected population growth, employment, commute patterns, available sites), ABAG determines quantifiable needs for housing units in the region according to various income categories. ABAG has determined Sunnyvale has a RHNA allocation of 5,452 units distributed among the following income groups: 1,640 very low income; 906 low income; 932 moderate income; and 1,974 above-moderate income units. The City's current Housing Element was adopted in December 2014 and addresses the 2015-2023 RHNA requirements. According to the City's Housing Element, there is sufficient acreage zoned at appropriate levels to allow for development of ABAG's housing allocation of 5,452 units (Sunnyvale 2014).

3.2 POPULATION AND HOUSING

Plan Bay Area

Plan Bay Area is a long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. The Plan includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan. Working in collaboration with cities and counties, Plan Bay Area advances initiatives to expand housing and transportation choices, create healthier communities, and build a stronger regional economy.

LOCAL

City of Sunnyvale General Plan

The Land Use and Transportation chapter of the General Plan contains the following policies and sub-policies that are relevant to the analysis of population and housing impacts:

- | | |
|----------------|---|
| Policy LT-3.1 | Permit and maintain a variety of residential densities. |
| Policy LT-3.1d | Support the transition of Industrial to Residential (ITR) areas as opportunity areas to increase housing variety and stock. |
| Policy LT-3.3b | Promote and preserve single-family detached housing where appropriate and in existing single-family neighborhoods. |

Housing Element

Under the requirements of California Housing Element law, local governments are required to adequately plan for the existing and projected housing needs of all economic segments of the community. The law recognizes that in order for the private market to adequately address housing needs and demand, local governments must adopt land use plans and regulatory systems that provide opportunities for, and do not unduly constrain, housing development. As a result, State housing policy rests largely upon the effective implementation of local general plans and in particular, local housing elements. The Sunnyvale City Council adopted the 2015-2023 Housing Element in December 2014.

The Housing Element of the city's General Plan sets forth the policy basis for Sunnyvale's current and future housing actions. The Housing Element consists of an evaluation of Sunnyvale's demographic, household and housing stock characteristics, and existing and future regional housing needs (RHNA); housing constraints – an assessment of potential governmental and market constraints to the development and improvement of housing in Sunnyvale; housing resources – an evaluation of the availability of sites to address Sunnyvale's regional housing growth needs. Financial and administrative resources for housing are also presented, as are opportunities for energy conservation and green building; housing plan – an evaluation of accomplishments under Sunnyvale's adopted 2009 Housing Element, and the City's housing goals, policies, programs and quantified objectives for the 2015-2023 planning period.

Sunnyvale's Housing Plan sets forth strategies and programs that focus on: 1) preserving and improving housing and neighborhoods; 2) providing adequate housing sites; 3) assisting in the provision of affordable housing; 4) removing governmental and other constraints to housing investment; and 5) promoting fair and equal housing opportunities.

The current Housing Element housing sites inventory identifies the LSAP Peninsula and Lawrence/Reed Willow subareas currently zoned Industrial to Residential (ITR) as vacant/underutilized sites suitable for moderate to above-moderate housing (Sunnyvale 2014).

Applicable Housing Element policies are:

- Policy A.1 Encourage diversity in the type, size, price and tenure of residential development in Sunnyvale, including single-family homes, townhomes, apartments, mixed-use housing, transit-oriented development, and live-work housing.
- Policy D.1 Provide sites for development of housing that responds to diverse community needs in terms of density, tenure type, unit size, accessibility, location and cost.
- Policy D.2 Continue to accommodate new residential development into specific plan areas and areas near transit and employment and activity centers, such as the El Camino Real corridor and Lawrence Station area.
- Policy D.6 Provide expanded areas for higher density housing through the conversion of underutilized industrial areas to residential use, if the sites are consistent with General Plan standards for residential uses (i.e., no health hazards exist).
- Policy F.7 Continue to permit and encourage a mix of residential, neighborhood-serving retail, and job-producing land uses, as long as there is neighborhood compatibility and no unavoidable environmental impacts.

3.2.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Primary sources of demographic data for the analysis of population and housing impacts are Association of Bay Area Governments (ABAG) projections, California Department of Finance, and City of Sunnyvale. Population and housing impacts were evaluated in the context of applicable General Plan policies, Housing Element, and goals and policies proposed in the LSAP.

Proposed LSAP Policies

The analysis in this section assumes implementation of the following policies proposed in the LSAP:

- LU-P4 Establish appropriate levels of development for employment and residential uses to ensure a balance exists in the plan area. The City Council should review the thresholds for each use type as redevelopment occurs to ensure a balance remains.
- H-P1 Encourage a diverse mix of housing types, including ownership, rental, affordable, and housing for seniors.
- H-P2 Prioritize the provision of affordable housing in the Lawrence Station area.

3.2 POPULATION AND HOUSING

STANDARDS OF SIGNIFICANCE

This analysis evaluates the proposed project's impacts on population and housing based on the standards of significance identified in the State CEQA Guidelines Appendix G. A population and housing impact is considered significant if implementation of the project would:

- 1) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- 2) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
- 3) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Population growth is considered substantial if it is unplanned for or unanticipated by the General Plan.

PROJECT IMPACTS AND MITIGATION MEASURES

Population Growth (Standard of Significance 1)

Impact 3.2.1 Subsequent projects developed under the LSAP would increase the number of housing units in the plan area by approximately 2,300 and would increase non-residential office/R&D/industrial square footage by 1.2 million square feet. This is considered a **less than significant** impact.

Build out of residential units under the LSAP could increase the population in the plan area by approximately 5,600 people. With the addition of LSAP population, the City's population under the current General Plan build-out would be 161,099 (**Table 3.2-3**), which slightly exceeds, but would still be in the general range of current planning assumptions. As indicated in the LSAP, redevelopment of individual parcels would occur incrementally and would be market-driven. The LSAP growth is assumed in the overall growth anticipated in the proposed Draft LUTE.

**TABLE 3.2-3
POPULATION AND HOUSING PROJECTIONS**

	Existing (2014) Conditions	LSAP (Net Increase)	Existing Plus LSAP	Current General Plan Build-Out Projections ¹
Population	147,055	5,622	152,677	161,099
Housing Units	57,000	2,323	59,323	66,570

Source: City of Sunnyvale 2015; Table 3.0-1 this Draft EIR.

¹ Growth projections by the City assume that the persons per unit average for the City at build out would decrease to 2.42 persons per unit.

The LSAP provides for approximately 1.2 million square feet of additional office/R&D/industrial uses, as compared to 150,000 square feet of growth anticipated under the current General Plan. This would further increase employment opportunities in the City. Some of the new jobs would likely be filled by those already residing in the City and the surrounding area where commute times and

distances are relatively short. However, for those wishing to relocate into the City, the potential increase in housing demand in the City and the plan area, specifically, could be accommodated by the new residential units. The physical environmental effects of this growth are addressed in this Draft EIR.

Therefore, the LSAP would not substantially or indirectly induce population growth beyond current General Plan growth assumptions, and the impact would be **less than significant**.

Mitigation Measures

None required.

Displacement of a Substantial Number of Persons or Housing (Standards of Significance 2 and 3)

Impact 3.2.2 Subsequent projects developed under the LSAP would not result in the displacement of housing or persons. There would be **no impact**.

The proposed land use changes anticipated as part of the project support the development of increased densities and intensities of mixed uses, affordable housing, and transit-oriented development, which would increase housing supply in the City. The introduction of new land use designations that would allow a broad and flexible mix of land uses would support both residential and commercial growth, and would provide a wider range of housing choices to complement Sunnyvale's existing range of residential densities. The proposed areas for new residential development are in locations that contain non-residential uses. As such, projects developed under the LSAP would not displace housing. Further, new units developed within the current housing element cycle (2015-2023) would meet a portion of the City's RHNA allocation.

The LSAP addresses also affordable housing through LSAP policies H-P1, H-P2, and H-P3. Further, the LSAP also includes an "Anti-Displacement" component. As stated in the LSAP, to avoid displacement of lower-income residents, no upzoning or increases in allowable densities on site currently occupied by housing would occur. Retaining existing density allowances would minimize the financial incentive to demolish and replace existing units to achieve higher property values, thus minimizing the concern that existing residents would be physically displaced by new development.

Because subsequent projects that could be developed under the LSAP would not displace substantial numbers of housing units or people and would not necessitate the construction of replacement housing elsewhere, there would be **no impact**.

Mitigation Measures

None required.

3.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for population and housing impacts of the LSAP is the year 2035 planning horizon for the City of Sunnyvale, which includes cumulative development associated with the LSAP, Peery Park Specific Plan, and the proposed Land Use and Transportation Element update (LUTE).

3.2 POPULATION AND HOUSING

Plan Bay Area is a long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. On July 18, 2013, the Association of Bay Area Governments (ABAG) Executive Board and the Metropolitan Transportation Commission (MTC) jointly approved the plan. The plan includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan and represents the next iteration of a planning process that has been in place for decades. Park Specific Plan, and the proposed Land Use and Transportation Element update (LUTE).

Land Use and Transportation Element Update

The City is proposing to update the Land Use and Transportation Element (LUTE) of the General Plan, which assumes a 2035 planning horizon. It was developed to help guide the City's land use and transportation decisions for an approximate 20-year horizon—a timeframe referred to as Horizon 2035.

A Draft EIR is being prepared for the draft LUTE. Although the draft LUTE has not yet been approved, the population and housing associated with 2035 is appropriate for use this cumulative analysis because its growth assumptions account for additional mixed-use residential/commercial growth in key transit-oriented areas and in transformed village centers, and the LSAP is a component of that projected growth.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Population and Housing Increases

Impact 3.2.3 Cumulative development in Sunnyvale, including the LSAP, would result in a cumulative increase in population and housing growth in Sunnyvale. The proposed project's contribution would be **less than cumulatively considerable**.

Cumulative development through 2035 (assumed build-out of the City) is projected to increase the number of housing units by approximately 15,000 units, for a total of 72,160 units and increase the population in Sunnyvale by 27,876, for a total population of approximately 174,600. Full build-out of the LSAP would represent approximately 20% of the anticipated cumulative population increase and approximately 3.2% of new housing units and has been planned for in the proposed Draft LUTE.

**TABLE 3.2-4
CUMULATIVE POPULATION AND HOUSING PROJECTIONS**

	Existing (2014) Conditions	Horizon 2035 Projections	Net Change (2014 to 2035)	LSAP Contribution (Net Increase in Plan Area)
Population	147,055	174,600	27,545	5,622
Housing Units	57,000	72,180	15,180	2,323

Source: City of Sunnyvale 2015

Mitigation Measures

None required.

Cumulative Displacement of People or Housing

Impact 3.2.4 Cumulative development could result in displacement of substantial numbers of housing or persons, but the LSAP does not include proposed changes in land use or zoning that would directly or indirectly result in such displacement. This impact is **less than cumulatively considerable**.

As noted in Impact 3.2.2, the project would not result in the displacement of people or housing in Sunnyvale. Although the project would focus growth in already urbanized areas, the project would preserve existing housing and would accommodate future residential growth only in areas currently used for commercial/industrial uses. Therefore, the project would have **no cumulative impact** on housing and population displacement.

Mitigation Measures

None required.

3.2 POPULATION AND HOUSING

REFERENCES

ABAG (Association of Bay Area Governments). 2014. Bay Area Plan Projections 2013. Data for Bay Area Housing Elements Workbook.

DOF (California Department of Finance, Demographic Research Unit). 2015. *Report E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011–2015 with 2010 Census Benchmark*. Table 2: E-5 City/County Population and Housing Estimates, 1/1/2015.

City of Sunnyvale. 2014. Housing Element of the General Plan January 31, 2015 – January 31, 2023. Adopted December 16, 2014.

____. 2015. Reissued Notice of Preparation for the Land Use and Transportation Element Update. May 22, 2015.

3.3 HAZARDS AND HUMAN HEALTH

3.3 HAZARDS AND HUMAN HEALTH

This section provides information on safety hazards in the plan, analyzes the potential for the proposed project to create hazards to public health or the environment related to hazardous materials, emergency access, airport hazards, and wildland fire. For information about toxic air contaminants, please refer to Section 3.5, Air Quality.

A summary of the impact conclusions for hazards and human health is provided below.

Impact Number	Impact Topic	Impact Significance
3.3.1	Routine Transportation, Use, and Disposal of Hazardous Materials	Less than significant
3.3.2	Accidental Release and Exposure to Hazardous Materials	Less than significant
3.3.3	Contaminated Sites	Less than significant with mitigation
3.3.4	Hazardous Emissions Near Schools	Less than significant
3.3.5	Emergency Response and Evacuation Plans During Construction	Less than significant with mitigation
3.3.6	Emergency Response and Evacuation Plans During Occupancy/Operation	Less than significant
3.3.7	Cumulative Hazardous Materials	Less than cumulatively considerable
3.3.8	Cumulative Emergency Response and Evacuation Plans	Less than cumulatively considerable

3.3.1 EXISTING SETTING

HAZARDOUS MATERIALS AND WASTE DEFINED

Under Title 22 of the California Code of Regulations (CCR), the term *hazardous substance* refers to both hazardous materials and hazardous wastes and both are classified according to four properties: toxicity, ignitability, corrosiveness, and reactivity (CCR Title 22, Chapter 11, Article 3). A hazardous material is defined as a substance or combination of substances that may cause or significantly contribute to an increase in serious, irreversible, or incapacitating illness or may pose a substantial presence or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Public health is potentially at risk whenever hazardous materials are or will be used. It is necessary to differentiate between the hazard of these materials and the acceptability of the risk they pose to human health and the environment. A hazard is any situation that has the potential to cause damage to human health and the environment. The risk to health and public safety is determined by the probability of exposure, in addition to the inherent toxicity of a material (DTSC 2013a).

Factors that can influence the health effects when human beings are exposed to hazardous materials include the dose the person is exposed to, the frequency of exposure, the duration of exposure, the exposure pathway (route by which a chemical enters a person's body), and the individual's unique biological susceptibility.

Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been discarded, discharged, spilled, or contaminated or are being stored until they can be disposed of properly (CCR Title 22, Chapter 11, Article 2, Section 66261.10). Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific

3.3 HAZARDS AND HUMAN HEALTH

CCR Title 22 criteria. While hazardous substances are regulated by multiple agencies, as described in the Regulatory Framework subsection below, cleanup requirements of hazardous wastes are determined on a case-by-case basis according to the agency with lead jurisdiction over the project.

HAZARDOUS MATERIALS USE, STORAGE, AND TRANSPORTATION AND WASTE GENERATION IN THE PLAN AREA

A search of EPA's EnviroFacts database indicates there are 16 facilities in the plan area that use generate hazardous waste as result of hazardous materials use in their operations. These facilities include R&D, laboratory, and retail uses. The list of facilities included in Appendix B.

LIST OF HAZARDOUS MATERIALS SITES COMPILED PURSUANT TO GOVERNMENT CODE SECTION 65962.5

Government Code Section 65962.5 requires compilation of a list of hazardous waste and substances sites to be used as a planning document by state and local agencies and developers to comply with the CEQA requirements in providing information about the location of hazardous materials release sites. This list is commonly known as the Cortese List. A search of the EnviroStor database, maintained by the California Department of Toxic Substances Control, and the GeoTracker database, maintained by the State Water Resources Control Board, identified 16 sites within the plan area. The list of sites is included in **Appendix B**. Most of the sites (10) are associated with leaking underground fuel tanks, and those cases have been closed.

UNDERGROUND STORAGE TANKS

There are four underground fuel storage tanks permitted by the City of Sunnyvale within the plan area. All are located in areas currently designated for and containing industrial/R&D uses and at the Costco retail store location.

HAZARDOUS BUILDING MATERIALS

Much of the area west of Lawrence Expressway north of the Caltrain tracks and eastern areas of the plan area east of the Lawrence Expressway north of the tracks contains buildings that were constructed during the 1950s through 1970s (City of Sunnyvale 2015: Figure 1.4). Depending on the specific age of each building and whether there have been renovations during the time they have been occupied, they may have asbestos-containing materials or lead-based paints, and electrical components or fixtures within the buildings could contain polychlorinated biphenyl (PCB) because such materials were widely used prior to prohibitions on them beginning in the early 1970s. Prior to restrictions on disposal of hazardous waste, sink traps and plumbing lines could contain hazardous materials such as mercury from broken thermometers.

Asbestos, a naturally-occurring fibrous material, was used as a fireproofing and insulating agent in building construction before such uses were banned by EPA in the 1970s. Because it was widely used prior to the discovery of its health effects, asbestos can be found in a variety of building materials and components including sprayed-on acoustic ceiling materials, thermal insulation, walls and ceiling texture, floor tiles, and pipe insulation. Friable (easily crumbled) materials are particularly hazardous because inhalation of airborne fibers is the primary mode of asbestos entry into the body.

NATURAL GAS PIPELINES

There is a Pacific Gas & Electric high-pressure natural gas major distribution pipeline that traverses along Lawrence Expressway through the plan area (PG&E 2015).

RADON

Radon is a colorless, odorless, tasteless radioactive gas that is a natural decay product of uranium. Uranium and radon are present in varying amounts in rocks and soil, and radon is present in background concentrations in the atmosphere. The US Environmental Protection Agency (EPA) has recommended an “action” level for indoor radon concentrations at or exceeding 4 picocuries per liter (pCi/l) of air. The EPA uses three zone designations in order to reflect the average short-term radon measurement that can be expected in a building without the implementation of radon control methods. The radon zone designation of the highest potential is Zone 1. A review of the California Statewide Radon Survey indicated that in zip code 94086, in which the plan area is located, 34 tests were conducted as part of the survey. Of the 34 tests, five had radon levels greater than 4.0 pCi/L. Sunnyvale is located in Zone 2, which by EPA standards is considered “moderate potential,” with levels of radon greater than 2.0 pCi/L but less than 4.0 pCi/L (DHS 2010; EPA 2008).

AIRPORT OPERATIONS HAZARDS

Airport-related hazards are generally associated with aircraft accidents, particularly during takeoffs and landings. Other airport operation hazards include incompatible land uses, power transmission lines, wildlife hazards (e.g., bird strikes), and tall structures that penetrate the imaginary surfaces surrounding an airport. Sunnyvale is in the landing pattern of Moffett Federal Airfield and, during south winds, planes take off over heavily developed areas. However, according to the Moffett Federal Airfield Comprehensive Land Use Plan (2012), the plan area is outside the airport’s influence area and safety zones.

WILDLAND FIRES

A wildfire is an uncontrolled fire spreading through vegetative fuels, posing danger and causing destruction to life and property. Wildfires can occur in undeveloped areas and spread to urban areas where structures and other human development are more concentrated. The plan area is almost entirely developed and is surrounded by urban development, and there is no wildland fire hazard risk.

HAZARD MITIGATION AND EMERGENCY PLANS

Sunnyvale’s 2005 Local Hazard Mitigation Plan focuses on the nine likely hazards to occur in the Bay Area. The nine hazards comprise five earthquake-related hazards—faulting, shaking, landslides, liquefaction, and tsunamis—and four weather-related hazards—flooding, landslides, wildfires, and drought. The Local Hazard Mitigation Plan continues to be examined and analyzed for future needed changes that may develop in the area of recovery.

In the event of a fire, geologic, or other hazardous occurrence, the City’s Emergency Plan provides comprehensive, detailed instructions and procedures regarding the responsibilities of City personnel and coordination with other agencies to ensure the safety of Sunnyvale citizens. US 101 and Central Expressway are major evacuation routes for the city.

3.3 HAZARDS AND HUMAN HEALTH

3.3.2 REGULATORY FRAMEWORK

FEDERAL

Several federal agencies regulate hazardous substances. These include the EPA, the Occupational Safety and Health Administration (OSHA), and the US Department of Transportation (DOT). Applicable federal regulations and guidelines are contained primarily in Titles 10, 29, 40, and 49 of the Code of Federal Regulations (CFR).

The key federal EPA laws governing the use, storage, and disposal of hazardous materials that are relevant to the proposed project are the Resources Conservation and Recovery Act (RCRA), Hazardous and Solid Waste Amendments Act (HSWA), Toxic Substances Control Act (TSCA), which address hazardous materials and wastes, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Superfund Amendments and Reauthorization Act (SARA), which address cleanup of contamination. Specific regulations for implementation of these statutes are codified in Title 40 of the CFR. Federal regulations have also been adopted regarding the removal and disposal of asbestos-containing materials and items containing PCB.

CFR Title 29, Part 1910 describes the federal Hazard Communication Standard, which requires that workers be informed of the hazards associated with the materials they handle, which includes workers at construction sites. Training in chemical work practices must include methods in the safe handling of hazardous substances, use of emergency response equipment, and an explanation of the building emergency response plan and procedures.

The transportation of hazardous materials on roadways and by rail and air is regulated by the US Department of Transportation (DOT) and the EPA. The DOT and the EPA coordinate their efforts, especially at the regional level, to obtain compliance with both RCRA and Hazardous Materials Transportation Act (HMTA) regulations. Under the authority of the RCRA, the EPA regulates the transportation of hazardous materials. The EPA coordinates its transportation ordinances with the requirements of the HMTA and any statutes promulgated by the DOT pursuant to the HMTA.

Resource Conservation and Recovery Act (42 USC Section 6901 et seq.)

The Resource Conservation and Recovery Act (RCRA) gives the USEPA the authority to control hazardous waste from “cradle to grave,” including the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA also sets forth a framework for the management of nonhazardous solid wastes.

The federal Hazardous and Solid Waste Amendments are the 1984 amendments to the RCRA that focus on waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. Some of the other mandates of this law include increased enforcement authority for the USEPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program (USEPA 2012a).

Comprehensive Environmental Response, Compensation, and Liability Act (42 USC Section 9601 et seq.)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides a federal “superfund” to clean uncontrolled or abandoned hazardous waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through CERCLA, the USEPA identifies parties responsible for any release and ensures their participation in the cleanup.

The USEPA is authorized to implement CERCLA in all 50 states and in US territories, though Superfund site identification, monitoring, and response activities are coordinated through the state environmental protection or waste management agencies. The Superfund Amendments and Reauthorization Act of 1986 reauthorized CERCLA to continue cleanup activities around the country and included several site-specific amendments, definition clarifications, and technical requirements (USEPA 2012a).

Occupational and Safety Health Act (29 USC Section 651 et seq.)

The Occupational and Safety Health Act is intended to ensure worker and workplace safety by requiring that employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. The Occupational Safety and Health Administration (OSHA) is a division of the United States Department of Labor that oversees the administration of the act and enforces standards in all 50 states.

Toxic Substances Control Act (15 USC Section 2601 et seq.)

The Toxic Substances Control Act (TSCA) provides the USEPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. The TSCA addresses the production, importation, use, and disposal of specific chemicals, including polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint (USEPA 2012a).

Various sections of the TSCA provide authority to:

- Require, under Section 5, pre-manufacture notification for “new chemical substances” before manufacture.
- Require, under Section 4, testing of chemicals by manufacturers, importers, and processors where risks or exposures of concern are found.
- Issue Significant New Use Rules, under Section 5, when it identifies a “significant new use” that could result in exposures to, or releases of, a substance of concern.
- Maintain the TSCA Inventory, under Section 8, which contains more than 83,000 chemicals. As new chemicals are commercially manufactured or imported, they are placed on the list.
- Require those importing or exporting chemicals, under Sections 12(b) and 13, to comply with certification reporting and/or other requirements.
- Require, under Section 8, reporting and recordkeeping by persons who manufacture, import, process, and/or distribute chemical substances in commerce.
- Require, under Section 8(e), that any person who manufactures (including imports), processes, or distributes in commerce a chemical substance or mixture and who obtains information which reasonably supports the conclusion that such substance or mixture presents a substantial risk of injury to health or the environment to immediately inform the USEPA, except where the USEPA has been adequately informed of such information.

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Federal Hazardous Materials Transportation Law and Hazardous Materials Regulations (49 USC Section 5101 et seq.)

The federal hazardous materials (hazmat) transportation law is the basic statute regulating hazardous materials transportation in the United States. Section 5101 of the federal hazmat law states that the purpose of the law is to protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce.

The Hazardous Materials Regulations are administered by the Pipeline and Hazardous Material Safety Administration (PHMSA) and implement the federal hazmat law. The Hazardous Materials Regulations govern the transportation of hazardous materials via highway, rail, vessel, and air by addressing hazardous materials classification, packaging, hazard communication, emergency response information, and training. They also issue procedural regulations, including provisions on registration and public sector training and planning grants (49 CFR Parts 105, 106, 107, and 110). The PHMSA issues the Hazardous Materials Regulations (PHMSA 2012).

The Federal Motor Carrier Safety Administration (FMCSA) issues regulations concerning highway routing of hazardous materials, hazardous materials endorsements for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials.

STATE

Hazardous Materials and Waste Management

The primary state laws pertaining to hazardous materials and wastes that may be applicable to the proposed project, depending on the activity, include the Hazardous Waste Control Law, Hazardous Substances Information and Training Act, Air Toxics Hot Spots and Emissions Inventory Law, Underground Storage of Hazardous Substances Act, and Porter-Cologne Water Quality Control Act.

At the state level, the California Environmental Protection Agency (CalEPA) is the "umbrella" agency under which a number of the state's environmental agencies operate. These subordinate agencies include the California Air Resources Board, the Department of Pesticide Regulation, the Department of Toxic Substances Control, the California Department of Resources Recycling and Recovery (CalRecycle), the Office of Environmental Health Hazard Assessment, and the State Water Resources Control Board.

Within the CalEPA, the DTSC has primary regulatory responsibility for hazardous waste management. The Cal/EPA has adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program is implemented at the local level by a local agency—the Certified Unified Program Agency (CUPA). The City of Sunnyvale Department of Public Safety is the CUPA. Assembly Bill 2286 requires all businesses handling regulated quantities of hazardous material to electronically report inventories and site maps to the local jurisdiction. The City is required to report hazardous materials inventories and compliance inspection data to the state.

The California Highway Patrol, the California Department of Transportation (Caltrans), and the DTSC implement and enforce state and federal laws regarding hazardous materials transportation.

Certain projects are required to comply with the National Pollutant Discharge Elimination System (NPDES) general construction permit to manage stormwater runoff (see Section 3.8, Hydrology and Water Quality). This permit requires a stormwater pollution prevention plan (SWPPP) that identifies best management practices (BMPs) for the handling of fuels and oils, including measures to minimize the potential for spills. Implementation of these BMPs is intended to minimize the potential for accidental spills on construction sites by requiring the designation of safe, covered storage areas for such materials as well as safe handling practices.

Contaminated Sites Remediation

The DTSC and the Regional Water Quality Control Board (RWQCB) are the two primary agencies for issues pertaining to sites where hazardous materials have resulted in environmental contamination (e.g., soil and groundwater). The San Francisco Bay RWQCB (SFBRWQCB) is the regional authority for water quality. Local jurisdictions, such as the City of Sunnyvale and Santa Clara County, may also be involved in site remediation projects, such as leaking underground storage tanks. These agencies implement a regulatory process to address the release of hazardous materials that could be harmful to public health and the environment.

Asbestos-Containing Materials, Lead-Based Paint, PCB, and Mercury

Federal and state asbestos regulations prohibit emissions of asbestos from demolition or construction activities, among others; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos-containing building materials. The Bay Area Air Quality Management District (BAAQMD) and Cal/OSHA are the agencies with primary responsibility for enforcement of asbestos regulations. Cal/OSHA required that a qualified contractor licensed to handle asbestos materials handle any material containing more than 0.1% asbestos by weight.

Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils around buildings and structures painted with lead-based paint. In 1978, the federal government required the reduction of lead in house paint to less than 0.06%. However, some paints manufactured after 1978 for industrial or marine uses legally contain more than 0.06% lead. Cal/OSHA standards establish a maximum safe exposure level for types of construction work where lead exposure may occur, including demolition of structures where lead-based paint is present; removal or encapsulation of materials containing lead; and new construction, alteration, repair, or renovation of structures with materials containing lead. Inspection, testing, and removing lead-containing building materials must be performed by State-certified contractors who are required to comply with applicable health and safety and hazardous waste regulations.

The DTSC has classified polychlorinated biphenyl as a hazardous waste at certain concentrations. Electrical transformers and fluorescent light ballasts may contain PCB, and if so, they are regulated as hazardous waste. Most ballasts manufactured since 1978 do not contain PCB and are required to have a label indicating that PCB is not present. Pre-1978 ballasts, switches, and thermostats may also contain elemental mercury, which is considered a hazardous waste when disposed. The federal Toxic Substance Control Act establishes procedures and standards for cleanup of PCB releases.

Spent fluorescent light tubes, thermostats, and other electrical equipment contain heavy metals that, if disposed of in landfills, can leach into soil or groundwater. Fluorescent light tubes typically contain concentrations of mercury that may exceed regulatory thresholds for hazardous waste and therefore must be managed in accordance with hazardous waste regulations. Elemental

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mercury can be found in many electrical switches, and when disposed of, such mercury is considered hazardous waste.

LOCAL

City of Sunnyvale General Plan

The Safety and Noise Chapter of the General Plan contains the following policy that is relevant to the analysis of hazardous materials impacts of the LSAP:

Policy SN-1.5 Promote a living and working environment safe from exposure to hazardous materials.

City of Sunnyvale Municipal Code

Title 20 of the City of Sunnyvale Municipal Code contains hazardous material regulations adopted to safeguard life and property arising from the storage, handling, and use of hazardous substances, materials, and devices, and from conditions hazardous to life or property in the use or occupancy of buildings or structures. The Municipal Code requires permits for certain hazardous activities and operations and inspections to determine whether such activities or operations can be conducted in a manner that complies with the state's hazardous materials regulations.

City of Sunnyvale Department of Public Safety

The City's Department of Public Safety conducts inspections of hazardous materials facilities and to review and certify risk management plans to prevent accidental releases of hazardous materials. The City also maintains a hazardous materials response team, which is specially trained and equipped to mitigate emergencies that result in hazardous materials spills, releases, and discharges.

City of Sunnyvale Local Hazard Mitigation Plan

Sunnyvale's 2005 Local Hazard Mitigation Plan focuses on the nine likely hazards to occur in the Bay Area. The nine hazards comprise five earthquake-related hazards—faulting, shaking, landslides, liquefaction, and tsunamis—and four weather-related hazards—flooding, landslides, wildfires, and drought. The Local Hazard Mitigation Plan continues to be examined and analyzed for future needed changes that may develop in the area of recovery.

3.3.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following qualitative impact analysis is based on a review of hazardous materials and waste databases maintained by local, state, and federal agencies, information and proposed land use assumptions in the LSAP, and applicable laws and regulations.

STANDARDS OF SIGNIFICANCE

This analysis evaluates the project's impacts from hazards to human health and hazardous materials based on the standards identified in State CEQA Guidelines Appendix G. The City has determined that a hazards and hazardous materials impact is considered significant if implementation of the project would:

- 1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- 2) 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.
- 3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- 4) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.
- 5) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.
- 6) For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.
- 7) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- 8) 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.

The plan area is outside the Mather Federal Airfield's influence area and safety zones. There are no private airstrips in the vicinity of the plan area. There would be no impact relative to standards of significance 5 and 6, and impacts related to airport hazards are not evaluated.

There are no Fire Hazard Severity Zones or state responsibility areas or Very High Fire Hazard Severity Zones for local responsibility areas within or adjacent to Sunnyvale (Cal-Fire 2012). There would be no impact relative to standard of significance 8, impacts related to wildland fire hazard are not evaluated.

PROJECT IMPACTS AND MITIGATION MEASURES

Transportation, Use, and Disposal of Hazardous Materials (Standard of Significance 1)

Impact 3.3.1 Subsequent projects developed under the LSAP would allow for land uses that would involve the routine use, transport, and disposal of hazardous materials in the plan area. This impact is considered **less than significant**.

Hazardous materials are routinely used, stored, and transported in the plan area in the businesses north of the Caltrain tracks, and such use is expected to continue. Implementation of the proposed LSAP would allow for land uses that routinely store, use, and transport hazardous materials, including industrial uses and certain commercial uses (e.g., gas stations, dry cleaners, medical facilities). LSAP goal LU-G2 provides that existing uses in the plan area may remain as legal, conforming uses with the ability to grow and expand, but that such uses would be discouraged from using hazardous materials in their operation, especially when located adjacent to residential uses. New

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development or redevelopment that involves construction, demolition, and landscaping activities could also result in the transport, use, and disposal of hazardous materials such as gasoline, fuels, demolition materials, asphalt, lubricants, toxic solvents, pesticides, and herbicides. The transport, use, and disposal of these materials could pose a potential hazard to the public and the environment.

The transport, use, and storage of hazardous materials by any development or redevelopment associated with the proposed LSAP would be required to comply with all applicable local, state, and federal regulations during construction and operations described above in sub-section 3.3.2 (Regulatory Framework). Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. The City's Department of Public Safety is the CUPA for Sunnyvale and is responsible for consolidating, coordinating, and making consistent the administrative requirements, permits, inspections, and enforcement activities of state standards regarding the transportation, use, and disposal of hazardous materials in the plan area, as discussed in the Regulatory Framework subsection above.

Continued compliance with all federal, state, and local regulations related to the transport, use, and disposal of hazardous materials would reduce this impact to a level that is **less than significant**.

Mitigation Measures

None required

Accidental Release and Exposure to Hazardous Materials (Standard of Significance 2)

Impact 3.3.2 Subsequent projects developed under the LSAP would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. This is a **less than significant impact**.

As described under Impact 3.3.1, subsequent projects could involve the transportation, use, and disposal of hazardous materials in the plan area. These activities could result in the accidental release of hazardous materials into the environment and exposure of the public to hazardous materials. Redevelopment activities associated with the proposed LSAP could result in exposure to hazardous materials that may be contained in building features. There is the potential for soil and/or groundwater contamination, particularly in the area north of the Caltrain tracks where land uses have been dominated by industrial activities.

As discussed under Impact 3.3.1, the transport, storage, and use of hazardous materials by developers, contractors, business owners, residents, and others are required to be in compliance with local, state, and federal regulations during project construction and operation described above in sub-section 3.3.2 (Regulatory Framework). Furthermore, facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. As the LSAP is implemented, it is anticipated there would not be a substantial increase in the number of facilities or types of activities involving the use of hazardous materials compared to existing conditions, and the LSAP does not designate land for new heavy industrial or manufacturing. However, if there are new or expanded industrial or commercial uses and they would involve the use of hazardous materials, the facilities would be required, as necessary based on the City's regulations, to obtain a permit, which would involve the preparation of a Hazardous Materials Business Plan including a material inventory list and emergency response plan. This would minimize the potential for accidental releases from new uses.

Demolition activities within the plan area would be required to comply with Bay Area Air Quality Management Regulation 11, Rule 2, *Asbestos Demolition, Renovation and Manufacturing*, which requires removal of asbestos containing materials prior to demolition in accordance with safety standards to ensure worker and public safety, and Cal/OSHA regulations. In addition, the removal or renovation of structures with lead-based paint or those that may have PCB-containing equipment would also be required to comply with applicable laws and regulations to minimize the potential for accidental release to the environment or improper disposal or transport.

Compliance with all federal, state, and local regulations related to the transport, use, and disposal of hazardous materials would reduce this impact to a level that is **less than significant**.

Mitigation Measures

None required

Hazardous Materials Contaminated Sites (Standards of Significance 2 and 4)

Impact 3.3.3 Subsequent projects developed under the LSAP could encounter contaminated soil, soil vapors, or groundwater, which may pose a human health or environmental risk. This is a **potentially significant impact**.

The plan area is almost completely built out, with the exception of an approximately 8-acre area (Corn Palace) in the Southern Residential subarea. Based on the database review, there are sites included on the Cortese list, but most of the known hazardous materials release sites in the plan area have been closed. However, not all potential development locations in the plan area have been evaluated, particularly north of the Caltrain tracks where the predominant land use is industrial, and at the existing Calstone/Peninsula Building Materials operation. In addition, there are underground tanks in the plan area, and there may be sources of groundwater contamination from offsite sources that have migrated under the plan area. At the vacant Corn Palace location, a Phase I environmental site assessment for the adjacent residential project constructed on the then-agricultural parcel to the west included soil testing. No evidence of environmental impairment was found at that location (City of Sunnyvale 2011).

In the developed areas containing non-residential uses, the public could be inadvertently exposed to hazardous materials if new development or redevelopment were located on a current or historical hazardous material site where ground disturbance could occur and if contaminants are present in underlying soil or groundwater. The disturbance of contaminated soil could pose a risk to construction workers through direct contact, inhalation of dust, or vapors emanating from soil contaminants. The general public could be exposed to dust that may contain contaminants. Because groundwater is shallow, it is anticipated that installation of footings and foundations for buildings that may be as tall as 100 feet may require dewatering, either temporarily during construction, or permanently if there are subterranean building features. As such, there is the potential for contaminated groundwater to be present. Improper handling of contaminated groundwater could pose human health and environmental risks. Soil vapors with contaminants could enter subterranean features such as enclosed parking or basements, and soil vapors could also migrate into overlying occupied spaces, where they could pose an inhalation hazard. This is a **potentially significant impact**.

3.3 HAZARDS AND HUMAN HEALTH

Mitigation Measures

MM 3.3.3

The City shall require a Phase I Environmental Site Assessment (ESA) prepared and submitted with any application for new development or redevelopment in any LSAP subarea north of the Caltrain tracks, the Peninsula subarea, the Lawrence/Reed/Willow subarea, or the Corn Palace property. The Phase I ESA shall be prepared by a qualified professional registered in California and in accordance with ASTM E1527-13 (or the most current version at the time a development application is submitted for the project).

If determined necessary by the Phase I ESA, a Phase II ESA shall be conducted to determine the lateral and vertical extent of soil, groundwater, and/or soil vapor contamination, as recommended by the Phase I ESA.

The City shall not issue a building permit for a site where contamination has been identified until remediation or effective site management controls appropriate for the use of the site have been completed consistent with applicable regulations and to the satisfaction of the City of Sunnyvale, DTSC, or SFBRWQCB (as appropriate) prior to initiation of construction activities. Deed restrictions, if appropriate, shall be recorded.

If temporary dewatering is required during construction or if permanent dewatering is required for subterranean features, the City shall not issue an improvement permit or building permit until documentation has been provided to the City that the Water Pollution Control Permit has approved the discharge to the sewer. Discharge of any groundwater removed from a construction site in any LSAP subarea north of the Caltrain tracks, the Peninsula subarea, the Lawrence/Reed/Willow subarea, or the Corn Palace property to the El Camino Storm Drain Channel, Calabazas Creek, or storm drain shall be prohibited. The City shall ensure all plans and permits state this prohibition.

If the Phase I ESA determines there are no recognized environmental conditions (RECs), no further action is required. However, the City shall ensure any grading or improvement plan or building permit includes a statement if hazardous materials contamination is discovered or suspected during construction activities, all work shall stop immediately until a qualified professional has determined an appropriate course of action.

Timing/Implementation: At the time of application

Enforcement/Monitoring: City of Sunnyvale Community Development Department

Implementation of mitigation measure **MM 3.3.3** would reduce the potential for hazardous materials contamination to pose a human health or environmental hazard during construction and occupancy. With this measure and compliance with applicable hazardous material regulations, this impact would be reduced to a level that is **less than significant**.

Hazardous Emissions Near Schools (Standard of Significance 3)

Impact 3.3.4 Subsequent projects developed under the LSAP could involve the use, transport, disposal, and/or release of hazardous materials within one-quarter mile of an existing school site. This impact would be **less than significant**.

CEQA Guidelines Section 15186 requires consideration of projects within one-quarter mile of a school to ensure that potential health impacts resulting from exposure to hazardous materials, wastes, and substances are evaluated.

There are no public schools within the plan area. There is one daycare (Tulip Kids Academy) in an existing residential neighborhood in the plan area (the Southern Residential subarea). Santa Clara Christian School, Monticello Academy, Sunshine Day Care, and Wilcox High School are located east of Lawrence Expressway outside the plan area but are within one-quarter mile of the proposed Transit Core East and Office/R&D East subareas. Ponderosa Elementary School is within one-quarter mile of the Southern Residential subarea. No new school sites are proposed as part of the LSAP.

As described under Impacts 3.3.1 and 3.3.2, subsequent projects could involve increased storage, use, and transport of hazardous materials in the plan area, including during demolition and construction activities as well as operation. However, the proposed land use designation changes are intended to facilitate mixed-use development with primarily residential and office/R&D uses, which would not be a source of hazardous emissions. Individual development projects would be required to comply with all federal, state, and local regulations related to the transport, use, and disposal of hazardous materials, which would be monitored and enforced by the City. If hazardous building materials or contamination is discovered at a development site, potential emissions from contaminated dust (which would be the primary pathway for exposure) would be controlled through adherence to existing regulations and site control measures. This would minimize the potential for hazardous emissions that could affect existing schools. This impact would be **less than significant**.

Mitigation Measure

None required

Emergency Response and Evacuation Plans (Standard of Significance 7)

Impact 3.3.5 Construction of subsequent projects developed under the LSAP could temporarily interfere with emergency response or evacuation plans. This is a **potentially significant impact**.

Construction activities for individual projects could temporarily affect operating conditions on these roadways from movement of heavy equipment, worker vehicle parking, and materials delivery and storage, depending on the locations. Connection of a development site to water, wastewater, and storm drain lines could involve work within the roadway itself. The LSAP also proposes roadway improvements such as The Loop, the Kifer Road road diet, and secondary street improvements along existing roadways. These activities may result in the need for temporary traffic lane closures or narrowing, which could affect emergency response or evacuation routes. This is a **potentially significant impact**.

3.3 HAZARDS AND HUMAN HEALTH

Mitigation Measure

MM 3.3.5 Prior to issuance of a permit for a specific development project or prior to approving a City-initiated roadway improvement identified in the LSAP, the City shall determine whether project construction activities have the potential to affect traffic conditions on roadways as a result of construction of the development project or roadway improvement(s). If there is the potential the activities could impair or inhibit emergency response or evacuation, a Construction Traffic Control Plan shall be prepared for City review and approval. The plan shall include, but not be limited to, schedule of construction and anticipated methods of handling traffic for each phase of construction to ensure the safe flow of traffic and adequate emergency access, including maintaining an open lane for vehicle travel at all times. All traffic control measures shall conform to City of Sunnyvale, Santa Clara County, and/or Caltrans standards, as applicable. The City shall ensure final approved plans for private development projects specify the requirement, as appropriate, to implement the construction traffic control plan.

Timing/Implementation: Prior to building permit issuance for private development; prior to issuance of construction documents for City projects

Enforcement/Monitoring : City of Sunnyvale Department of Public Safety

Implementation of mitigation measure **MM 3.3.5** would reduce the impact to **less than significant**.

Impact 3.3.6 Occupancy and activities associated with subsequent projects developed under the LSAP would not interfere with adopted emergency response and evacuation plans. This impact would be **less than significant**.

The City of Sunnyvale Emergency Plan specifies actions for the coordination of operations, management, and resources during emergencies. While the LSAP proposes to change the plan area's land use designations north of the Caltrain tracks to facilitate higher-intensity, mixed-use development, the land uses would continue development patterns that consist of residential and office/R&D and commercial/retail uses, which is accounted for in emergency response planning. There would no increase in heavy industrial uses or manufacturing that would use hazardous materials that would pose substantial risks that would increase the need for additional emergency response or evacuation planning.

Development of subsequent projects would increase the number of people who would require evacuation in case of an emergency such as a major earthquake, fire, or other natural disaster. However, implementation of the proposed roadway connections under the LSAP such as The Loop and secondary streets would provide additional roadway connections that would offer more escape route and emergency access options compared to existing conditions. The LSAP does not propose any physical changes that would affect the City's main evacuation routes (Central Expressway and US 101) or other major roadways such as Lawrence Expressway. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required

3.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for hazards and human health risks is the 2035 planning horizon, which includes the LSAP, Perry Park Specific Plan, Land Use and Transportation Element Update, and regional growth and proposed projects identified in **Appendix I**. Most hazardous material, human health, and safety impacts as described in CEQA Appendix G are generally site-specific and not cumulative by nature, as impacts generally vary by land use, site characteristics, and site history.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Hazardous Materials Impacts

Impact 3.3.7 Cumulative development, including the LSAP, could increase the use of hazardous materials and may involve project development on contaminated sites. The project's impact would be **less than cumulatively considerable**.

Cumulative development would include continued operation of and development of new industrial uses, manufacturing, medical facilities, R&D, and public/quasi-public facilities (e.g., sanitary sewer facilities). Many of these types of development projects could increase the use of hazardous materials on a cumulative level. The LSAP does not propose an intensification of heavy industrial or manufacturing uses and, instead, focuses on increased opportunities for mixed-use development with an emphasis on residential and office/R&D uses. Such uses would not generate the use or transport of large amounts of hazardous materials. Implementation of applicable hazardous materials management laws and regulations adopted at the federal, state, and local level including but not limited to Titles 10, 29, 40, and 49 of the CFR, which address the regulation of the handling (including transportation), storage, and disposal of hazardous materials and wastes; Titles 8, 22, and 26 of the CCR, which address the handling, storage, disposal and management (including workplace safety) of hazardous materials and wastes; and, the Unified Program, which coordinates with the PCDEHS, to administer state hazardous materials management and planning, would ensure the proposed project's contribution to risk of hazardous materials releases either through routine use or upset/accident conditions would be less than cumulatively considerable.

For any cumulative projects that would involve development or redevelopment of an existing site in which soil or groundwater contamination could have occurred, the potential exists for release of hazardous materials during construction and/or remediation of those sites. In addition, demolition of older structures has the potential for generating dust and waste that could contain friable asbestos or lead-based paint. Risks are generally site-specific, and do not pose a risk to the general public because investigation and remediation projects must comply with applicable laws and regulations pertaining to site cleanup that protect both remediation workers and the general public, which are identified in site-specific cleanup plans. These regulations include Titles 29 of the CFR and 8 of the CCR, which address workplace safety, as well as Title 40, which pertains specifically to hazardous materials management. Subsequent projects that could be developed under the LSAP exclusive of the existing residential neighborhoods would be required to provide evidence to the City that if contamination is found that it is remediated and/or controlled in a manner that would not pose a risk to human health or the environment (mitigation measure MM 3.3.3). This would reduce the project's contribution to a level that would be less than cumulatively considerable.

3.3 HAZARDS AND HUMAN HEALTH

Mitigation Measures

None required

Cumulative Emergency Response/Evacuation

Impact 3.3.8 Cumulative development, including the LSAP, could affect emergency response and evacuation routes. The project's contribution would be **less than cumulatively considerable**.

Construction activities associated with cumulative development would involve the movement of heavy equipment, material deliveries, and utility work. Similar to the LSAP, these activities could result in the need for lane closures or narrowing. Such impacts tend to be localized and would be short-term and would not combine to produce a significant cumulative effect. Construction traffic control plans are typically used to mitigate potential effects. The City would ensure a Construction Traffic Control Plan is implemented when required (MM 3.3.5), which would reduce the project's contribution to a level that is **less than cumulatively considerable**.

REFERENCES

- CalEPA (California Environmental Protection Agency). 2012. Accessed October 22, 2013. <http://www.calepa.ca.gov/>.
- Cal-Fire (California Department of Forestry and Fire Protection). 2013. "Santa Clara County FHZ Map." http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_santaclara.php.
- City of Sunnyvale. 2011. *Initial Study Checklist 700 Timberpine Avenue File No. 2010-7672*.
- City of Sunnyvale. 2011. *Sunnyvale General Plan (consolidated in 2011)*.
- DHS (California Department of Health Services). 2010. *California Indoor Radon Levels Sorted by Zip Code* <http://www.cdph.ca.gov/healthinfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf>.
- DTSC (California Department of Toxic Substances Control). 2015. EnviroStor. <http://www.envirostor.dtsc.ca.gov/>.
- EPA (US Environmental Protection Agency). 2008. Map of Radon Zones. <http://www.epa.gov/radon/zonemap/california.htm>.
- EPA 2015. EnviroFacts
- PHMSA (United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration). 2013. Accessed July 9, 2013. <http://www.phmsa.dot.gov/>.
- Santa Clara County Airport Land Use Commission. 2012. *Comprehensive Land Use Plan, Santa Clara County, Moffett Federal Airfield*.
- SWRCB (California State Water Resources Control Board). 2015. Geotracker. <http://geotracker.waterboards.ca.gov/>.

3.3 HAZARDS AND HUMAN HEALTH

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3.4 TRANSPORTATION AND CIRCULATION

3.4 TRANSPORTATION AND CIRCULATION

This section evaluates traffic impacts of the LSAP on intersections, freeway facilities, bicycle, pedestrian, and transit facilities, vehicle miles traveled (VMT), and design hazards. A transportation impact analysis (TIA) was prepared for the LSAP by Hexagon Transportation Consultants, Inc. (2015) and is included in **Appendix C** in this Draft EIR. This section summarizes the analysis provided in the TIA. The reader is referred to Appendix C for the detailed analysis of transportation impacts of the LSAP.

The City received comments in response to the NOP from Caltrans, City of Cupertino, City of Santa Clara, VTA, and individuals concerning the scope of the analysis, such as intersections and freeway facilities that should be studied, and the need for mitigation, along with impacts on transit operations, pedestrian and bicycle facilities. These comments were considered during the preparation of the TIA. The California Public Utilities Commission requested that rail corridor safety be addressed.

A summary of impact conclusions is provided below.

Impact Number	Impact Topic	Impact Significance
3.4.1	Transit Facilities	Less than significant
3.4.2	Bicycle Facilities	Less than significant
3.4.3	Pedestrian Facilities	Less than significant
3.4.4	Design Hazards	Less than significant
3.4.5	Emergency Access	Less than significant
3.4.6	Traffic Operational Impacts	Significant and unavoidable

3.4.1 EXISTING SETTING

The circulation system serving Sunnyvale consists of roadways, bicycle and pedestrian facilities, public transit system, and railroad facilities. Two freeways provide regional access to the plan area, along with major roadways, which are described below.

EXISTING VEHICLE MILES TRAVELED (VMT)

Vehicle miles traveled is a metric used to measure a project's greenhouse gas emissions from mobile sources, effectiveness of the multimodal transportation networks (e.g., transit, pedestrian, and bicycle), and the diversity of land uses in an area. As further described below under "Senate Bill 743," VMT is expected to be utilized in updates to the CEQA Guidelines regarding how traffic impact analysis is conducted in environmental documents. Existing daily VMT for the City is 2,142,494 miles and 10.62 miles per capita, while the LSAP area has total VMT of 105,383 miles and 8.58 miles per capita (Table 20 of the TIA in **Appendix C**).

For the purpose of looking at additional characteristics of trip making, daily vehicles miles traveled (VMT) by trip orientation and VMT per capita were analyzed. VMT is a metric that provides an indication of the usage level of the automobile and truck transportation system within the city. A greater number of vehicle miles traveled generally means more noise and more air pollution. Daily vehicle miles traveled refers to daily trips multiplied by the trip distances. Trips were defined as all trips that begin and/or end within the LSAP study area:

- Internal-External: trips that begin within and end outside of the study area

3.4 TRANSPORTATION AND CIRCULATION

- External-Internal: trips that begin outside of and end within the study area
- Internal-Internal: trips that begin and end within the study area

For the purpose of this study, trips with both trip ends within the study area are counted as one trip, while trips with only one trip end in the study area were counted as half a trip. This is standard practice, because, for trips with an origin or destination outside of the study area, half of the “responsibility” for the trip lies outside the study area for air quality and greenhouse gas (GHG) analyses. Daily VMT data for all existing, current GP, and 2035 proposed GP scenarios were calculated using outputs from the STFM.

EXISTING ROADWAY NETWORK

Freeways

US Highway 101 (US 101) is an eight-lane freeway (three mixed-flow lanes and one HOV lane in each direction) in the vicinity of the site. US 101 extends northward through San Francisco and southward through Gilroy. Access to and from the LSAP plan area is provided via its interchanges at Fair Oaks Avenue and Lawrence Expressway.

State Route 237 (SR 237) is a four to six-lane freeway in the vicinity of the plan area that extends west to El Camino Real (Route 82) and east to I-880 in Milpitas. East of Mathilda Avenue, SR 237 has two mixed-flow lanes and one HOV lane in each direction. West of Mathilda Avenue, SR 237 has two mixed-flow lanes in each direction. SR 237 provides access to the LSAP plan area via interchanges at Lawrence Expressway and a partial-access interchange at Fair Oaks Avenue.

Major Roadways

Major roadways within or near the plan area include Sunnyvale-Saratoga Road, Fair Oaks Avenue, Wolfe Road, Lawrence Expressway, Duane Avenue, Arques Avenue, Central Expressway, Kifer Road, Evelyn Avenue, Reed Avenue/Monroe Street, and El Camino Real (SR 82). These roads are described below.

Lawrence Expressway is an eight-lane expressway with a raised median running north-south. It begins at Saratoga Avenue in the south, crosses through Sunnyvale, extends northward and transitions into Caribbean Drive. Lawrence Expressway connects with US 101 and SR 237 via full-access freeway interchanges. Lawrence Expressway extends through the center of the LSAP plan area.

Wolfe Road is a four-lane to six-lane, north-south arterial that begins north at N. Fair Oaks Avenue, and extends south into the City of Cupertino, ending at Stevens Creek Boulevard (its transition point into Miller Avenue). Wolfe Road has a raised center median. Wolfe Road has a full-access interchange with Central Expressway.

Fair Oaks Avenue is a four-lane to six-lane, north-south arterial. Fair Oaks Avenue begins at Java Drive north of SR 237 and extends southward, and transitions into Remington Drive at its junction with El Camino Real. Fair Oaks Avenue has a full-access freeway interchange with US 101 and a partial-access interchange with SR 237. North of US 101, Fair Oaks Avenue has a raised center median. North of Tasman Drive, light rail runs within the center median of Fair Oaks Avenue.

3.4 TRANSPORTATION AND CIRCULATION

Kifer Road is a four-lane roadway that begins west at Fair Oaks Avenue and extends east towards Bowers Avenue. Kifer Road has a center two-way left-turn median along the entirety of the roadway. Kifer Road provides direct access to the Greystar project. Kifer Road connects with Lawrence Expressway via a traffic signal. Kifer Road is the only major roadway north of the railroad tracks providing access to San Zeno Way and Lawrence Station Road, both of which are the only roadways north of the railroad tracks providing direct access to the Lawrence Caltrain Station. There exists a raised center median on Kifer Road at the intersections with both San Zeno Way and Lawrence Station Road, restricting access to the Lawrence Caltrain Station to only eastbound Kifer Road.

Reed Avenue/Monroe Street is a two-lane to four-lane roadway that begins west at Fair Oaks Avenue as Reed Avenue, and extends southeast towards its terminal at Tisch Way in the City of San Jose. Reed Avenue is within the City of Sunnyvale, and transitions to Monroe Street in the City of Santa Clara at its intersection with Lawrence Expressway (Sunnyvale-Santa Clara city boundary). Reed Avenue/Monroe Street has a center two-way left-turn lane that runs along the entirety of the roadway. Reed Avenue/Monroe Street intersects with Lawrence Expressway via a traffic signal. Reed Avenue/Monroe Street is the only major roadway south of the railroad tracks providing access to Willow Avenue and French Street, both of which are the only roadways south of the railroad tracks providing direct access to the Lawrence Caltrain Station. Reed Avenue intersects Willow Avenue west of Lawrence Expressway, with stop-control on Willow Avenue. All turning movements are allowed at this intersection. Monroe Street intersects French Street immediately east of Lawrence Expressway. Access to French Street is provided via the westbound channelized right-turn lane onto northbound Lawrence Expressway. French Street is a northbound-only roadway for approximately 500 feet beginning at Monroe Street, and transitions into a two-way street afterwards. The configuration of French Street will remain the same with the Irvine Company apartment project now under construction.

Central Expressway is a four-lane to six-lane expressway running east-west. In the study area, Central Expressway has two eastbound lanes and two westbound lanes. It begins at Trimble Road in the east, crosses Sunnyvale, extends westward and transitions into Alma Street. Central Expressway forms the northern boundary of the LSAP plan area, and connects to Lawrence Expressway via a square-loop interchange.

Arques Avenue is a two-lane to four-lane roadway that begins west at its terminal west of Stowell Avenue, extends east past San Tomas Expressway and transitions into Scott Boulevard. Arques Avenue connects with Central Expressway via a westbound on-ramp and an eastbound off-ramp. Arques Avenue connects with Lawrence Expressway via a traffic signal.

Evelyn Avenue is a two-lane to four-lane roadway that begins west at Castro Street in the City of Mountain View and extends east to its terminal at Reed Avenue in the City of Sunnyvale. Within the study area, Evelyn Avenue has a center two-way left-turn median that extends along the entirety of the roadway.

Duane Avenue is a two-lane to four-lane roadway that begins west of Mathilda Avenue and extends east towards Lawrence Expressway at which point it transitions into Oakmead Parkway continuing eastward. Duane Avenue connects with Lawrence Expressway via a traffic signal.

El Camino Real (SR 82) is a six-lane divided major arterial in the study area. It has a posted speed limit of 40 mph in the project study area. El Camino Real (SR 82) extends from Mission Street in Colma to The Alameda in Santa Clara. El Camino Real (SR 82) connects with Lawrence Expressway via a full interchange.

Planned Lawrence Expressway Grade Separation

In 2003, the Santa Clara County Expressway Study recommended the grade separation of Lawrence Expressway at the Reed/Monroe, Kifer Road, and Arques Street intersections. In the summer of 2013, in a follow-up study, the Lawrence Expressway Grade Separation Concept Study was initiated to consider a range of alternatives for design of the grade separation at the three intersections. Three alternative concepts were studied. In the recommended concept, Lawrence Expressway would be depressed under the three study intersections as well as Central Expressway and the Caltrain tracks. Grade separated interchanges at each of the three intersections would include median ramps from the expressway up to the cross-streets with signalized intersections.

Initial studies indicate that in the long term, grade separation of the Lawrence Expressway across the LSAP plan area will provide opportunities to reduce traffic congestion, improve east-west connectivity within the plan area, and improve access to the Lawrence Caltrain Station for all vehicles, bikes, and pedestrians.

TRAFFIC OPERATIONS

Traffic operations are traditionally measured using a qualitative measure called level of service (LOS). LOS is a general measure of traffic operating conditions whereby a letter, from A (the best) to F (the worst), is assigned. These levels of service represent the perspective of drivers and are an indication of the comfort and convenience associated with driving, as well as speed, travel time, traffic interruptions, and freedom to maneuver. Table 2 of the TIA in **Appendix C** provides the LOS definitions for intersections, and Table 3 of the TIA. The operations for intersections and freeway segments evaluated for the LSAP are described in further detail below.

Intersections

Forty-one intersections were evaluated to include locations where the LSAP is expected to generate 10 or more peak-hour trips per lane. The locations of the intersections are shown in **Figure 3.4-1**. The intersections are listed in Table 5 of the TIA in **Appendix C** along with existing intersection LOS.

Existing traffic volumes were based on traffic counts conducted between 2013 and 2015, the 2014 CMP TRAFFIC database, and Santa Clara County records for the expressways. The latest counts available at the intersections at Wolfe Road and I-280 southbound ramps, at Wolfe Road and I-280 northbound ramps, and at Lawrence Expressway ramps and El Camino Real were dated 2011. This set of counts was extrapolated to the year 2015 based on growth at nearby intersections. The existing lane configurations and AM and PM peak-hour intersection volumes are shown in **Figure 3.4-2a** and **b**.

Intersection levels of service were evaluated against the City of Sunnyvale and CMP standards. The results of the analysis show that most of the study intersections currently operate at acceptable levels during both the AM and PM peak hours, except for the following:

- Lawrence Expressway & Arques Avenue (#7) – PM Peak Hour (LOS F)
- Lawrence Expressway & Kifer Road (#8) – AM and PM Peak Hour (LOS F)
- Lawrence Expressway & Reed Avenue (#9) – AM and PM Peak Hours (LOS F)
- Lawrence Expressway & Benton Street (#27) – AM Peak Hour (LOS F)
- Lawrence Expressway & Homestead Road (#28) – AM and PM Peak Hours (LOS F)
- Lawrence Expressway & I-280 Southbound Ramps (#33) – AM Peak Hour (LOS E)



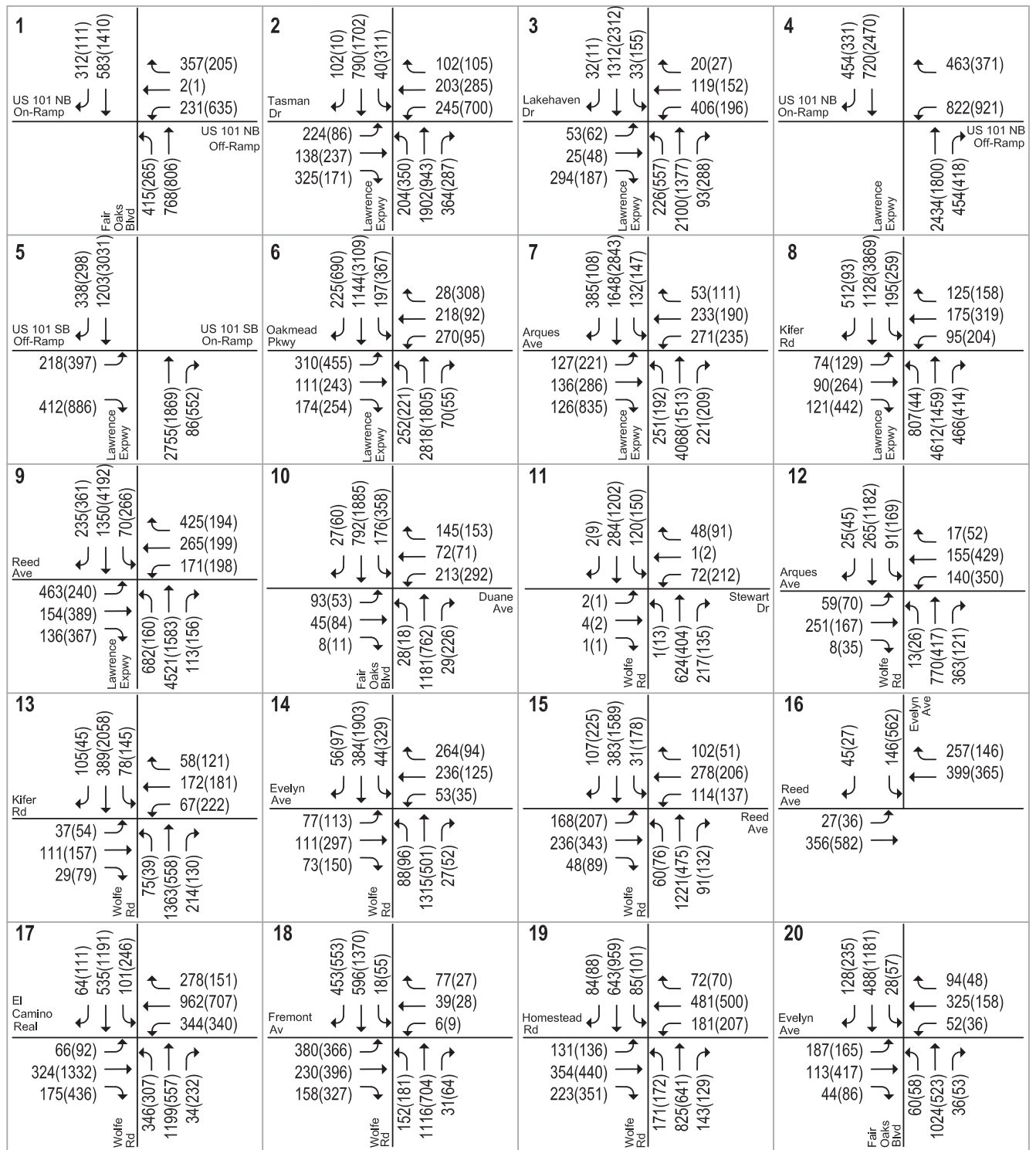
- LEGEND**
- X = Study Intersection
 - = Study Area Boundary
 - = Greystar Project Site

Source: Hexagon



Not To Scale

Figure 3.4-1
Study Intersections

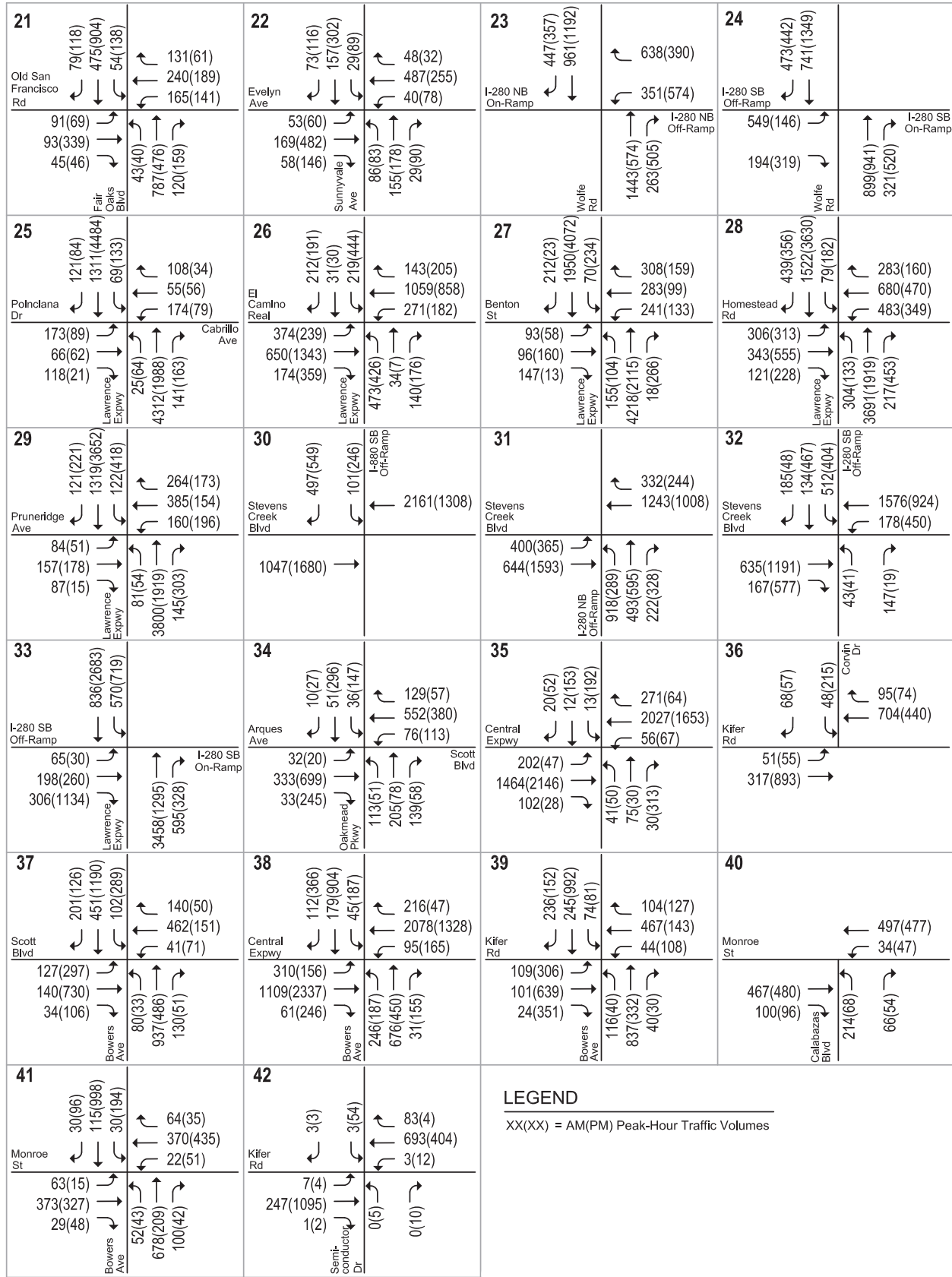


LEGEND
 XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Source: Hexagon



Figure 3.4-2a
 Existing Traffic Volumes



Source: Hexagon



Not To Scale

Figure 3.4-2b
Existing Traffic Volumes

3.4 TRANSPORTATION AND CIRCULATION

Existing weekday AM and PM peak hour traffic volumes on the two freeway segments were obtained from the 2014 CMP Annual Monitoring Report. The existing freeway levels of service during the weekday AM and PM peak hours of traffic are summarized in Table 6 of the TIA in **Appendix C**. The mixed-flow lanes on the following directional study freeway segments currently operate at LOS F during either the AM or PM peak hour:

- SR 237, eastbound from Lawrence Expressway to Great America Parkway (PM Peak Hour)
- US 101, southbound from Fair Oaks Avenue to Montague Expressway/San Tomas Expressway (PM Peak Hour)
- US 101, northbound from Montague Expressway/San Tomas Expressway to Mathilda Avenue (AM Peak Hour)
- I-280, southbound from Lawrence Expressway to Saratoga Avenue (PM Peak Hour)
- I-280, northbound from Saratoga Avenue to Lawrence Expressway (AM Peak Hour)

The HOV lanes on the following directional study freeway segments currently operate at LOS F during either the AM or PM peak hour:

- US 101, southbound from Fair Oaks Avenue to Montague Expressway/San Tomas Expressway (PM Peak Hour)
- US 101, northbound from Bowers Avenue/Great America Parkway to Lawrence Expressway (AM Peak Hour)
- I-280, northbound from Saratoga Avenue to Lawrence Expressway (AM Peak Hour)

Existing Freeway Ramp Capacity Analysis

The volume-to-capacity ratio evaluation of eight freeway ramps at the interchanges of SR 237/Lawrence Expressway, US 101/Lawrence Expressway, and US 101/Fair Oaks Avenue were evaluated to establish existing conditions. The ramp capacities were obtained from the *Highway Capacity Manual 2000*, which considers both the free-flow speed and the number of lanes on the study ramps. It was assumed that the US 101 northbound on-ramps and the SR 237 westbound on-ramps are metered during the AM peak hour, and the US 101 southbound on-ramps and the SR 237 eastbound on-ramps are metered during the PM peak hour. Ramp capacity for the metered ramps was obtained from the Ramp Management and Control Handbook published by the Federal Highway Administration. The maximum ramp meter rate of 900 vph was assumed for a single lane on-ramp. For a double lane on-ramp, the ramp meter rate of 1,600 vph was assumed. For the purpose of this study, HOV lanes are assumed to have a capacity of 900 vph regardless of ramp meters. The peak-hour freeway ramp volumes were obtained from Caltrans. Table 7 of the TIA in **Appendix C** shows the peak hour ramp volumes.

The ramp analysis showed that all freeway ramps currently have sufficient capacity to serve the existing traffic volumes. All study ramps have a volume-to-capacity (V/C) ratio that is well below 1.0, which means that the existing traffic demand is far lower than the ramp capacity.

OBSERVED EXISTING TRAFFIC CONDITIONS

Traffic conditions in the field were observed in order to identify existing operational deficiencies and to confirm the accuracy of calculated intersection levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to level of service, and (2) to identify any locations where the level of service analysis does not accurately reflect existing traffic conditions.

During the AM peak period, heavy congestion is observed on Lawrence Expressway and at the intersection of Fair Oaks Avenue and the US 101 northbound ramps. At the intersection of Lawrence Expressway and Reed Avenue/Monroe Street, northbound vehicles constantly queue past the previous intersection at Cabrillo Avenue in Santa Clara. Because of the long green time for the northbound through movement, most vehicles are able to clear within one cycle, but the queue constantly replenishes. The westbound left-turn movement on Reed Avenue onto northbound Lawrence Expressway also experiences lengthy delay up to three cycles, queuing out of the turn pocket and past Willow Avenue. The northbound through-movement on Lawrence Expressway at Kifer Road constantly develops an approximately 30 vehicle queue prior to the green phase. Northbound vehicles south of Reed Avenue arrive at the back of the queue before the existing queue could clear. As a result, progression through this corridor is slow. The southbound through-movement on Lawrence Expressway at Oakmead Parkway forms temporary queues at the beginning of the green phases that back up to the intersection with the US 101 southbound ramps. This queue clears by the end of each cycle. At the intersection of Fair Oaks Avenue and the US 101 northbound ramps, the northbound left-turn movement occasionally overflows the turn pocket and requires two signal cycles to clear. The northbound through movement constantly queues towards the intersection with the US 101 southbound ramps, but clears within one cycle.

During the PM peak period, heavy congestion is observed on Lawrence Expressway and at the intersection of Fair Oaks Avenue and the US 101 northbound ramps. Lawrence Expressway southbound at Reed Avenue/Monroe Street queues towards and occasionally past Kifer Road. All vehicles are able to clear the intersection within one cycle, but the queue replenishes, and frequently clears only after the southbound movement at Kifer Road receives a green ball, furthering the queue onto Kifer Road. Similar queuing issues occur on Lawrence Expressway southbound at the intersections with Kifer Road, Arques Avenue, Oakmead Parkway, and Tasman Drive. The Kifer Road westbound left-turn movement also experiences lengthy delay, with queues constantly extending out of the turn pocket, blocking one through lane. The queue clears within three cycles, but replenishes. At the intersection of Fair Oaks Avenue and the US 101 northbound ramps, heavy volumes are observed on the southbound through-movement and eastbound left-turn movement. The southbound through movement mostly clears within one cycle. The eastbound left-turn movement often requires two cycles to clear.

TRAFFIC CONDITIONS UNDER CURRENT GENERAL PLAN TRAFFIC VOLUMES

The following summarizes traffic conditions that would occur under the current Sunnyvale General Plan (GP) traffic volumes (i.e., existing Land Use and Transportation Element). The current GP scenario assumes the adopted City of Sunnyvale General Plan, regional growth, and the Apple Campus II project in the City of Cupertino. The Sunnyvale Travel Demand Forecasting Model (STFM) for year 2035 (build out) was used to forecast the current GP traffic volumes.

Vehicle Miles Traveled

Year 2035 VMT for the City under the current General Plan is projected to be 2,804,751 miles and 11.09 miles per capita, while the LSAP area (under current General Plan land use designations) is projected to have a total VMT of 105,383 miles and 12.00 miles per capita.

Traffic Volumes and Roadway Network

The 2035 forecasts of intersection turning movements, freeway traffic, ramp volumes, vehicle miles traveled, and ramp volumes were completed using the Sunnyvale Travel Demand Forecasting Model (STFM). The STFM is a mathematical representation of travel within the nine counties in the San Francisco Bay Area, and is calibrated to represent travel within the City of Sunnyvale. The model uses socioeconomic data, such as number of jobs and households, for different geographic areas (transportation analysis zones) to predict the travel from place to place in the future. The model is adjusted (validated) using current socioeconomic data to predict current traffic volume. Model forecasts are compared to actual counts in order to make the adjustments. There are 172 transportation analysis zones within the model to represent the City of Sunnyvale.

The 2035 socioeconomic data are generated by the Association of Bay Area Governments and refined by VTA. For the Current General Plan and 2035 Proposed General Plan model forecasts, socioeconomic data were supplied by the Sunnyvale Planning Department.

The STFM includes improvements to the roadway network as part of the Valley Transportation Plan (VTP) and the Sunnyvale Transportation Impact Fee (TIF). Significant roadway improvements that are funded or planned to be funded within the study area are listed below:

- Construct auxiliary lanes on eastbound SR 237 between Mathilda Avenue and Fair Oaks Avenue.
- Extend express lanes on SR 237 to SR 85.
- Construct auxiliary lanes on southbound US 101 between Lawrence Expressway and Great America Parkway.
- Extend Mary Avenue north over the SR 237/US 101 interchange via a flyover and connect with Enterprise Way.
- Construct grade separations on Lawrence Expressway at the intersections with Reed Avenue/Monroe Street, Kifer Road, and Arques Avenue.
- Construct auxiliary lane on southbound Lawrence Expressway between the SR 237 loop ramps.
- Construct auxiliary lanes on Central Expressway between Mary Avenue and Lawrence Expressway.
- Widen Central Expressway between Lawrence Expressway and San Tomas Expressway to six lanes.

The forecast intersection turning movement volumes were adjusted based on existing volumes to generate the current GP traffic volumes.

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Intersection Lane Configurations Under Current GP Conditions

The following intersection improvements were assumed under the Current GP conditions.

- Intersections on Lawrence Expressway at Reed Avenue/Monroe Street, Kifer Road, and Arques Avenue are planned for grade separations. The lane configurations at these three intersections under current GP conditions assume the proposed concept detailed in the Lawrence Expressway Grade Separation Concept Study Final Report. These interchanges are planned to be funded.
- As documented in the 3333 Scott Boulevard Office Development Draft Supplemental EIR, published in April 2015, the 3333 Scott Boulevard project would construct a second eastbound left-turn lane at the intersection of Bowers Avenue and Scott Boulevard. This intersection improvement is assumed under the current GP conditions.
- As documented in the Cupertino General Plan Amendment Draft EIR, published in June 2014, the City of Cupertino assumed that the Apple Campus 2 project would implement a number of intersection improvements. The following intersection improvements were assumed under the current GP conditions:
 - Wolfe Road & I-280 Northbound Ramp: the I-280 northbound off-ramp would be widened to a total of 2 left-turn and 2 right-turn lanes.
 - I-280 Southbound Ramp & Stevens Creek Boulevard: the eastbound leg would be widened to include an exclusive right-turn lane.
 - Lawrence Expressway Northbound Ramp & Stevens Creek Boulevard: the northbound leg would be widened to a total of 2 left-turn lanes, 1 shared left-through lane, 1 shared through-right lane, and 1 exclusive right-turn lane.
 - Lawrence Expressway & I-280 Southbound Ramp: the eastbound leg would be widened to include a total of 1 shared left-through lane, 1 through lane, and 1 exclusive right-turn lane.

Lane configurations at all other study intersections under current GP conditions are assumed to be the same as under existing conditions.

Intersection Levels of Service Under Current GP Conditions

Table 10 of the TIA in **Appendix C** summarizes intersection levels of service under current General Plan traffic volumes. The level of service results show that the following intersections would operate at an unacceptable level of service:

- Lawrence Expressway & Tasman Drive (#2) – PM Peak Hour (LOS F)
- Lawrence Expressway & Lakehaven Drive (#3) – PM Peak Hour (LOS F)
- Lawrence Expressway & Oakmead Parkway (#6) – AM and PM Peak Hours (LOS F)
- Lawrence Expressway & Arques Avenue (#7) – PM Peak Hour (LOS F)
- Lawrence Expressway & Kifer Road (#8) – AM Peak Hour (LOS F)

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- Wolfe Road & Kifer Road (#13) – PM Peak Hour (LOS F)
- Wolfe Road & Fremont Avenue (#18) – AM and PM Peak Hours (LOS E and LOS F, respectively)
- Lawrence Expressway & Cabrillo Avenue (#25) – AM and PM Peak Hours (LOS F)
- Lawrence Expressway & Benton Street (#27) – AM and PM Peak Hours (LOS F)
- Lawrence Expressway & Homestead Road (#1328) – AM and PM Peak Hours (LOS F)
- Lawrence Expressway & Pruneridge Avenue (#29) – AM Peak Hour (LOS F)
- Lawrence Expressway & I-280 Southbound Ramp (#33) – AM and PM Peak Hour (LOS F and LOS E+, respectively)
- Oakmead Parkway & Central Expressway (#35) – PM Peak Hour (LOS F)
- Bowers Avenue & Central Expressway (#38) – AM and PM Peak Hour (LOS F)
- Bowers Avenue & Kifer Road (#39) – PM Peak Hour (LOS F)
- Bowers Avenue & Monroe Street (#41) – PM Peak Hour (LOS F)

The unacceptable levels of services at these intersections are due to a combination of both Sunnyvale and regional growth. Within the City of Sunnyvale, regional traffic contributes approximately 20 to 50 percent of total traffic on regional roadways such as Lawrence Expressway and El Camino Real.

EXISTING PEDESTRIAN FACILITIES

Sidewalks are present along both sides of all major roadways within the LSAP plan area except along eastbound Kifer Road in front of the Pepsi plant at 960 Kifer Road. Signalized crosswalks with pedestrian push buttons are present on all legs at all study intersections. The roadways connecting Kifer Road and Reed Avenue/Monroe Street to the Lawrence Caltrain Station also have sidewalks, but are missing crosswalks at their respective intersections with minor residential streets. The north-south connectivity for pedestrians across the railroad tracks is provided by the underpass at the Caltrain Station, and on Lawrence Expressway.

Currently, pedestrian activity in the plan area is constrained due to the barriers presented by the Lawrence Expressway, Caltrain tracks, large busy intersections, and the industrial nature of large portions of the plan area. There are also gaps in sidewalks and other unsafe pedestrian facilities conditions in the plan area.

EXISTING BICYCLE FACILITIES

Bicycle facilities are designated according to three levels of service or classes:

- A Class I bicycle facility is a path that is located entirely off-street and separated from motor vehicle traffic. Typically, Class I bicycle paths are designed as multi-use facilities, available for use by pedestrians, joggers, baby carriages, and skates as well as bicycles. There are no Class I multi-use trails in the LSAP plan area.

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- Class II bicycle facilities are striped bicycle lanes, typically on primary arterials and collector streets, designated for the exclusive use of bicyclists.
- Class III bicycle facilities are typically referred to as Bicycle Routes, where bicyclists share the street with vehicular traffic. While they do not have striped lanes, they often have bicycle route marking signs to guide bicyclists through the area. Bicycle Routes are typically located on secondary streets with low traffic volumes and design speeds.

Access to the Lawrence Caltrain Station is provided by Reed Avenue/Monroe Street south of the rail tracks, and by Kifer Road north of the rail tracks. However, the roadways that connect Kifer Road and Reed Avenue/Monroe Street to the station do not have bike lanes. The tunnel under the Lawrence Station provides access to the other side of the tracks by means of a ramp or stairs, which have metal channels for bicycle tires to help bicyclists manage on the stairwells (City of Sunnyvale 2006).

Within the plan area, Class II bike lanes are present along Kifer Road and Reed Avenue west of Lawrence Expressway, along the entirety of Evelyn Avenue, and along Wolfe Road north of Reed Avenue. East of Lawrence Expressway, Kifer Road and Monroe Street are designated bike routes within the City of Santa Clara. Both Lawrence Expressway and Central Expressway allow bicyclists and accommodate bicycles with wide shoulders. Both expressways are designated by the City of Sunnyvale as "Advanced Bicycle Routes," considered suitable only for the most experienced bicyclists. Local residential streets carry lower traffic volumes and are conducive to bicyclists.

EXISTING TRANSIT SERVICES

Train

Caltrain

Caltrain operates 50 miles of commuter rail between San Francisco and San Jose, and limited commute service trains that serve Gilroy during weekday commute periods. There are two Caltrain stations in Sunnyvale: the Lawrence Caltrain Station located under Lawrence Expressway between Kifer Road and Reed Avenue and Monroe Street, and the Sunnyvale Caltrain Station, on West Evelyn Avenue. Service consists of approximately 20- to 30-minute headways during the weekday AM and PM commute hours and 60-minute headways midday, at nights and on weekends. The Lawrence Caltrain Station provides service for only Local and Limited trains. Services are provided between 4:40 AM and 1:20 AM (next day). The baby-bullet train does not stop at Lawrence Station.

Data from 2014 indicates the Lawrence Station currently serves approximately 1,580 weekday riders. Historical ridership data shows that the average weekday ridership at the station reached over 2,500 in 2001, indicating the station has capacity to server higher numbers of passengers than current ridership. The Lawrence Station was reconstructed in recent years and has many station amenities, including covered benches, signage, schedule information, ticket vending machines, a public pay phone, real-time message boards, shuttle access, and bicycle and vehicle parking.

Three public Caltrain shuttles provide service at the Lawrence Caltrain Station:

- Duane Avenue: This shuttle provides service between the Mountain View Caltrain Station and the Lawrence Caltrain Station during weekday commute hours. This shuttle leaves from either Caltrain Station in the morning and provides services to businesses on Stewart Drive/Duane Avenue, and Arques Avenue. This shuttle provides services in the reverse

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direction in the afternoon. Shuttle schedules are coordinated with Caltrain schedules. In the morning, two shuttles leave the Lawrence station between 7:15 AM and 8:30 AM, and three shuttles leave the Mountain View station between 7:50 AM and 9:55 AM. In the evening, three shuttles arrive at the Lawrence station between 3:30 PM and 6:00 PM, and four shuttles arrive at the Mountain View station between 4:30 PM and 7:30 PM. Within the LSAP plan area, the Duane Avenue shuttle travels on Lawrence Expressway.

- **Bowers-Walsh:** This shuttle provides service between the Lawrence Caltrain Station and the Bowers/Walsh area office buildings during weekday commute periods. Shuttles depart from the Caltrain station in the morning, and from the Bowers/Walsh area to the station in the evening. Shuttles are coordinated with Caltrain schedules with 6 shuttles in the morning leaving the station between 6:45 AM and 9:30 AM, and 6 shuttles in the evening arriving at the station between 3:45 PM and 7:00 PM. Within the LSAP plan area, the Bowers-Walsh shuttle travels on Lawrence Station Road and Kifer Road.
- **Mission:** This shuttle provides service between the Lawrence Caltrain Station and Mission Area office buildings during weekday commute periods. Shuttles depart from the Caltrain Station in the morning towards the Intel campus via Mission College, and in the reverse direction in the evening. Shuttles are coordinated with Caltrain schedules with 6 shuttles in the morning leaving the station between 6:15 AM and 9:30 AM, and five shuttles in the evening arriving at the station between 3:30 PM and 6:30 PM. Within the LSAP plan area, the Mission shuttle travels on Lawrence Station Road and Kifer Road.

Altamont Commuter Express

The Altamont Commuter Express (ACE) provides commuter rail service between Stockton, Tracy, Pleasanton, and San Jose during commute hours. Gray Shuttle (Route 822) serves the project area. This free shuttle, funded by the Bay Area Air Quality Management District, transports Sunnyvale passengers to and from the ACE Great America Station in Santa Clara. The Gray Shuttle runs on Arques Avenue, Wolfe Road, and Kifer Road, with four eastbound trips in the morning (between 6:15 AM and 9:50 AM) and four westbound trips in the afternoon/evening (between 3:15 PM and 6:45 PM) with headways averaging 60 minutes. The shuttle stop closest to the Lawrence Caltrain Station is located at the Lawrence Expressway and Kifer Road intersection, located approximately one-quarter mile north of the station.

Bus and Shuttle

VTA provides service in and around the plan area. Within the immediate vicinity of the Lawrence Caltrain Station, bus route 32 has stops located within walking distance of the Lawrence Station. Although bus route 328 also has stops located within walking distance of the Lawrence Station, this route is limited to two northbound runs in the morning between 6:00 AM and 7:20 AM, and two southbound runs in the evening between 4:55 PM and 6:00 PM.

The limited bus transit connections within the Lawrence Station area are a result of low levels of demand and disconnected roadway access from nearby major roadway corridors.

In addition to the four public shuttles noted above, several private shuttles provide service between the Lawrence Caltrain Station and major employers within the cities of Sunnyvale and Santa Clara.

AVIATION

Moffett Federal Airfield is located within the City of Sunnyvale sphere of influence. Aviation uses of the airfield are limited to federal and federally hosted operations, including Google's initiative to pay for landing rights as a hosted operation. San Jose International Airport is located approximately 6 miles east of Sunnyvale. The airport provides commercial air carrier and air cargo services, as well as general aviation. The plan area is not within the land use plans for either airport.

3.4.2 REGULATORY FRAMEWORK

The City of Sunnyvale has jurisdiction over all city streets and City-operated traffic signals. The neighboring cities of Mountain View, Cupertino, and Santa Clara have jurisdiction over local roadways within their respective jurisdictional boundaries. The California Department of Transportation (Caltrans) has jurisdiction over state facilities, including US 101, I-280, SR 82 (El Camino Real), SR 85, and SR 237. Caltrans also has jurisdiction over on- and off-ramp intersections with local streets. The County of Santa Clara has jurisdiction over streets in unincorporated areas and all of the county expressways. Transit agencies operating within the city limits are VTA and Caltrain. Several regional, state, and federal agencies have jurisdiction over transportation planning and implementation of circulation improvements in Sunnyvale. Within the LSAP plan area, the area north of Kifer Road is within the City of Santa Clara jurisdiction, and the area south of Kifer Road is within the City of Sunnyvale jurisdiction.

FEDERAL

Americans with Disabilities Act of 1990

Titles I, II, III, and V of the Americans with Disabilities Act have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in places of public accommodation (businesses and nonprofit agencies that serve the public) and commercial facilities (other businesses). The regulation includes Appendix A to Part 36 (Standards for Accessible Design) establishing minimum standards for ensuring accessibility when designing and constructing a new facility or altering an existing facility.

Examples of key guidelines include detectable warnings for pedestrians entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travel way, and a vibration-free zone for pedestrians.

Federal Highway Administration

The Federal Highway Administration (FHWA) is a major agency of the United States Department of Transportation. In partnership with state and local agencies, the FHWA carries out federal highway programs to meet the nation's transportation needs. The FHWA administers and oversees federal highway programs to ensure that federal funds are used efficiently.

STATE

California Department of Transportation (Caltrans)

Caltrans has authority over the state highway system, including freeways, interchanges, and arterial state routes. Caltrans approves the planning, design, and construction of improvements for all state-controlled facilities, including State Route (SR) 82, SR 85, US 101, SR 237, and I-280, and

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the associated interchanges for these facilities located in Sunnyvale. Caltrans requirements are described in their *Guide for the Preparation of Traffic Impact Studies* (2001), which covers the information needed for Caltrans to review the impacts on state highway facilities, including freeway segments.

Statewide Transportation Improvement Program

The California Transportation Commission (CTC) administers transportation programming, the public decision-making process that sets priorities and funds projects envisioned in long-range transportation plans. It commits expected revenues over a multiyear period to transportation projects. The State Transportation Improvement Program (STIP) is a multiyear capital improvement program of transportation projects on and off the state highway system, funded with revenues from the State Highway Account and other funding sources. Caltrans manages the operation of state highways, including SR 82, SR 85, US 101, I-280, and SR 237 through Sunnyvale.

Complete Streets (AB 1358)

Assembly Bill (AB) 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include complete streets policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and the disabled. These policies can apply to new streets as well as to the redesign of corridors such as El Camino Real in areas of planned change such as downtown Sunnyvale or the Lawrence area station.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) has jurisdiction over the safety of highway-rail crossings (crossings) in California. The California Public Utilities Code requires CPUC approval for the construction or alteration of crossings and grants the CPUC exclusive power on the design, alteration, and closure of crossings in California.

Senate Bill 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law. Among other things, SB 743 creates a process to change the way transportation impacts are analyzed under CEQA. SB 743 adds Chapter 2.7, Modernization of Transportation Analysis for Transit-Oriented Infill Projects, to Division 13 (Section 21099) of the Public Resources Code. SB 743 started a process that could change the way transportation impacts are analyzed under CEQA. These changes will shift agencies away from using auto delay, level of service, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant traffic impacts in California. SB 743 includes amendments that allow cities and counties to opt out of traditional LOS standards where congestion management programs are used and requires the state Office of Planning and Research (OPR) to update the CEQA Guidelines and establish "criteria for determining the significance of transportation impacts of projects within transit priority areas." As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses."

The OPR released for public review the *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts In CEQA* on January 20, 2016. Public commenting period ended on February 29, 2016. The revised proposal currently proposes the use of VMT as a metric for evaluating traffic impacts. Once the final draft of changes to the CEQA Guidelines is published,

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certification and adoption by the Secretary for Resources will be required before they go into effect. Cities will then have two years to implement the new guidelines.

REGIONAL

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the Bay Area's regional transportation planning agency and federally designated metropolitan planning organization (MPO). MTC is responsible for preparing the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The RTP is a 20-year plan that is updated every three years to reflect new planning priorities and changing projections of future growth and travel demand. The long-range plan must be based on a realistic forecast of future revenues, and the transportation projects taken as a whole must help improve regional air quality. MTC also screens requests from local agencies for state and federal grants for transportation projects to determine compatibility with the RTP.

Plan Bay Area

Plan Bay Area is a long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. On July 18, 2013, the Association of Bay Area Governments (ABAG) Executive Board and MTC jointly approved the plan. The plan includes the region's Sustainable Communities Strategy and the 2040 RTP and represents the next iteration of a planning process that has been in place for decades.

Plan Bay Area marks the nine-county region's first long-range plan to meet the requirements of California's landmark 2008 Senate Bill 375, which calls on each of the state's 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce greenhouse gas emissions from cars and light trucks. Working in collaboration with cities and counties, the plan advances initiatives to expand housing and transportation choices, create healthier communities, and build a stronger regional economy (One Bay Area 2014).

Santa Clara Valley Transportation Authority (VTA)

VTA serves two roles in Santa Clara County: as primary transit operator and as the Congestion Management Agency (CMA). In its role as transit operator, VTA is responsible for the development, operation, and maintenance of the bus and light rail system within the county. VTA operates over 70 bus lines and three light rail lines, in addition to shuttle and paratransit service. VTA also provides transit service to major regional destinations and transfer centers in adjoining counties.

During the Valley Transportation Plan 2035 update, VTA published the Community Design & Transportation (CDT) Program (August 2003), which "... provides design guidelines, planning tools, and policy guidance for coordinating transportation and land use in projects across the county." This report identifies future growth areas including Sunnyvale, the El Camino corridor, and the station areas adjacent to the light rail and Caltrain station. The LSAP plan area is identified as a Station Area in the VTA's Community Design and Transportation (CDT) Program Cores, Corridors and Station areas framework.

Congestion Management Program

As the County's Congestion Management Agency (CMA), VTA is responsible for managing the County's blueprint to reduce congestion and improve air quality. The long-range countywide

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transportation plan and the means by which projects compete for funding and prioritization are documented in the Valley Transportation Plan (VTP). The most current plan (VTP 2040) was adopted by the VTA in October 2014.

VTA is authorized to set state and federal funding priorities for transportation improvements affecting the Santa Clara County Congestion Management Program (CMP) transportation system, which is overseen by the VTA. The relevant state legislation requires that all urbanized counties in California prepare a CMP in order to obtain each county's share of gas tax revenues. The CMP legislation requires that each CMP contain the following five mandatory elements: (1) a system definition and traffic level of service standard element; (2) a transit service and standards element; (3) a trip reduction and transportation demand management element; (4) a land use impact analysis program element; and (5) a capital improvement element. The Santa Clara County CMP includes the five mandated elements and three additional elements, including a countywide transportation model and database element; an annual monitoring and conformance element; and a deficiency plan element. Preparation of a deficiency plan is required by cities for CMP facilities that operate at unacceptable levels based on the CMP's standard. The purpose of a deficiency plan is to improve system-wide traffic flow and air quality. VTA also requires local jurisdictions to analyze impacts of new developments or land use policy changes on CMP facilities if they are expected to generate 100 or more new peak-hour trips.

CMP-designated transportation system components in Sunnyvale include a regional roadway network, a transit network, and a bicycle network.

Transit

VTA's Short Range Transit Plan (SRTP) is a federally mandated planning document that describes the plans, programs, and goals of VTA's transit service. The plan has a 10-year planning horizon and is updated annually. It focuses on the characteristics and capital needs of the existing system and on committed (funded) expansion plans. The current plan proposes to keep bus and light rail service at existing levels, expand community bus services (neighborhood-based circulator and feeder routes that travel within a limited area), to continue to contribute monetarily to Caltrain service, and to replace and expand the bus vehicle fleet.

Santa Clara County

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.

The Santa Clara County Trails Master Plan was approved by the Santa Clara County Board of Supervisors in 1995. The goal of the plan is to direct the County's trail implementation efforts well into the twenty-first century with a balanced regard for the public good and individual desires for privacy. The plan implements the vision to provide a contiguous trail network that connects cities to one another, connects cities to the county's regional open space resources, connects county parks to other county parks, and connects the northern and southern urbanized regions of the county. The plan identifies regional trail routes, subregional trail routes, connector trail routes, and historic trails.

The Santa Clara Countywide Bicycle Plan synthesizes other local and county plans into a comprehensive 20-year cross-county bicycle corridor network and expenditure plan.

LOCAL

City of Sunnyvale General Plan

The General Plan Land Use and Transportation Element (2011 Consolidated General Plan numbering) includes the following policies and implementing measures that are relevant to the analysis of transportation and circulation impacts.

- | | |
|-----------------|--|
| Policy LT-4.3c | Design streets, pedestrian paths, and bicycle paths to link neighborhoods with services. |
| Policy LT-4.4d | Promote small-scale, well-designed, pedestrian-friendly spaces within neighborhoods to establish safe and attractive gathering areas. |
| Policy LT-4.13e | Provide pedestrian and bicycling opportunities to neighborhood and commercial services. |
| Policy LT-4.14b | Ensure the provision of bicycle support facilities at all major public use locations. |
| Policy LT-5.1 | Achieve an operating LOS of "D" or better on the city-wide roadways and intersections as defined by the functional classification street system. |
| Policy LT-5.1c | Require roadway and signal improvements for development projects to minimize decline of existing levels of services. |
| Policy LT-5.1e | Promote the reduction of single occupant vehicle (SOV) trips and encourage an increase in the share of trips taken by all other forms of travel. |
| Policy LT-5.1g | Minimize the total number of vehicle miles traveled by Sunnyvale residents and commuters. |
| Policy LT-5.2d | Continue to evaluate transportation impacts from land use proposals at a neighborhood and citywide level. |
| Policy LT-5.3e | Make the traffic signal system responsive to all users, including bicyclists and pedestrians. |
| Policy LT-5.5 | Support a variety of transportation modes. |
| Policy LT-5.5b | Require sidewalk installation in all subdivisions of land and in new, reconstructed or expanded development. |
| Policy LT-5.5c | Support land uses that increase the likelihood of travel mode split. |
| Policy LT-5.5d | Maximize the provision of bicycle and pedestrian facilities. |
| Policy LT-5.5g | Ensure safe and efficient pedestrian and bicycle connections to neighborhood transit stops. |
| Policy LT-5.6a | Develop clear, safe, and convenient linkages between all modes of travel; including, access to transit stations and stops and connections between work, home and commercial sites. |

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- Policy LT-5.6b Promote public and private transportation demand management.
- Policy LT-5.8 Provide a safe and comfortable system of pedestrian and bicycle pathways.
- Policy LT-5.9 Appropriate accommodations for motor vehicles, bicycles, and pedestrians shall be determined for city streets to increase the use of bicycles for transportation and to enhance the safety and efficiency of the overall street network for bicyclists, pedestrians, and motor vehicles.
- Policy LT-5.10 All modes of transportation shall have safe access to city streets.

In addition, the Housing Element adopted in 2014 contains the following policies:

- Policy F.3 Continue a high quality of maintenance for public streets, rights-of-way, and recreational areas, and provide safe and accessible pedestrian, bike, and transit linkages (accessibility) between jobs, residences, transportation hubs, and goods and services.

City of Sunnyvale Municipal Code

Chapter 10.60 of the City of Sunnyvale Municipal Code sets forth the City's Transportation Demand Management program. Section 19.46.100 of the Municipal Code sets forth minimum and maximum requirements for off-street parking spaces. Section 19.46.150 sets forth minimum requirements for bicycle parking (number and type of spaces).

Transportation Demand Management

Transportation Demand Management (TDM) is typically set as a condition of approval on some development projects in Sunnyvale. TDM is a requirement for all businesses located in the Moffett Industrial Park north of SR 237, as well as for all developments requesting floor area ratios that exceed 35%, regardless of location. The City focuses the objective and monitoring of TDM programs on the reduction of peak-hour trips. This is to minimize congestion during the peak commute periods and to allow more flexibility in the types of the TDM techniques that can be employed. For private developments, project sponsors can play an effective role in supporting the City's initiatives through the deployment of TDM programs.

Transportation Impact Fees

Transportation impact fees are charged to new development to fund major transportation projects, including bicycle and pedestrian improvements necessary to support land use plans. The City's TIF program varies by area of the City (North of Highway 237 and South of Highway 237). Development in the plan area would be required to pay the South of 237 fees, which vary by land use based on peak hour trips. The fees are charged to net new development (i.e., new residential units and increased commercial square footage). The existing development that remains would not be required to pay transportation impact fees.

3.4.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The potential impacts of the LSAP were evaluated in accordance with the standards set forth by the City of Sunnyvale and the Santa Clara County Valley Transportation Authority (VTA) Congestion Management Program (CMP). The analysis addresses both project impacts under existing conditions as well as cumulative conditions under the existing General Plan and the proposed draft Land Use and Transportation Element Update.

Vehicle Miles Traveled

As noted above, the *Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing Senate Bill 743*, currently proposes the use of VMT as a metric for evaluating traffic impacts. However, these updates have not been completed as of the release of this Draft EIR. The analysis provided below provides an analysis of changes in VMT as compared to existing and year 2035 conditions in the LSAP area as well as the City. The VMT analysis is based on the TIA (see Table 20 in **Appendix C**).

Bicycle and Pedestrian Facilities

Impacts on bicycle and pedestrian facilities were qualitatively evaluated based on information presented in the LSAP.

Transit Facilities

Impacts on Caltrain ridership and station use were evaluated based on information presented in the LSAP. Impacts on VTA transit services based on whether intersection operations with the LSAP would impact transit travel times.

Emergency Access

Emergency access impacts were evaluated qualitatively based on a description of the roadway improvements described in the LSAP relative to the location of existing roadways within and adjoining the plan area.

Design Hazards

Impacts on design hazards were evaluated qualitatively based on a review of the proposed roadway and pedestrian/bicycle facilities in the LSAP associated with existing facilities.

Traffic Operations/Level of Service Analysis

Intersections

Forty-one signalized intersections were evaluated. Fifteen of the study intersections are CMP intersections. Two of the study intersections are within the City of Cupertino, 15 are within the City of Santa Clara, and one intersection is in San Jose. The study intersections were selected to include locations where the proposed LSAP is expected to generate 10 or more peak-hour trips per lane, using the Sunnyvale Travel Demand Forecast Model (STFM).

Freeway Segments and Ramps

The Santa Clara County VTA CMP guidelines require that the CMP freeway segments be evaluated to determine the impact of added traffic for projects that generate trips equal to or greater than 1% of the freeway segment's capacity. Within the project vicinity, the STDM forecasts that the proposed LSAP is expected to substantially increase volumes on seven freeway segments (one on SR 237, five on US 101, and one on I-280). Therefore, a freeway analysis in accordance with the VTA's CMP guidelines was conducted on these freeway segments. The traffic analysis also included a capacity analysis for eight freeway ramps. The following freeway segments and ramps were evaluated.

Segments

- 1) SR 237, between Lawrence Expressway and Great America Parkway.
- 2) US 101, between Lawrence Expressway and Mathilda Avenue
- 3) US 101, between Mathilda Avenue and Fair Oaks Avenue.
- 4) US 101, between Fair Oaks Avenue and Lawrence Expressway
- 5) US 101, between Lawrence Expressway and Bowers Avenue/Great America Parkway
- 6) US 101, between Bowers Avenue/Great America Parkway and Montague Expressway/San Tomas Expressway.
- 7) 1-280, between Lawrence Expressway and Saratoga Avenue

Ramps

US 101 at N. Fair Oaks Avenue

- 1) US 101 Northbound on-ramp from N. Fair Oaks Avenue, and
- 2) US 101 Southbound off-ramp to southbound N. Fair Oaks Avenue.

US 101 at Lawrence Expressway

- 1) US 101 Northbound on-ramp from northbound Lawrence Expressway,
- 2) US 101 Southbound on-ramp from northbound Lawrence Expressway,
- 3) US 101 Northbound off-ramp to Lawrence Expressway. and
- 4) US 101 Southbound off-ramp to Lawrence Expressway.

SR 237 at Lawrence Expressway

- 1) SR 237 Eastbound on-ramp from northbound Lawrence Expressway, and
- 2) SR 237 Westbound off-ramp to southbound Lawrence Expressway.

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Traffic conditions at the study intersections and freeway segments were analyzed for the weekday AM and PM peak hours of commute traffic. In the study area, the AM peak hour is typically between 7:00 AM and 9:00 AM, while the PM peak hour is typically between 4:00 PM and 6:00 PM.

Analysis Scenarios

Traffic conditions were evaluated for the following scenarios:

- Scenario 1: *Existing Conditions*. Existing traffic volumes are based on recent traffic counts conducted between the years of 2014 and 2015, the 2014 CMP TRAFFIX database, as well as County records for the expressways.
- Scenario 2: *Current GP Conditions (existing LUTE*¹. The current general plan (GP) conditions were included as part of the LSAP analysis. The current GP traffic volumes were estimated using the Sunnyvale Travel Demand Forecasting Model (STFM) for year 2035.
- Scenario 3: *2035 Proposed GP Conditions (proposed Draft LUTE)*². The 2035 proposed general plan (GP) conditions are also part of the LSAP analysis. The proposed 2035 GP comprises the Lawrence Station Area Plan (LSAP), the Peery Park Specific Plan (PPSP), and the draft Land Use and Transportation Element (LUTE) of the proposed GP. The 2035 proposed GP traffic volumes were estimated using the STFM for year 2035. Roadway improvements assumed under the 2035 Proposed General Plan conditions are discussed below.

Year 2035 Traffic Demand Model Forecasts

The 2035 forecasts of intersection turning movements, freeway traffic, ramp volumes, vehicle miles traveled, and ramp volumes were completed using the STFM. The STFM is a mathematical representation of travel within the nine counties in the San Francisco Bay Area, and is calibrated to represent travel within the City of Sunnyvale. The model uses socioeconomic data, such as number of jobs and households, for different geographic areas (transportation analysis zones) to predict the travel from place to place in the future. The model is adjusted (validated) using current socioeconomic data to predict current traffic volume. Model forecasts are compared to actual counts in order to make the adjustments. There are 172 transportation analysis zones within the model to represent the City of Sunnyvale.

The 2035 socioeconomic data are generated by the Association of Bay Area Governments and refined by VTA. For the current General Plan and proposed General Plan model forecasts, socioeconomic data were supplied by the Sunnyvale Planning Department.

¹ Current GP Conditions is the implementation of the existing adopted Land Use and Transportation Element Update.

² 2035 Proposed GP Conditions scenario is the proposed update of the Land Use and Transportation Element.

3.4 TRANSPORTATION AND CIRCULATION

The proposed GP consists of three components: the Lawrence Station Area Plan (LSAP), the Peery Park Specific Plan (PPSP), and the Land Use and Transportation Element (LUTE). All three components are modeled in the 2035 proposed GP scenario. Between the 2035 proposed GP and current GP scenarios, it was assumed that growth outside Sunnyvale would be constant.

In the near term, one development is expected to occur as part of the LSAP (the Greystar project). Located at 1120 Kifer Road, the 7.99-acre site currently has a one-story 103,000-square-foot (sf) building. Currently, 55,000 sf of the building is occupied by the Art Institute of Silicon Valley. The Greystar project would demolish the existing building, and construct a 5-story apartment building with 520 units and 15,000 sf of retail space. Access to the project site would be provided via three driveways on Kifer Road.

From a transportation perspective, the STFM assumes improvements to the roadway network as part of the VTP and the Sunnyvale TIF. Within the LSAP plan area, three significant roadway improvements are the grade separations on Lawrence Expressway at the intersections with Reed Avenue/Monroe Street, Kifer Road, and Arques Avenue. In addition to the Lawrence Expressway grade separations assumed under the current GP conditions, the LSAP proposes a road diet on Kifer Road within the plan area. Kifer Road within the plan area would be narrowed from the existing five lanes to three lanes (one lane in each direction and a two-way center left-turn lane). As part of the road diet, Kifer Road would include enhanced bicycle and pedestrian facilities.

Mode Split

Mode split is a component of the traffic demand model, which calculates the mode split based on input factors taken from survey data or other validated sources. Mode split refers to the percentage of trips made by each of the primary modes of transportation: auto, transit, bicycling, and walking. For example, the factors for calculating the transit mode share include residential development density, proximity to transit, household income, the cost of using transit versus auto, and travel times for transit versus auto.

Table 19 of the TIA in **Appendix C** separately presents the total number of daily person-trips for each of the LSAP, PPSP, and LUTE study areas made under existing, current GP, and the 2035 proposed GP conditions. The table includes all trips beginning and/or ending within each of the traffic study areas: trips that begin and end within study areas, trips that begin within and end outside of the study areas, and trips that begin outside of and end within the study areas.

Because mode split is based on person-trips rather than vehicle trips, the auto mode includes both single-occupant vehicle trips and multi-occupant vehicle trips, including carpooling and vanpooling. If, for example, there are three people in a car, the mode split table will show three person-trips made by automobile.

For the LSAP, the mode share for automobiles is expected to be reduced from existing (94.5%) to current GP (92.1%) to the 2035 proposed GP conditions (90.3%). Mode share for transit within the LSAP plan area would increase from existing (1.5%) to current GP (3.5%) to the 2035 proposed GP conditions (4.5%). These are percentages of daily trips. Transit mode share for commute trips would be much higher. Mode share for biking with the LSAP plan area would remain relatively constant from existing (1.2%) to current GP (1.4%) to the 2035 proposed GP (1.6%). Mode share for walking within the LSAP plan area would also remain relatively constant from existing (2.9%) to current GP (3.0%) to the 2035 proposed GP (3.6%). Similar shifts in mode choices are observed for both the PPSP and LUTE study areas.

Analysis Methods

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

The data required for the analysis were obtained from previous traffic studies, the City of Sunnyvale, the City of Santa Clara, the City of Cupertino, the VTA CMP TRAFFIX database, county records for expressways, and field observations. The following data were collected from these sources: existing traffic volumes; existing lane configurations; signal timing and phasing; and list of approved projects. Traffic conditions were evaluated using level of service (LOS). The analytical methods for intersections and freeway segments/ramps are described below.

Signalized Study Intersections

The City of Sunnyvale, City of Santa Clara, City of Cupertino, and City of San Jose level of service methodologies for signalized intersections use the 2000 *Highway Capacity Manual* (HCM) method. This method is applied using the TRAFFIX software. The 2000 HCM operations method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. Because TRAFFIX is also the CMP-designated intersection level of service methodology, the City of Sunnyvale methodology uses the CMP default values for the analysis parameters.

The City of Sunnyvale General Plan level of service standard for signalized intersections is LOS D or better, except that intersections on roadways considered "regionally significant" have a standard of LOS E. The Cities of Sunnyvale, Santa Clara, Cupertino, and San Jose level of service standards for signalized intersections are all LOS D or better, except on roadways considered "regionally significant" within Sunnyvale and on CMP facilities within Santa Clara, which have a standard of LOS E. In the traffic study area, the signalized intersections within Sunnyvale along Lawrence Expressway, El Camino Real, and Sunnyvale Avenue (as an extension of Sunnyvale-Saratoga Road) are considered regionally significant. The signalized intersections within Santa Clara along Lawrence Expressway are CMP facilities.

Intersection levels of service under the 2035 proposed GP conditions are evaluated relative to existing conditions to determine the potential significant impacts of the proposed GP. This set of impacts is denoted as the cumulative impacts, and is determined based on the intersection impact criteria discussed below.

Hexagon analyzed the potential impacts of the LSAP within the context of year 2035 conditions, which assumes the full implementation of the LSAP), Peery Park Specific Plan, and Draft Land Use and Transportation (LUTE), and includes regional growth, for City of Sunnyvale and cities within nine of the surrounding counties. The Sunnyvale Travel Demand Forecasting Model (STFM) for year 2035 was used to forecast the 2035 proposed Draft LUTE traffic volumes. As discussed in further detail below, in order to identify LSAP specific impacts associated with the Specific Plan, Hexagon disaggregated peak hour traffic associated with the LSAP to permit identification of significant impacts to affected intersections.

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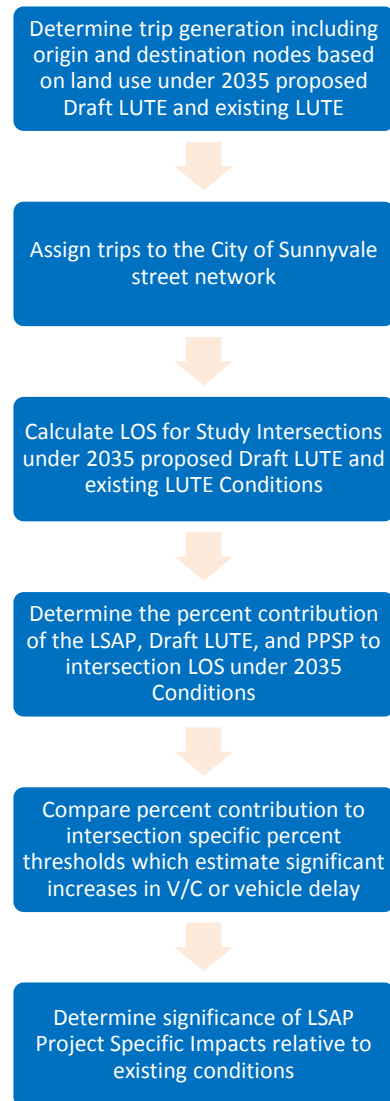
Since other proposed land uses – in addition to the LSAP – are included in the model, the 2035 traffic analysis included traffic volumes not only from LSAP, but also from the Draft LUTE, Peer Park Specific Plan, and other cities. These are referred to as cumulative traffic volumes. If an intersection was identified to have a cumulative impact in 2035 as a result of all of these combined land use changes, a separate analysis had to be completed to determine if the LSAP had a significant impact on its own. To accomplish this, Hexagon disaggregated peak hour traffic associated with the LSAP traffic. Once the LSAP traffic was segregated, each cumulatively impacted intersection was analyzed to determine whether the LSAP traffic would cause an impact on its own by calculating the level of PPSP traffic volumes and the level of traffic volumes required to cause an impact. This process was completed through a full technical analysis. The volumes attributable to each land use were estimated using the select zone analysis³ within the STFM. Regional traffic was defined as trips that have neither a trip origin nor destination within the City of Sunnyvale. The threshold for a significant contribution at each impacted intersection was calculated by determining the critical amount of traffic growth between the 2035 proposed Draft LUTE, existing 2035 LUTE, and existing conditions that would generate a significant intersection impact (i.e., an increase in V/C ratio of 0.01 or an increase in delay of 4 seconds). The LSAP caused a significant intersection impact if the LSAP-related traffic alone exceeded the threshold for a significant contribution, compared with existing conditions.

CMP Intersections

The designated level of service methodology for the CMP also is the 2000 HCM operations method for signalized intersections, using TRAFFIX. The CMP level of service standard for signalized intersections in the cities of Sunnyvale, Cupertino, and Santa Clara is LOS E or better. In the City of San Jose, the level of service standard for signalized CMP intersections is LOS D or better.

Freeway Segments

A select zone analysis within the SFTM was performed to estimate the amount of trips that would be generated by the LSAP on the study area freeway segments.



³ A select zone analysis follows traffic volumes from a single selected zone to all other zones.

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As prescribed in the Santa Clara County CMP technical guidelines, the level of service for freeway segments is estimated based on vehicle density. The vehicle density on a segment is correlated to level of service. However, congested freeway speed cannot be accurately modeled. For purposes of the analysis, freeway levels of service under the 2035 proposed GP conditions were instead calculated based on the increase in model-estimated traffic volumes compared to existing conditions.

For freeway segments already operating at LOS F under existing conditions, it was assumed that the segments would continue to operate at LOS F under the 2035 proposed GP conditions. If the increase in model volumes would cause the V/C ratio to exceed 1 under the 2035 proposed GP conditions, then the segment would operate at LOS F under the 2035 proposed GP conditions. For segments operating at LOS E or better under existing conditions, it was assumed that the freeway segment levels of service would drop by 1 level under the 2035 proposed GP conditions if the increase in model volumes exceed 10% of capacity. The segment levels of service would drop by an additional level for every 10% of increased volume to capacity ratio.

Based on VTA's CMP guidelines, a project would cause a freeway impact if it deteriorates freeway levels of service from an acceptable level to an unacceptable LOS F, or if the freeway already operates at LOS F under existing conditions, add traffic exceeding 1% of the capacity. However, because the freeway volume increase between existing and the 2035 proposed GP conditions is caused by a combination of the LSAP, PPSP, the proposed LUTE, and regional traffic, for the purpose of this report, the LSAP would generate a cumulative freeway impact only if the freeway segment is projected to operate at an unacceptable LOS F under the 2035 proposed GP conditions, and the increase in LSAP volume exceeds 1% of capacity.

The CMP requires that mixed-flow lanes and auxiliary lanes be analyzed separately from high-occupancy vehicle (HOV) lanes (otherwise known as carpool lanes). The CMP specifies that a capacity of 2,300 vehicles per hour per lane (vphpl) be used for segments three lanes or wider in one direction, and a capacity of 2,200 vphpl be used for segments two lanes wide in one direction. HOV lanes are specified as having a capacity of 650 vphpl. The CMP defines an acceptable level of service for freeway segments as LOS E or better.

Freeway Ramps

A freeway ramp analysis was performed in order to verify that the freeway ramps would have sufficient capacity to serve the expected traffic volumes with and without the project. For the purpose of this study, the project is said to create a significant adverse impact on a freeway ramp if its implementation:

- Causes the volume-to-capacity (V/C) ratio of the freeway ramp to exceed 1.0; or
- Increases the amount of traffic on a freeway ramp that is already exceeding its capacity by more than one percent (1%) of the ramp's capacity.

STANDARDS OF SIGNIFICANCE

Appendix G of the State CEQA Guidelines provides general considerations for lead agencies evaluating impacts on the transportation system. These considerations are listed below, along with the significance criteria for determining whether impacts would be significant.

- 1) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant

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components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Significance Criteria for Intersections

The criteria used to determine significant impacts on signalized intersections are based on the City of Sunnyvale, City of Cupertino, City of Santa Clara, City of San Jose, and VTA's CMP level of service standards. The LSAP would create a significant adverse impact on traffic conditions at a signalized intersection in the Sunnyvale, Cupertino, Santa Clara, and San Jose if for either peak hour:

- The level of service at the intersection drops below its respective level of service standard when project traffic is added, or
- An intersection that operates below its level of service standard under no project conditions experiences an increase in critical-movement delay of four (4) or more seconds, and the volume-to-capacity ratio (V/C) is increased by 0.01 or more when project traffic is added.

The exception to this threshold is when the addition of project traffic reduces the amount of average control delay for critical movements, i.e., the change in average control delay for critical movements are negative. In this case, the threshold is when the project increases the critical V/C value by 0.01 or more.

The operation of principal arterials and state highways located within urbanized Santa Clara County is measured by the level of service at CMP Intersections. CMP intersections are select, generally high-volume intersections located along these thoroughfares. The definition of a significant impact at a CMP intersection is the same as for the City of Sunnyvale, except that the standard for acceptable level of service for all CMP and regional intersections is LOS E or better. A significant impact by all Sunnyvale, Cupertino, Santa Clara, San Jose, and VTA CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection conditions to its LOS standard or to an average delay that eliminates the project impact.

- 2) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways.

Significance Criteria for Freeway Segments and Ramps

For this analysis, the criteria used to determine impacts on freeway segments are based on CMP standards. Per CMP requirements, freeway impacts are measured relative to existing conditions (i.e., there is no evaluation of freeways under background conditions). The project is said to create a significant adverse impact on traffic conditions on a freeway segment if for either peak hour:

- The level of service of the freeway segment is LOS F under existing conditions, and
- The number of new trips added by the project is more than one percent of the freeway capacity.

For the purpose of this study, the project is said to create a significant adverse impact on a freeway ramp if its implementation:

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- Causes the volume-to-capacity (V/C) ratio of the freeway ramp to exceed 1.0; or
 - Increases the amount of traffic on a freeway ramp that is already exceeding its capacity by more than one percent (1%) of the ramp's capacity.
- 3) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

Significance Criteria for Air Traffic Hazards

An air traffic impact is considered significant if implementation of the proposed project would:

- Increase air traffic levels resulting in a substantial safety risk.
- 4) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Significance Criteria for Transit

A transit impact is considered significant if implementation of the proposed project would:

- Disrupt existing or interfere with planned transit services or facilities.

Significance Criteria for Bicycle Facilities

A bicycle impact is considered significant if implementation of the proposed project would:

- Disrupt existing bicycle facilities.
- Conflict or create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards.

Significance Criteria for Pedestrian Facilities

A pedestrian impact is considered significant if implementation of the proposed project would:

- Disrupt existing pedestrian facilities.
 - Create inconsistencies with planned pedestrian facilities or adopted pedestrian system plans, guidelines, policies, or standards.
- 5) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- 6) Result in inadequate emergency access.

Significance Criteria for Emergency Access

An emergency vehicle access impact is considered to be significant if implementation of the proposed project would:

- Provide inadequate access to accommodate emergency vehicles.

Impacts Not Evaluated in Detail

The plan area is outside the Moffet Airport’s influence area and safety zones and would not involve changes in air traffic operations. There would be no impact relative to standard of significance 3, and impacts related to airport operations are not further evaluated.

Change in Vehicle Miles Traveled under Existing and 2035 Conditions

Implementation of the LSAP would result in a net increase in total VMT from existing conditions (see **Table 3.4-1**). However, for LSAP study area is lower when VMT per capita as compared to City-wide VMT under the existing conditions, General Plan and the proposed draft Land Use and Transportation Element Update. This is consistent with the intent of the LSAP to improve the use of alternative modes of transportation and reduce vehicle use and associated VMT. This is also within the VMT per capita set forth the City’s Climate Action Plan (11.62 miles).

**TABLE 3.4-1
VEHICLE MILES TRAVELED SUMMARY**

Vehicle Miles Traveled Data	LSAP Study Area		City-Wide		
	Existing Conditions	2035 with LSAP	Existing Conditions	Current General Plan	Draft LUTE
Total VMT	105,383	220,551	2,142,493	2,804,752	3,082,098
VMT per Capita	8.58	10.58	10.62	12.30	12.00

PROJECT AND CUMULATIVE IMPACTS AND MITIGATION MEASURES

Transit Facilities (Standard of Significance 4)

Impact 3.4.1 Subsequent projects developed under the LSAP that would be accommodated by transit services and facilities in the area. Traffic operations within the LSAP area would not adversely impact transit travel times. This is a **less than significant impact**.

The plan area is served by Caltrain, local bus, and scheduled shuttles, which are described above. As shown Table 19 of the TIA in **Appendix C**, the mode share for transit within the LSAP plan area would increase from existing (1.5%) to current GP (3.5%) to the 2035 proposed GP conditions (4.5%). This could increase the demand for transit services and related facilities.

Diversifying land uses and increasing densities envisioned under the LSAP would support the long-term viability of the Lawrence Caltrain station. Depending on the specific characteristics of land uses ultimately developed near the station, if developed to the levels anticipated under the Estimated Likely Development Scenario, daily transit ridership is estimated to increase to levels comparable to those at the California Avenue Caltrain station in Palo Alto, a station that supports a range of users, including visitors and employees of the California Avenue retail district. Based on the TIA (**Appendix C**) Caltrain has plans to increase the number of trains serving the Lawrence Station from the existing 56 trains per day to 66 trains per day during weekdays, and it is assumed that the planned increase in service would be sufficient to meet the demand.

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Traffic from the LSAP build out would not have a significant impact at any of the nearby intersections by bus transit services under year 2035 conditions. Therefore, the LSAP impact on transit travel times would be **less than significant**.

The LSAP includes the following policies to support public transit within the plan area:

- PT-P1: Reevaluate adequacy of amenities, such as bicycle parking, seating, and shelters, at Lawrence Station as ridership numbers increase.*
- PT-P2: Evaluate the requirements for new bus service as access improves, development proceeds and demand increases.*
- PT-P3: Assess the potential re-routing of existing bus service to directly reach Lawrence Station.*
- PT-P4: Provide bus stops with bus pull-outs, shelters, furnishings, lighting and signage along the Primary Loop Road and all other bus transit streets in the Plan area.*
- PT-P5: Locate bus stops on the Primary Loop Road approximately every ¼-mile.*

The implementation of these policies would enhance the travel experience for transit riders within the LSAP plan area by providing improved transit stop facilities and new transit stop facilities should the Primary Loop Road be constructed, and potentially enhance and/or increase transit services to the plan area. These policies would improve transit opportunities as compared to existing conditions. Therefore, the LSAP impacts on transit services would be **less than significant**.

Mitigation Measures

None required.

Bicycle Facilities (Standard of Significance 4)

Impact 3.4.2 Subsequent projects developed under the LSAP would increase the demand for bicycle facilities as well as include new facilities and improvements to support bicycle usage. This is a **less than significant impact**.

Build out under the LSAP would increase the population in the plan area. This would increase the demand for bicycle facilities, but there are few existing bike lanes or other facilities designated for bicycle transportation in the plan area. Encouraging the use of bicycles for local and inter-neighborhood access is a key goal of the LSAP. It is expected this would help increase transit ridership and reduce automobile use, particularly for local trips.

The LSAP identifies various bicycle facility improvements to close the gaps in the existing and planned bicycle network. The existing and planned bicycle facilities within the plan area are shown in **Figure 2.0-8**. When complete, the planned bicycle network would provide a continuous system of Class I and Class II facilities that would allow improved and safe connections through the plan area. In particular, the LSAP identifies two new bicycle/pedestrian crossings at the Caltrain tracks, one in the vicinity of Calabazas Creek on the east and one in the west side of the plan area connecting The Loop near Sonora Court to Aster Avenue. These grade-separated crossings would increase north-south connectivity for bicyclists, as well as pedestrians, and would provide increased safety.

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Class I Facilities

South of the Caltrain tracks, a new Class I facility and linear park would follow the alignment of the El Camino Drainage Channel, linking to the Calabazas Creek Trail. This would include segments running in an east-west direction north of and parallel to Agate Drive, and south of and parallel to Aster Avenue (behind the Aster Avenue Townhomes), extending southward through the Ponderosa Park neighborhood. At Reed Avenue, this trail would have an enhanced pedestrian / bicycle street crossing, either at a mid-block location or at the Reed Avenue/Evelyn Avenue intersection, allowing access to the pedestrian path that connects between Reed Avenue and Cassia Way. This new Class I trail would allow safe bicycle connections between Ponderosa Park and the new neighborhoods north of the Caltrain tracks.

A new north-south Class I trail would link to the El Camino Storm Drain Channel trail, cross Aster Avenue and the rail line, and connect to The Loop on the north side of the tracks. It would be aligned approximately along the western property line of the existing Peninsula Building Materials property.

As new development occurs on lands between the eastern leg of The Loop and Calabazas Creek, a direct linkage would be provided to allow connections from the neighborhoods in the northeast quadrant of the plan area to the Calabazas Creek Trail. These linkages would be provided at a spacing of 300-400 feet along The Loop.

Class II Facilities

On-street Class II bicycle lanes would be provided to close gaps between existing bicycle lanes on existing streets as well as providing bike lanes along new primary street corridors, including the following: Kifer Road east of Lawrence Expressway; The Loop (which would allow bicyclists to access all of the neighborhoods between the Caltrain tracks and Central Expressway); and Aster Avenue, where a 350-foot segment of Willow Avenue between Lawrence Station and Aster Avenue will complete this improvement, thereby providing improved access all the way to the Lawrence Caltrain Station.

Intersection Improvements

On streets with Class II bicycle lanes, bicycle detection loops will be installed at signalized intersections to allow bicyclists to activate traffic signals without the need to dismount to use pedestrian push buttons and crosswalks (LSAP Policy B-P5). Detection of bicyclists at signalized intersections will also improve efficiency, decrease delay to bicyclists, and discourage red light running by bicyclists without causing inordinate delays to motorists.

Bicycle Parking and Storage

The City of Sunnyvale has bicycle parking standards that would apply to new development in the plan area. Additionally, the VTA has published bicycle parking guidelines that include elements appropriate for the LSAP. Based on the City of Sunnyvale and VTA guidelines, the bicycle parking supply requirements for the LSAP would include short-term (Class II, up to 2 hours) and long-term (Class I, more than 2 hours) parking and storage (LSAP Policy B-P6). Class I bicycle parking would consist of lockers, rooms with key access, or attended/unattended bike stations. This type of storage is appropriate at Lawrence Caltrain Station, multi-family residential developments, and places of work. Class II bicycle parking would consist of racks with two points of contact that allow for locking at least one wheel as well as the bicycle frame. Bicycle racks are most appropriate to serve visitors to retail establishments, libraries, medical offices, office buildings, and

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residential buildings. Locate bicycle racks such that pedestrian circulation is not adversely impacted, security is maximized (i.e., in well-lit, visible areas with high volumes of foot traffic), and with a layout that maximizes parking capacity. The LSAP (Table 4.1) sets forth recommended quantities for the number of spaces based on the type of use where parking is provided.

In addition, the LSAP identifies the location of new neighborhood open spaces in the future development areas of the plan area and the public linkages for pedestrian and bicycles to these open spaces. These open space locations and connections are conceptual and do not represent final specific locations. However, ensuring that all new open spaces are connected to publicly accessible streets, bicycle facilities and pedestrian linkages is an important element of the LSAP and will be a required feature of future development proposals.

The LSAP includes the following policies concerning bicycle facilities:

- B-P1: Require property development to provide Class I and Class II bicycle facilities to fill in the gaps in the existing and planned bicycle network.*
- B-P2: Provide direct Class I and Class II bicycle connections to the future Calabazas Creek Trail from The Loop.*
- B-P3: Provide direct Class I multi-use public linkages between The Loop in the northeast quadrant of the Plan area to the Calabazas Creek Trail at spacing not to exceed 400 feet.*
- B-P4: Connect new neighborhood open spaces with publicly-accessible streets, bicycle facilities and pedestrian linkages.*
- B-P5: Install bicycle detection loops at signalized intersections.*
- B-P6: Provide Class I or Class II bicycle parking per Lawrence Station Area Plan bicycle parking requirements.*
- B-P7: Implement a bicycle sharing program.*

With the improvements to the bicycle network and as described above, in conjunction with LSAP Policies P-B1 through P-B17, the LSAP would accommodate increased demand for bicycle facilities. Further, it would enhance, not disrupt, existing bicycles facilities, and would provide increased connectivity consistent with the City's 2006 bicycle plan, VTA's bicycle network, and Santa Clara County's plan. The LSAP's proposed facilities would implement General Plan policies regarding bicycle modes of transit. Impacts would be **less than significant**.

Although not part of the LSAP, and not required to reduce any bicycle or pedestrian facilities impacts, the planned Lawrence Expressway grade separation project would improve east-west pedestrian and bicycle connections through the plan area. This project, currently in the planning stages by Santa Clara County, is anticipated to consist of depressing Lawrence Expressway under the Reed/Monroe, Kifer Road, and Arques Street intersections, the Central Expressway, and the Caltrain tracks. Additional signalized intersections may also be warranted at certain intersections would create controlled crossings for all modes of travel.

Mitigation Measures

None required.

Pedestrian Facilities (Standard of Significance 4)

Impact 3.4.3 Subsequent projects developed under the LSAP would increase the demand for pedestrian facilities as well as provide for improved pedestrian facilities and opportunities. This is a **less than significant impact**.

Build out of subsequent projects under the LSAP would increase the demand for pedestrian facilities. Currently, pedestrian activity in the plan area is constrained due to the barriers presented by the Lawrence Expressway, Caltrain tracks, large busy intersections, and the industrial nature of large portions of the plan area. There are also gaps in sidewalks and other unsafe pedestrian facilities conditions in the plan area.

Providing safe and attractive facilities for pedestrians throughout the area is an important goal of the LSAP, with strong emphasis on providing linkages to Lawrence Station and other destinations such as neighborhood parks, schools and shopping areas. The LSAP includes the following policies concerning pedestrian facilities:

- P-P1: Promote walking access through new street connections.*
- P-P2: Provide two new Caltrain track crossings for pedestrians and bicyclists: one at the Calabazas Creek Trail; the other west of Lawrence Expressway aligning with and connecting to The Loop near the western end of Sonora Court.*
- P-P3: Facilitate pedestrian access and safety along key pedestrian corridors through pedestrian enhancements, including crosswalk enhancements, sidewalk extensions (bulbouts), and wider sidewalks.*
- P-P4: Provide enhanced crosswalks on all legs of signalized intersections and at key pedestrian crossing locations.*
- P-P5: Provide new pedestrian crossings, including potential mid-block crosswalks, on Reed Avenue, Kifer Road, and The Loop.*
- P-P6: Provide sidewalk extensions (bulbouts) on all new streets, where feasible, and on select existing streets along primary pedestrian corridors.*
- P-P7: Continue to promote the inclusion of pedestrian improvements along and across the Lawrence Expressway as the Lawrence Expressway Grade Separation study is implemented.*
- P-P8: If the Lawrence Expressway is elevated or placed below grade, encourage the provision of multiple east-west connections between Sunnyvale and Santa Clara neighborhoods on each side of the expressway.*
- P-P9: Where right of way permits, for all new sidewalks in the Plan area, provide a minimum pedestrian zone width of nine feet inclusive of a minimum paved pedestrian travel zone width of six feet and a landscaped three-foot street buffer zone.*

As noted in Impact 3.4.2, a key element of the bicycle/pedestrian circulation system are two new crossings of the Caltrain tracks. The planned street network north of the Caltrain tracks (The Loop) would provide a walkable network of streets, providing access to all areas of the neighborhood as well as convenient connections to the station from areas both north and south of Kifer Road.

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South of the tracks, the existing street network in the single-family neighborhoods would be retained, but pedestrian improvements to the existing streets would be provided to enhance their role as important pedestrian corridors. Improved pedestrian access in the plan area would be accomplished through enhancements to the pedestrian environment including crosswalk enhancements, sidewalk extensions (bulbouts), and wider sidewalks along all major pedestrian corridors.

Pedestrian enhancements at uncontrolled intersections to ensure the visibility of pedestrians to drivers may include: enhanced crosswalk markings and striping; removal of free-right-turns and “pork chop” islands; high-visibility signs and markings; advance yield or stop lines; sidewalk extensions or bulbouts; rectangular rapid flashing beacons (RRFBs); and pedestrian crossing devices, including overhead flashing beacons and pedestrian hybrid beacons (PHB). Crosswalk markings would be improved at all existing and proposed signalized intersections, as well as at all marked crossings at unsignalized locations, potentially including Aster Avenue/Willow Avenue, Willow Avenue/Reed Avenue, San Ysidro Way/Kifer Road, and the new intersections of The Loop and the San Ysidro Way Extension.

Throughout the plan area, wherever feasible, bulbouts⁴ would be provided at the intersection of all new streets and at locations where major pedestrian paths and trails intersect streets, where feasible. Bulbouts at intersection corners (corner bulbouts) greatly improve the pedestrian environment by providing increased pedestrian waiting area, reducing pedestrian/vehicle conflict points and reducing street crossing distances and associated crossing times, with no impact on vehicular travel lanes. They are particularly appropriate at intersections with wide crossing distances and high vehicle speeds that create a barrier to safe and easy pedestrian crossings. Bulbouts would be considered along all primary pedestrian corridors where local conditions permit.

Sidewalk improvements would be implemented throughout plan area. The recommended minimum sidewalk dimension, where right of way permits, would be ten feet, including a minimum pedestrian travel zone width of six feet and a four-foot minimum landscaped buffer zone. These dimensions provide a comfortable travel path width and buffer between the pedestrian and vehicle traffic, but are considered minimums. On streets and corridors where higher pedestrian volumes are anticipated, a wider 15-foot sidewalk (inclusive of a minimum paved pedestrian travel zone of 6 feet) would be required.

Remediation of sidewalk gaps and other unsafe conditions in the existing pedestrian would also be implemented. These improvements would include upgraded sidewalks to a minimum 6-foot-wide path of travel, and street tree planting behind the curb. Because many of these locations are along planned primary pedestrian access corridors, improvements would be to the higher 15-foot standard wherever feasible. In particular, sidewalk upgrades are along both sides of Willow Avenue, the north side of Aster Avenue, and multiple locations along Kifer Road in the plan area.

All new pedestrian facilities and improvements to existing facilities would be designed to be fully accessible, with appropriate widths, grades, transitions, warning strips, and audio or other crossing indicators, in compliance with the accessibility standards established by the ADA.

⁴ A bulbout is an expansion of the width of a sidewalk, typically achieved by expanding into the parking zone.

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With the improvements to the pedestrian network shown in **Figure 2.0-7** and as described above, in conjunction with LSAP Policies P-P1 through P-P12, the LSAP would accommodate increased demand. Further, it would enhance, not disrupt, existing pedestrian facilities, and would be consistent General Plan policies to provide a safe and comfortable system of pedestrian pathways. Impacts would be **less than significant**.

Mitigation Measures

None required.

Design Hazards (Standard of Significance 5)

Impact 3.4.4 Subsequent projects and roadway and pedestrian/bicycle facilities improvements developed under the LSAP would increase the number of people and vehicles in the plan area, which could increase the risk of vehicle and bicycle/pedestrian conflicts, and would intensify urban uses in adjacent to the Caltrain tracks. This is a **less than significant impact**.

Circulation Network

The LSAP incorporates a “complete streets” approach for circulation planning that accommodates all travel modes. Complete streets are designed and operated to enable safe and convenient access for all users, including pedestrians, bicyclists, and motorists. The LSAP proposes several circulation network improvements to provide improved access through the plan area. In addition to providing new streets in the LSAP, improvements to existing streets would be implemented to ensure safety for all street users. The Kifer Road diet would provide an additional 11 to 12 feet of right of way in each direction that could be used for other street users, including a wider sidewalk zone for pedestrians and continuous Class II (on-street) bicycle lanes for bicyclists, which would improve safety for pedestrians and bicyclists compared to existing conditions. As described in Impacts 3.4.7 and 3.4.8, extensive bicycle and pedestrian facility enhancements would be implemented, including additional crosswalks, changes in signal timing, and two grade-separate pedestrian/bicycle crossings at the Caltrain tracks. All of the proposed improvements would help reduce the potential for pedestrian/bicycle and vehicle conflicts. All roadway and pedestrian/bicycle facilities would be designed in accordance with City standards.

Caltrain Tracks

There do exist barriers between existing development and the Caltrain tracks in the plan area. Barriers on the north side are typically solid masonry walls that define the boundaries of the various properties that adjoin the Caltrain right-of-way. There is a chain-link fence on the south side of the tracks in the plan area (e.g., at the boundary of the Calstone/Peninsula Building Materials operations).

Subsequent projects would increase the number of people in the vicinity of the Caltrain tracks and at the station. Hazardous situations and behaviors could include trespassing (inappropriate crossing of the tracks and jumping in front of a train), dropping things on the tracks from overhead crossings, ignoring warning signs and alarms, any other inappropriate or unsafe behavior. While the LSAP would attract more people into the area who could engage in either illegal or scofflaw behavior, the LSAP does not propose any changes in Caltrain operations that would increase the number of frequency of trains that pass through the plan area, nor are any modifications to Caltrain tracks or Lawrence station anticipated to accommodate new buildings and circulation network improvements identified in the LSAP.

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The only existing track crossing in the plan area is the Lawrence Expressway, which crosses over the tracks. The LSAP does not propose any new at-grade crossings. The TIA study area evaluated traffic conditions on Wolfe Road and Fair Oaks Boulevard. Both of these roadways cross over the tracks. As such, the project would not affect an at-grade crossing at those locations. The TIA also evaluated the Sunnyvale/Evelyn intersection. There is an at-grade crossing at Sunnyvale Avenue. Results of the traffic modeling show that intersection conditions would not worsen as a result of the LSAP, indicating the LSAP-generated traffic volumes at the at-grade crossing would not substantially increase relative to existing conditions. As such, no substantial increased risk of vehicle/train conflicts is anticipated due to LSAP traffic (see **Appendix C** for the TIA).

The LSAP proposes two new grade-separated crossings at the Caltrain tracks, one on the east side of the plan area and one on the west side. These crossings would be for non-vehicular travel only and would provide two new options for pedestrians and bicyclists traveling between the north and south sides of the plan area to safely cross the tracks. Design and construction of the track crossings would need to be coordinated with Caltrain. Thus, this impact would be **less than significant**.

Mitigation Measures

None required.

Emergency Access (Standard of Significance 6)

Impact 3.4.5 The roadway improvements proposed in the LSAP would not adversely affect emergency access. This is a **less than significant impact**.

The LSAP proposes several circulation network improvements to provide improved access through the plan area. The Loop would provide an additional full access point to Central Expressway west of Lawrence Expressway, which could reduce traffic volumes on Lawrence Expressway. Extending the connectivity of Sonora Court to both Kifer Road and the east side of the Lawrence Expressway overcrossing could reduce traffic volumes on Kifer Road. The Loop would also provide additional access routes to the Lawrence Caltrain Station. The San Ysidro Way extension would provide the opportunity to close San Zeno Way, allowing for a clearer and less circuitous connection in the station area. These improvements, along new secondary streets, would provide additional access through and around the plan area. All improvements would be required to meet City of Sunnyvale roadway design standards. Because the proposed project would provide adequate access for emergency vehicles, impacts would be less than significant.

Mitigation Measures

None required.

Traffic Operational Impacts (Standard of Significance 1 and 2)

Impact 3.4.6 Implementation of the land uses under the LSAP would contribute to significant traffic operational impacts to intersections and freeway segments as compared to existing conditions. This would be a **significant impact**.

Intersection Operations

Figure 3.4-4a and b shows traffic volumes under year 2035 conditions that includes the proposed LSAP and draft Land Use and Transportation Element as compared to existing conditions. The level of service results for the study intersections under the 2035 proposed GP conditions compared to existing conditions are summarized in Table 12 and 13 of the TIA in **Appendix C**.

The results show that many of the signalized intersections would operate at acceptable levels of service under the 2035 proposed GP conditions during peak AM and PM hours, with the following exceptions that includes Congestion Management Plan (CMP) facilities and intersections in the City of Santa Clara:

- Lawrence Expressway & Tasman Drive (#2) (CMP intersection) – from LOS D in AM and E in PM under existing conditions to LOS F in AM and PM under 2035 conditions.
- Lawrence Expressway & Lakehaven Drive (#3) (CMP intersection) – from LOS E in AM and PM under existing conditions to LOS F in AM and PM under 2035 conditions.
- Lawrence Expressway & Oakmead Parkway (#6) (CMP intersection) – from LOS D in AM and E in PM under existing conditions to LOS F in AM and PM under 2035 conditions.
- Lawrence Expressway & Arques Avenue (#7) (CMP intersection) – from LOS E in AM and F in PM under existing conditions to LOS F in PM under 2035 conditions.
- Wolfe Road & Arques Avenue (#12) – from LOS C in AM and PM under existing conditions to LOS E in AM under 2035 conditions.
- WOLFE ROAD & KIFER ROAD (#13) –FROM LOS C IN AM AND PM UNDER EXISTING CONDITIONS TO LOS F IN AM AND PM UNDER 2035 CONDITIONS.
- Wolfe Road & Reed Avenue (#15) – from LOS C in AM and PM under existing conditions to LOS E in AM under 2035 conditions.
- Wolfe Road & Fremont Avenue (#18) – from LOS D in AM and PM under existing conditions to LOS E in AM and F in PM under 2035 conditions.
- Lawrence Expressway & Cabrillo Avenue (#25) (CMP intersection in the City of Santa Clara)– from LOS E in AM and PM under existing conditions to LOS F in AM and PM under 2035 conditions.
- Lawrence Expressway & Benton Street (#27) (CMP intersection in the City of Santa Clara)– from LOS F in AM and LOS E in PM under existing conditions to LOS F in AM and PM under 2035 conditions.
- Lawrence Expressway & Homestead Road (#28) (CMP intersection in the City of Santa Clara) – from LOS F in AM and PM under existing conditions to LOS F in AM and PM under 2035 conditions.
- Lawrence Expressway & Pruneridge Avenue (#29) (CMP intersection in the City of Santa Clara) – from LOS E in AM and LOS D in PM under existing conditions to LOS F in AM and PM under 2035 conditions

3.4 TRANSPORTATION AND CIRCULATION

- Lawrence Expressway & I-280 Southbound Ramp (#33) (CMP intersection) – from LOS E in AM and LOS D in PM under existing conditions to LOS F in AM and LOS E in PM under 2035 conditions.
- Bowers Avenue & Central Expressway (#38) – from LOS E in AM and PM under existing conditions to LOS F in AM and PM under 2035 conditions.
- Bowers Avenue & Kifer Road (#39) – from LOS C in AM and PM under existing conditions to LOS E in PM under 2035 conditions.
- Bowers Avenue & Monroe Street (#41) – From LOS C in AM and PM under existing conditions to LOS F in PM under 2035 conditions.

As shown in Table 13 of the TIA in **Appendix C**, LSAP traffic result in significant contributions to the following intersections as compared to existing conditions rather than year 2035 conditions:

- Lawrence Expressway & Cabrillo Avenue (#25) (CMP intersection in the City of Santa Clara)
- Lawrence Expressway & Benton Street (#27) (CMP intersection in the City of Santa Clara)
- Lawrence Expressway & Homestead Road (#28) (CMP intersection in the City of Santa Clara)
- Lawrence Expressway & Pruneridge Avenue (#29) (CMP intersection in the City of Santa Clara)

This would be a **cumulatively considerable and significant** traffic operation impact.

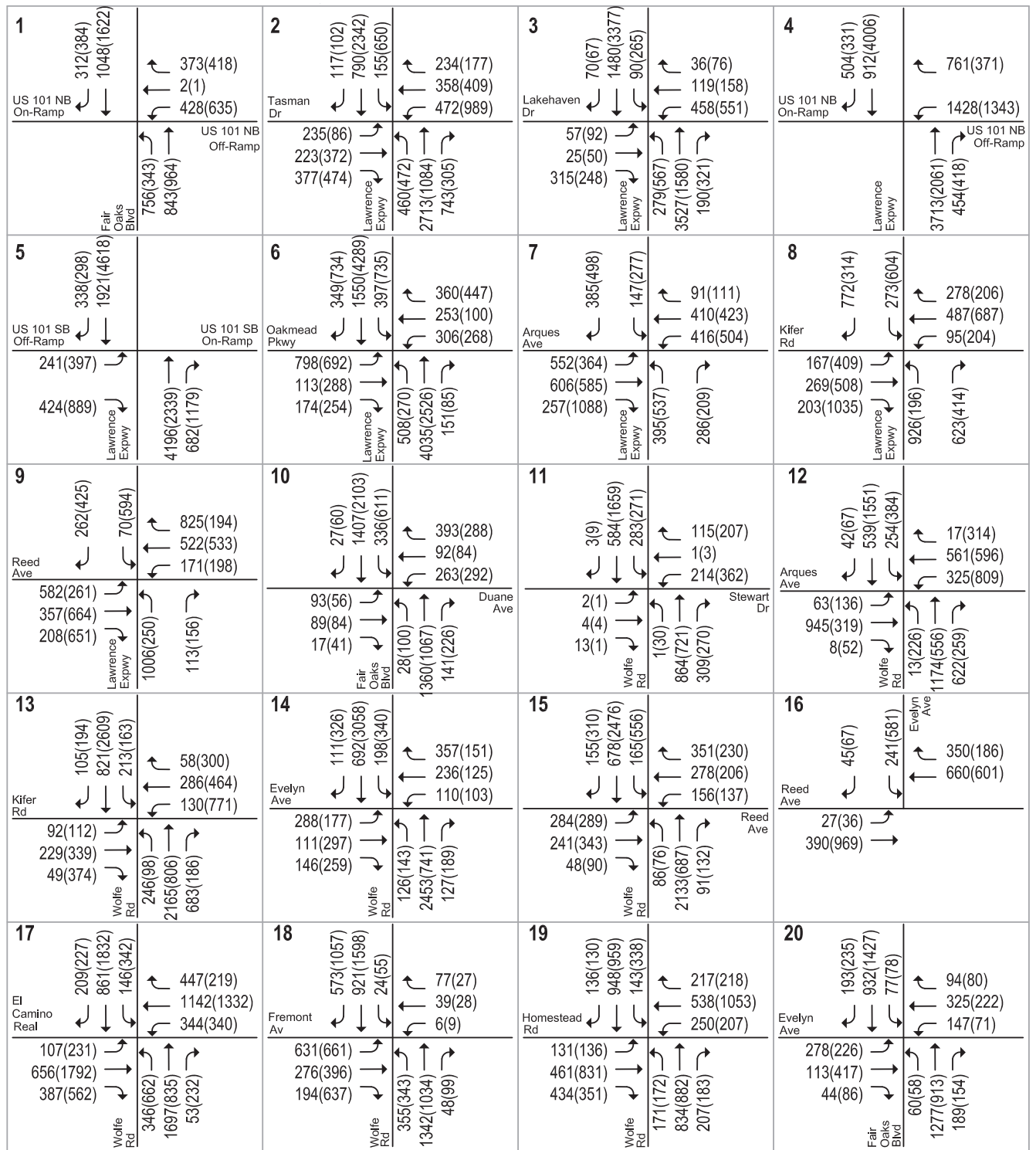
As shown in Table 16 of the TIA in **Appendix C**, LSAP traffic result in significant contributions to the following intersections that would be deficient under the existing General Plan for year 2035 conditions. **Figure 3.4-3a** and **b** identify traffic volumes for this scenario.

- Wolfe Road & Kifer Road (#13)
- Wolfe Road & Fremont Avenue (#18)
- Lawrence Expressway & Cabrillo Avenue (#25) (CMP intersection in the City of Santa Clara)
- Lawrence Expressway & Benton Street (#27) (CMP intersection in the City of Santa Clara)
- Lawrence Expressway & Pruneridge Avenue (#29) (CMP intersection in the City of Santa Clara)

This would be a **cumulatively considerable and significant** traffic operation impact.

Freeway Segments Under 2035 Proposed GP Conditions

The level of service results for the study freeway under the 2035 proposed GP conditions compared to existing conditions are summarized in Table 15 of the TIA in **Appendix C**.

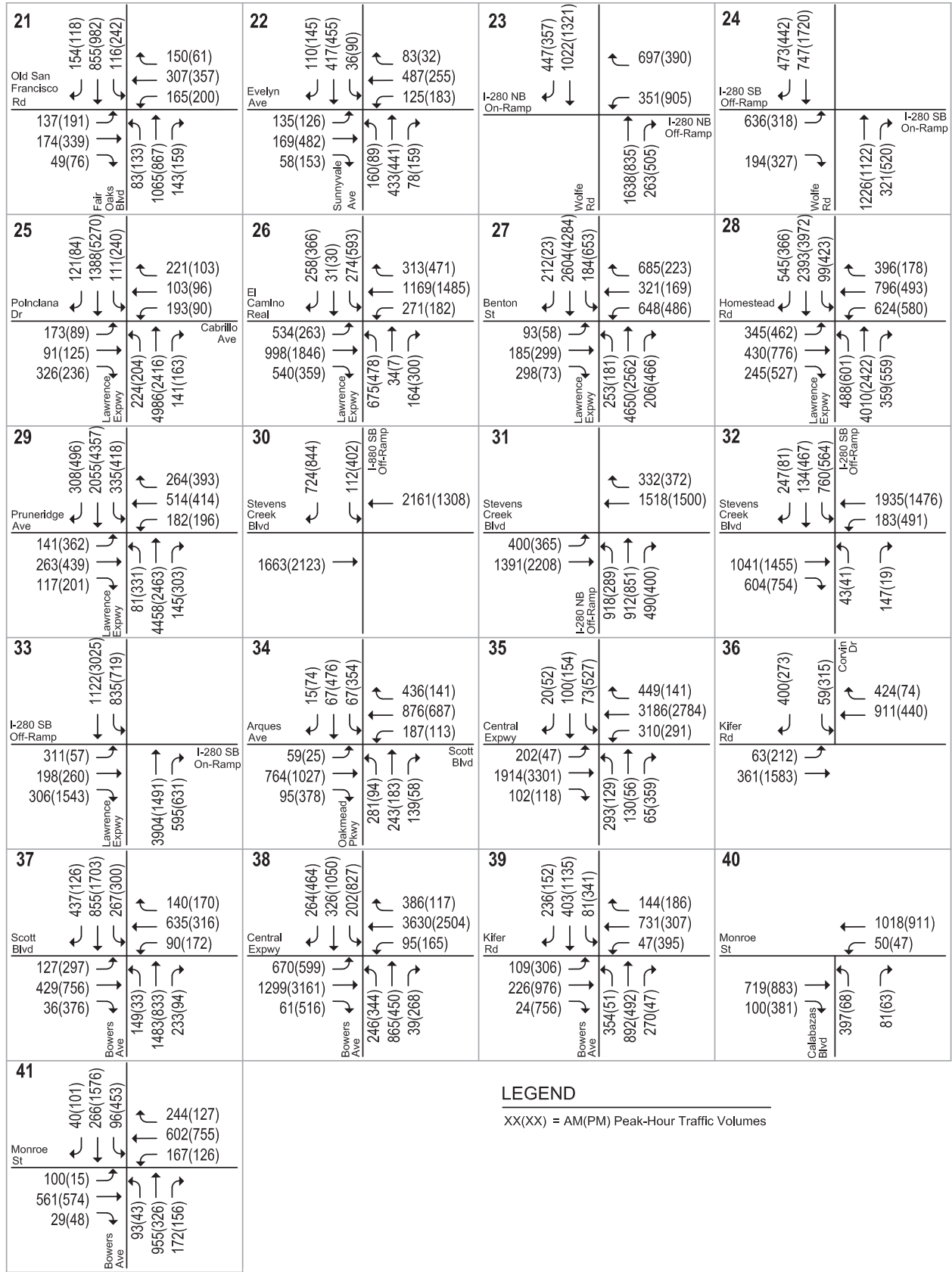


LEGEND
 XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Source: Hexagon



Figure 3.4-3a
 Current General Plan Volumes



Source: Hexagon

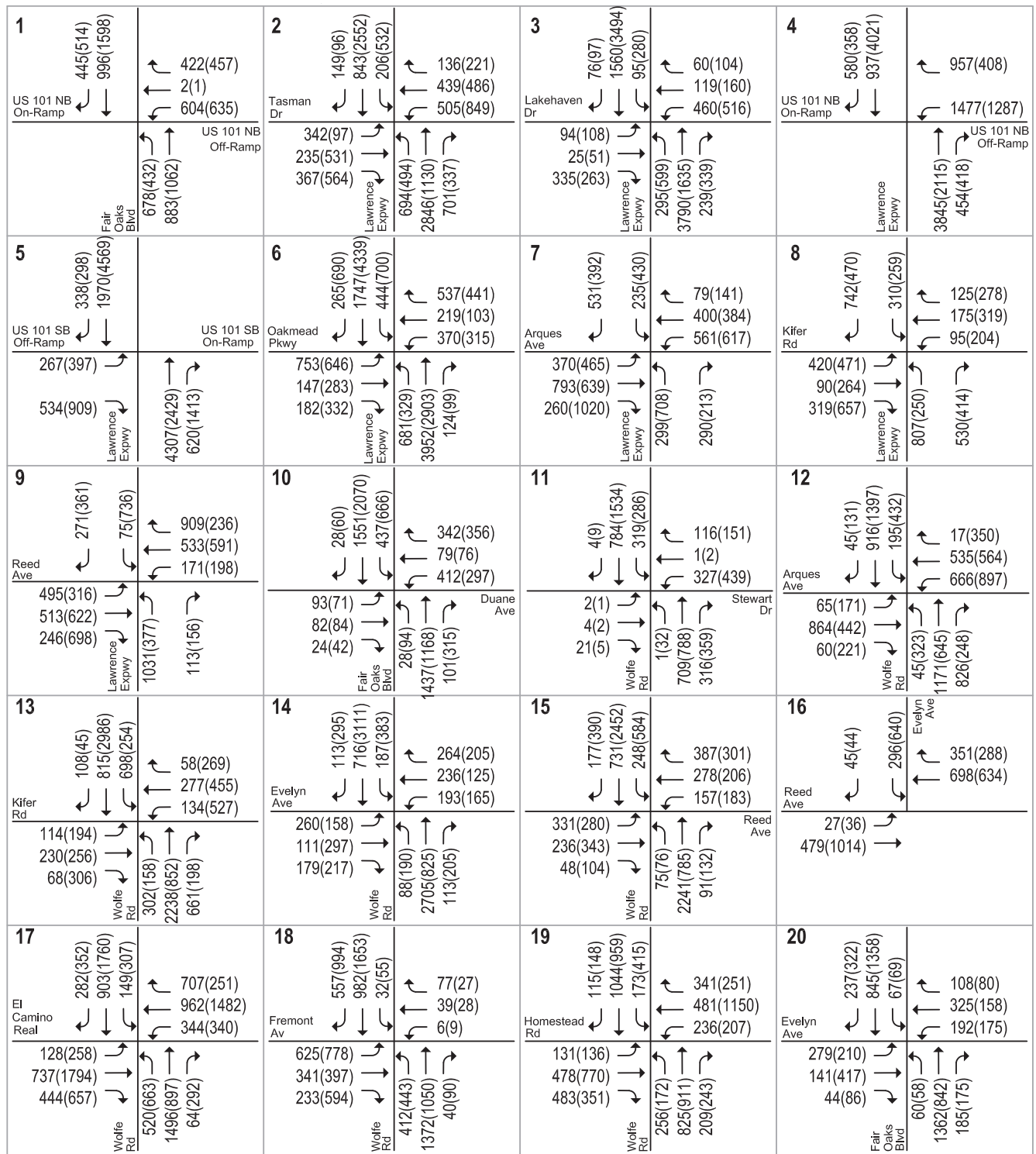
LEGEND

XX(X) = AM(PM) Peak-Hour Traffic Volumes



Not To Scale

Figure 3.4-3b
Current General Plan Volumes

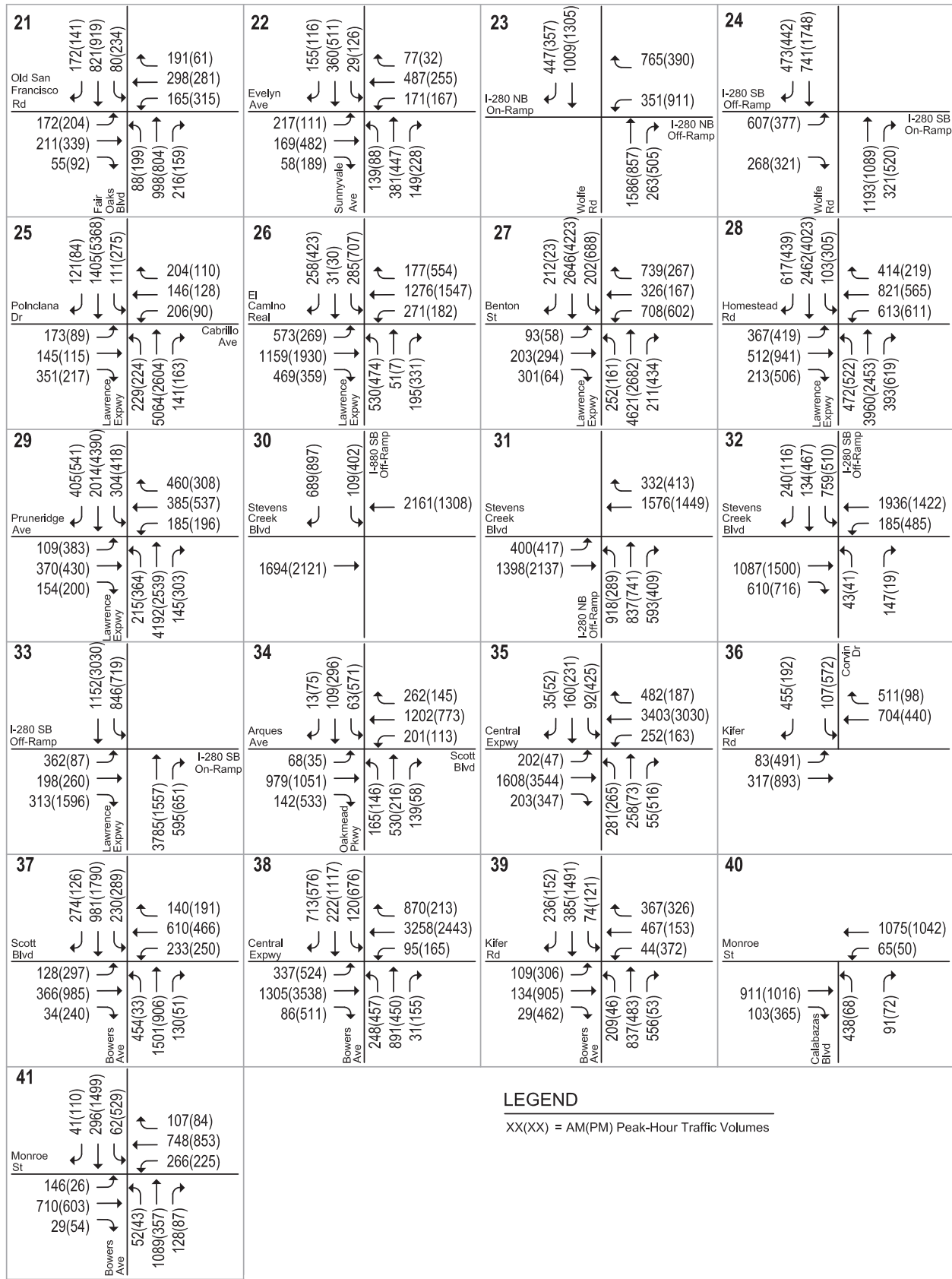


LEGEND
 XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Source: Hexagon



Figure 3.4-4a
 Proposed General Plan Volumes



Source: Hexagon

LEGEND
XX(X) = AM(PM) Peak-Hour Traffic Volumes



Not To Scale

Figure 3.4-4b
Proposed General Plan Volumes

3.4 TRANSPORTATION AND CIRCULATION

The mixed-flow lanes on the following directional study freeway segments are expected to operate at LOS F during either the AM or PM peak hour under 2035 conditions:

- SR 237, eastbound from Lawrence Expressway to Great America Parkway in AM and PM.
- SR 237, westbound from Great America Parkway to Lawrence Expressway in AM and PM.
- US 101, southbound from Mathilda Avenue to Bowers Avenue/Great America Parkway in AM and PM.
- US 101, southbound from Bowers Avenue/Great America Parkway to Montague Expressway/San Tomas Expressway in PM.
- US 101, northbound from Montague Expressway/San Tomas Expressway to SR 237 in AM.
- I-280, southbound from Lawrence Expressway to Saratoga Avenue in PM.
- I-280, northbound from Saratoga Avenue to Lawrence Expressway in AM and PM.

The HOV lanes on the following directional study freeway segments are expected to operate at LOS F during either the AM or PM peak hour under 2035 conditions:

- SR 237, eastbound from Lawrence Expressway to Great America Parkway in AM and PM.
- SR 237, westbound from Great America Parkway to Lawrence Expressway in AM and PM.
- US 101, southbound from SR 237 to Montague Expressway/San Tomas Expressway in PM.
- US 101, northbound from Montague Expressway/San Tomas Expressway to Bowers Avenue/Great America Parkway in AM and PM.
- US 101, northbound from Bowers Avenue/Great America Parkway to Fair Oaks Avenue in AM.
- US 101, northbound from Fair Oaks Avenue to SR 237 in AM and PM.
- I-280, southbound from Lawrence Expressway to Saratoga Avenue in PM.
- I-280, northbound from Saratoga Avenue to Lawrence Expressway in AM.

As shown in Table 15 of the TIA in **Appendix C**, LSAP traffic result in significant contributions to the following freeway segments as compared to existing conditions rather than year 2035 conditions:

- SR 237, eastbound from Lawrence Expressway to Great America Parkway in AM in mixed flow lanes.
- SR 237, westbound from Great America Parkway to Lawrence Expressway in AM in mixed flow lanes and HOV lanes in AM and PM.
- US 101, southbound N. Mathilda Avenue to N. Fair Oaks Avenue in AM in mixed flow lanes and HOV lanes in PM.

3.4 TRANSPORTATION AND CIRCULATION

- US 101, southbound N. Fair Oaks Avenue to Lawrence Expressway in HOV lanes in PM.
- US 101, southbound Lawrence Expressway to Bower Avenue/Great American Parkway in PM in mixed flow lanes and HOV lanes.
- US 101, southbound Bower Avenue/Great American Parkway to Montague Expressway/San Tomas Expressway in PM in HOV lanes.
- US 101, northbound Montague Expressway/Santa Thomas Expressway to Bower Avenue/Great American Parkway in AM in mixed flow lanes and HOV lanes.
- US 101, northbound Bower Avenue/Great American Parkway to Lawrence Expressway in AM in mixed flow lanes and HOV lanes.
- US 101, northbound Lawrence Expressway to N. Fair Oaks Avenue in AM in HOV lanes.
- US 101, northbound N. Mathilda Avenue to SR 237 in AM in mixed flow lanes.

This would be a **significant** traffic operation impact.

As shown in Table 17 of the TIA in **Appendix C**, LSAP traffic result in significant contributions to the following freeway segments that would be deficient under the existing General Plan for year 2035 conditions:

- SR 237, eastbound from Lawrence Expressway to Great America Parkway in AM in mixed flow lanes.
- SR 237, westbound from Great America Parkway to Lawrence Expressway in AM in mixed flow lanes and HOV lanes in AM and PM.
- US 101, southbound N. Mathilda Avenue to N. Fair Oaks Avenue in AM in mixed flow lanes and HOV lanes in PM.
- US 101, southbound N. Fair Oaks Avenue to Lawrence Expressway in HOV lanes in PM.
- US 101, southbound Lawrence Expressway to Bower Avenue/Great American Parkway in PM in HOV lanes.
- US 101, southbound Bower Avenue/Great American Parkway to Montague Expressway/San Tomas Expressway in PM in HOV lanes.
- US 101, northbound Montague Expressway/Santa Thomas Expressway to Bower Avenue/Great American Parkway in AM in HOV lanes.
- US 101, northbound Bower Avenue/Great American Parkway to Lawrence Expressway in AM in HOV lanes.
- US 101, northbound Lawrence Expressway to N. Fair Oaks Avenue in AM in HOV flow lanes.

This would be a **cumulatively considerable and significant** traffic operation impact.

Freeway Ramp Capacity

A freeway ramp analysis was performed in order to verify that the freeway ramps would have sufficient capacity to serve the expected traffic volumes with and without the project. This analysis consisted of a volume-to-capacity ratio evaluation of the freeway ramps at the study interchanges. The ramp capacities were obtained from the *Highway Capacity Manual 2000*, and considered the free-flow speed, number of lanes on the ramp, and ramp metering.

A select zone analysis within the SFTM was performed to estimate the amount of trips that would be generated by the LSAP on the study area freeway ramps.

The 2035 proposed GP conditions freeway ramp volumes were forecasted using the SFTM and adjusted based on existing ramp volumes. Table 18 of the TIA in **Appendix C** shows the peak hour ramp volumes. The ramp analysis showed that under the 2035 proposed GP conditions, all ramps would continue to operate well below capacity. This would be a **less than significant** traffic operation impact.

LSAP Measures to Address Traffic Operations

Transportation Demand Management (TDM) is a combination of services, incentives, facilities, and actions that reduce single-occupant vehicle (SOV) trips to help relieve traffic congestion, parking demand, and air pollution. The purpose of TDM is to promote more efficient utilization of existing transportation facilities, and to ensure that new developments are designed to maximize the potential for sustainable transportation usage.

The LSAP includes several TDM policies, which are listed below:

- TDM-P1: Encourage businesses and property owners to collaborate on area-wide TDM strategies for their sites in the LSAP plan area.
- TDM-P2: Achieve a daily trip reduction target of 20 percent and a peak hour trip reduction target of 30 percent for new Office/R&D development.
- TDM-P3: Achieve a peak hour trip reduction of 8% for new retail and residential development.
- TDM-P4: Include incentives for the provision of the following features as part of a TDM program for the Plan area:
 - a) Provide shuttle service
 - b) Provide bicycle parking and end-of-trip facilities (i.e. lockers, showers)
 - c) Create marketing campaigns to discourage auto trips
 - d) Offer low-cost or free transit passes to employees
 - e) Dedicate carpool/vanpool parking spaces
 - f) Offer cash in place of a free parking space (parking cash-out)
 - g) Charge for parking
 - h) GreenTrip registration.

3.4 TRANSPORTATION AND CIRCULATION

The LSAP Circulation Framework also outlines various goals that would promote alternative modes of transportation and/or reduce single-occupancy vehicle trips. These goals are listed below:

- CF-G1: Create a complete, multi-modal transportation network that supports a mixed-use neighborhood through the Plan area.
- CF-G2: Create a balanced circulation system that is accessible to all modes of travel and does not favor one mode over another.
- CF-G5: Improve access to bus and rail transit by all modes of travel.
- CF-G6: Create streets that are comfortable and convenient for pedestrians, so walking is a pleasure and accessing residences and businesses is easy.
- CF-G7: Make the area in and around the station bicycle-friendly, so residents and employees of all ages and abilities can feel comfortable and secure biking to work, services, and for recreation.

Pedestrian Goals

- P-G1: Provide safe, inviting, and attractive pedestrian connections for residents, workers and visitors to Lawrence Station and other key destinations in the Plan area.

Bicycle Goals

- B-G1: Encourage the use of bicycles for local and inter-neighborhood access by residents, workers, and visitors of all ages and abilities.

Public Transit Goals

- PT-G1: Support public transit in the Plan area, including both commuter rail and bus service.

Parking Goals:

- PK-G1: Manage future parking supply so that it promotes and supports transit ridership as well as the needs of local retail, employment and residential uses.

LSAP Proposed Roadway Improvements

The LSAP has identified several major roadway improvements within the LSAP plan area: Kifer Road diet, San Ysidro Way extension, and The Loop roadway. The Kifer Road diet is assumed under the 2035 proposed GP conditions. The San Ysidro Way extension concept would extend San Ysidro Way from Kifer Road south to Sonora Court, designed as a retail street. It would have minimal benefit in traffic operations but would enhance the pedestrian and bicycle connections in the immediate vicinity. The Loop is not considered as part of the traffic impact analysis. It is assumed that the proposed Loop road would not significantly alter traffic patterns to change the conclusions regarding locations or severity of traffic impacts. However, the potential benefit of The Loop concept is qualitatively discussed below.

The intent of The Loop is as a collector boulevard that provides access from Kifer Road to Sonora Court, which leads directly to the Caltrain Station. From that point, The Loop would run along the Caltrain tracks and extend east to a point before Calabazas Creek to turn north and extend to

3.4 TRANSPORTATION AND CIRCULATION

Corvin Drive. The LSAP shows a tentative location for the roadway, but the final location will not be known until included as part of a specific project. The goal of The Loop would be to be a richly-landscaped multi-modal boulevard.

The Loop would provide an additional full access point to Central Expressway west of Lawrence Expressway, which could reduce traffic volumes on Lawrence Expressway. Extending the connectivity of Sonora Court to both Kifer Road and the east side of the Lawrence Expressway overcrossing could reduce traffic volumes on Kifer Road. The Loop would also provide additional access routes to the Lawrence Caltrain Station, which could induce additional transit ridership due to the enhanced connectivity.

Mitigation Measures - Intersections

Lawrence Expressway & Cabrillo Avenue (#25) – City of Santa Clara

Potential At-Grade Mitigation: At-grade mitigation would require four mixed-flow lanes on Lawrence Expressway in both directions, as well as exclusive right-turn lanes on Cabrillo Avenue in both directions. On Lawrence Expressway, the County of Santa Clara currently has no plans to add capacity. All components of the mitigation would require additional right-of-way acquisition and displacement of homes and businesses. Widening the intersection would also extend the pedestrian and bicycle exposure time to traffic, which could lead to secondary pedestrian and bicycle impacts. These impacts to pedestrian and bicycle usage are to the objectives in intent of the LSAP to promote transportation options from vehicle use. The City has determined that this mitigation measure is infeasible given the physical and economic impacts on existing homes and businesses and its conflict with the intent of the LSAP.

Potential Grade-Separation Mitigation: The August 2015 update of the *County of Santa Clara Expressway Plan 2040* identifies an interchange at this intersection as a Tier 3 project. At the time of this report, the interchange configurations have not been finalized. It is assumed that the final interchange configuration would restore the intersection operations to an acceptable LOS D. With the interchange, both the LSAP impact and the cumulative impact at this intersection would be eliminated. Development within the LSAP would be required to pay its fair share contribution towards the planned interchange.

However, because the intersection is controlled by the County of Santa Clara, the City of Sunnyvale cannot ensure the implementation. The timing of implementation as well as availability of funding of this interchange are also uncertain. Therefore, the LSAP intersection impact at this intersection is considered **significant and unavoidable**.

Lawrence Expressway & Benton Street (#27)

Potential At-Grade Mitigation: At-grade mitigation would require four mixed-flow lanes on Lawrence Expressway in both directions, a second southbound left-turn lane, exclusive right-turn lanes on Benton Street in both directions, and a second westbound left-turn lane. On Lawrence Expressway, the County of Santa Clara currently has no plans to add capacity. All components of the mitigation would require additional right-of-way acquisition and displacement of homes and businesses. Widening the intersection would also extend the pedestrian and bicycle exposure time to traffic, which could lead to secondary pedestrian and bicycle impacts. These impacts to pedestrian and bicycle usage are to the objectives in intent of the LSAP to promote transportation options from vehicle use. The City has determined that this mitigation measure is infeasible given the physical and economic impacts on existing homes and businesses and its conflict with the intent of the LSAP.

3.4 TRANSPORTATION AND CIRCULATION

Potential Grade-Separation Mitigation: The August 2015 update of the *County of Santa Clara Expressway Plan 2040* identifies an interchange at this intersection as a Tier 3 project. At the time of this report, the interchange configurations have not been finalized. It is assumed that the final interchange configuration would restore the intersection operations to an acceptable LOS D. With the interchange, both the LSAP impact and the cumulative impact at this intersection would be eliminated. Development within the LSAP would be required to pay its fair share contribution towards the planned interchange.

However, because the intersection is controlled by the County of Santa Clara, the City of Sunnyvale cannot ensure the implementation. The timing of implementation as well as availability of funding of this interchange are also uncertain. Therefore, the LSAP intersection impact at this intersection is considered **significant and unavoidable**.

Lawrence Expressway & Homestead Road (#28)

Proposed At-Grade Mitigation: At-grade mitigation would require widening Lawrence Expressway to five mixed-flow lanes, and Homestead Road to three lanes. The northbound leg would require three left-turn lanes. The southbound leg would require two left-turn lanes. The eastbound leg would require two right-turn lanes. The westbound leg would require three left-turn lanes. On Lawrence Expressway, the County of Santa Clara currently has no plans to add capacity. All components of the mitigation would require additional right-of-way acquisition and displacement of homes and businesses. Widening the intersection would also extend the pedestrian and bicycle exposure time to traffic, which could lead to secondary pedestrian and bicycle impacts. These impacts to pedestrian and bicycle usage are to the objectives in intent of the LSAP to promote transportation options from vehicle use. The City has determined that this mitigation measure is infeasible given the physical and economic impacts on existing homes and businesses and its conflict with the intent of the LSAP.

Potential Grade-Separation Mitigation: The August 2015 update of the *County of Santa Clara Expressway Plan 2040* identifies an interchange at this intersection as a Tier 3 project. At the time of this report, the interchange configurations have not been finalized. It is assumed that the final interchange configuration would restore the intersection operations to an acceptable LOS D. With the interchange, both the LSAP impact and the cumulative impact at this intersection would be eliminated. Development within the LSAP would be required to pay its fair share contribution towards the planned interchange.

However, because the intersection is controlled by the County of Santa Clara, the City of Sunnyvale cannot ensure the implementation. The timing of implementation as well as availability of funding of this interchange are also uncertain. Therefore, the LSAP intersection impact at this intersection is considered **significant and unavoidable**.

Lawrence Expressway & Pruneridge Avenue (#29)

Proposed At-Grade Mitigation: At-grade mitigation would require widening Lawrence Expressway to four mixed-flow lanes. On Lawrence Expressway, the County of Santa Clara currently has no plans to add capacity. All components of the mitigation would require additional right-of-way acquisition and displacement of homes and businesses. Widening the intersection would also extend the pedestrian and bicycle exposure time to traffic, which could lead to secondary pedestrian and bicycle impacts. These impacts to pedestrian and bicycle usage are to the objectives in intent of the LSAP to promote transportation options from vehicle use. The City has determined that this mitigation measure is infeasible given the physical and economic impacts on existing homes and businesses and its conflict with the intent of the LSAP.

3.4 TRANSPORTATION AND CIRCULATION

Potential Grade-Separation Mitigation: The August 2015 update of the *County of Santa Clara Expressway Plan 2040* identifies an interchange at this intersection as a Tier 3 project. At the time of this report, the interchange configurations have not been finalized. It is assumed that the final interchange configuration would restore the intersection operations to an acceptable LOS D. With the interchange, both the LSAP impact and the cumulative impact at this intersection would be eliminated. Development within the LSAP would be required to pay its fair share contribution towards the planned interchange.

However, because the intersection is controlled by the County of Santa Clara, the City of Sunnyvale cannot ensure the implementation. The timing of implementation as well as availability of funding of this interchange are also uncertain. Therefore, the LSAP intersection impact at this intersection is considered **significant and unavoidable**.

Wolfe Road & Kifer Road (#13) and Wolfe Road & Fremont Avenue (#18) – Under Existing General Plan Conditions

MM 3.4.6

Should the proposed Land Use and Transportation Element Update not be adopted, the following roadway improvements shall be a component of the implementation of the LSAP:

- Wolfe Road & Kifer Road - Construction of a second southbound left-turn lane and a second westbound left-turn lane. Both left-turn lanes would need to have the same length as the original left-turn lane. Depending on the width of each travel lane, the north leg and east leg of the intersection will need to be widened between 8 feet and 11 feet. The through lanes at this intersection will be realigned. The required right-of-way would need to be acquired from the northwest, northeast, and/or southeast quadrants of the intersection. Existing bicycle and pedestrian facilities will be retained.

With this improvement, the intersection would operate at an acceptable LOS D during the AM peak hour. There would be secondary deficiencies associated with this improvement such as increased pedestrian and bicyclist exposure to traffic when crossing the intersection. The increased exposure time would range from approximately 2 to 3 seconds for pedestrians and 1 to 2 seconds for bicyclists. This increased exposure time would be minimal. Located within an industrial area and immediately between the rail tracks and Central Expressway, this intersection is also not expected to serve a considerable amount of pedestrian and bicyclist volume. The required right-of-way acquisition would be minimal and would not displace businesses or parking spaces. This improvement would be a requirement for projects within the LSAP only and not a city-wide requirement.

- Wolfe & Fremont Avenue - Construction of an exclusive southbound right-turn lane for the length of the segment. The eastbound inner left-turn lane will require restricting the U-turn movement to allow for a southbound overlap right-turn phase. Vehicles wishing to perform the eastbound U-turn movement would instead perform the U-turn at Elanor Way. Depending on the extent of the median on the north leg that could be removed, the north leg would be widened between 3 to 11 feet. The north leg would be realigned to accommodate the southbound right-turn. There is existing right-of-way on the northeast quadrant of the intersection.

3.4 TRANSPORTATION AND CIRCULATION

With this improvement, the intersection would still operate at an unacceptable LOS E during the PM peak hour, but would no longer have an LSAP intersection deficiency. Secondary deficiencies on the pedestrian and bicycle facilities associated with this improvement would not be considerable. The increased exposure time would range from approximately 1 to 3 seconds for pedestrians and 1 to 2 seconds for bicyclists. This increased exposure time would be minimal. The required right-of-way acquisition would be minimal and would not displace businesses. This improvement would be a requirement for projects within the LSAP only and not a city-wide requirement.

Timing/Implementation: *Incorporated in the LSAP and implemented during development of the Plan Area should the Land Use and Transportation Element Update not be adopted*

Enforcement/Monitoring: *City of Sunnyvale Planning Department*

This would mitigate impacts to these intersections to **less than significant** under existing General Plan conditions for year 2035 conditions.

Mitigation Measures – Freeway Segments

The VTA Valley Transportation Plan (VTP) identifies freeway express lane projects along both SR 237 and US 101 that would consist of converting existing HOV lanes to express lanes and the addition of an express lane on US 101. This would mitigate impacts to US 101, but not to impacts on SR 237. Current development along both SR 237 and US 101 currently restrict the ability to expand these freeway facilities. Development in the LSAP is required to pay fair-share fees towards improvements. However, the City does not have jurisdiction on state highway facilities to ensure these improvements are constructed. Freeway segment impacts would be **significant and unavoidable**.

Mitigation Measure

None feasible.

REFERENCES

AMBAG, 2013. *Plan Bay Area*. July 18, 2013.

Caltrans (California Department of Transportation). 2001. *Guide for the Preparation of Traffic Impact Studies*.

City of Sunnyvale. 2006. *City of Sunnyvale 2006 Bicycle Plan*.

———. 2011. *Sunnyvale General Plan* (consolidated in 2011).

Hexagon Transportation Consultants. 2015. *Lawrence Station Area-Wide Transportation Plan and Near-Term TIA*.

Transportation Research Board. 2000. *Highway Capacity Manual 2000*.

3.4 TRANSPORTATION AND CIRCULATION

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3.5 AIR QUALITY

This section examines the air quality in for the portion of the study area within Sunnyvale, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed project.

A summary of the impact conclusions related to air quality is provided below.

Impact Number	Impact Topic	Impact Significance
3.5.1	Conflict with or Obstruct Implementation of the Bay Area 2010 Clean Air Plan	Less than significant
3.5.2	Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation During Long-Term Operations	Less than significant
3.5.3	Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation During Short-Term Construction Activities	Significant and avoidable
3.5.4	Exposure Sensitive Receptors to Substantial Carbon Monoxide Pollutant Concentrations	Less than significant
3.5.5	Exposure to Sensitive Receptors to Substantial Toxic Air Contaminants During Construction	Less than significant with mitigation
3.5.6	Exposure Sensitive Receptors to Substantial to Toxic Air Contaminants Concentrations During Operations	Less than significant with mitigation
3.5.7	Exposure of Sensitive Receptors to Odorous Emissions	Less than significant
3.5.8	Cumulatively Considerable Increase in Nonattainment Criteria Pollutants	Cumulatively considerable and significant and unavoidable

3.5.1 EXISTING SETTING

SAN FRANCISCO BAY AREA AIR BASIN

The proposed project is located in the San Francisco Bay Area Air Basin (SFBAAB). The Bay Area Air Quality Management District (BAAQMD) is the regional air quality agency for the SFBAAB, which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors are briefly described below.

Topography

The topography of the SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, all of which distort normal wind flow patterns. This complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the air basin.

3.5 AIR QUALITY

Meteorology and Climate

During the summer, the large-scale meteorological condition that dominates the West Coast is a semi-permanent high-pressure cell over the Pacific Ocean. This high-pressure cell keeps storms from affecting the California coast. Hence, the SFBAAB experiences little precipitation in the summer months. Winds tend to blow onshore out of the north-northwest. Generally in the winter, the Pacific high-pressure cell weakens and shifts southward, winds tend to flow offshore, upwelling ceases, and storms occur. During the winter rainy periods, inversions (layers of warmer air over colder air; see below) are weak or nonexistent, winds are usually moderate, and air pollution potential is low. The Pacific high-pressure cell periodically becomes dominant, bringing strong inversions, light winds, and high pollution potential (BAAQMD 2011).

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills. In the winter, the SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes are characterized by nighttime drainage flows in coastal valleys (BAAQMD 2011).

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing are usually high, and thus pollution levels tend to be low. However, frequent dry periods do occur during the winter where mixing and ventilation are low and pollutant levels build up (BAAQMD 2011).

Summertime temperatures in the SFBAAB are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold ocean bottom water along the coast. On summer afternoons, the temperatures at the coast can be 35°F cooler than temperatures 15 to 20 miles inland. At night, this contrast usually decreases to less than 10°F.

In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime, the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large (BAAQMD 2011).

Santa Clara Valley Climatological Subregion

There are eleven major climatological subregions in the SFBAAB. Sunnyvale is located in the Santa Clara Valley Climatological Subregion, which is bounded by the 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 fairly mild. At the northern end of the valley, mean maximum temperatures are in the low 80s during the summer and the high 50s during the winter, and mean minimum temperatures range from the high 50s in the summer to the low 40s in the winter. Farther inland, where the moderating effect of the 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 the 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.

Air Pollution Potential

The potential for high pollutant concentrations developing at a given location depends on the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind and the ability of the atmosphere to disperse the contaminated air. The topographic and climatological factors discussed above influence the atmospheric pollution potential of an area. Atmospheric pollution potential, as the term is used here, is independent of the location of emission sources and is instead a function of the factors described below.

Atmospheric Conditions

The hills and mountains in the SFBAAB contribute to the high pollution potential of some areas. An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground. The highest air pollutant concentrations in the SFBAAB, and therefore in Sunnyvale, generally occur during inversions.

The areas having the highest air pollution potential also tend to be those that experience the highest temperatures in the summer and the lowest temperatures in the winter. The frequency of hot, sunny days during the summer months in the SFBAAB is another important factor that affects air pollution potential. It is at the higher temperatures that ozone is formed. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone. Because temperatures in many of the air basin's inland valleys are so much higher than near the coast, the inland areas are especially prone to photochemical air pollution. In late fall and winter, solar angles are low, resulting in insufficient ultraviolet light and warming of the atmosphere to drive the photochemical reactions. Ozone concentrations do not reach significant levels in the SFBAAB during these seasons (BAAQMD 2011).

The air pollution potential in the Santa Clara Valley is high. High summer temperatures, stable air, and mountains surrounding the valley combine to promote ozone formation. In addition to the many local sources of pollution, ozone precursors from San Francisco, San Mateo, and Alameda counties are carried by prevailing winds to the Santa Clara Valley. The valley tends to channel pollutants to the southeast. In addition, on summer days with low-level inversions, ozone can be recirculated by southerly drainage flows in the late evening and early morning and by the prevailing northwesterlies in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of carbon monoxide and particulate matter. This movement of the air up and down the valley increases the impact of the pollutants significantly.

Emission Sources

Although air pollution potential is strongly influenced by climate and topography, the air pollution that occurs in a location also depends on the amount of air pollutant emissions in the surrounding area or those that have been transported from more distant places. Air pollutant emissions

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generally are highest in areas that have high population densities, high motor vehicle use, and/or industrialization. The contaminants created by photochemical processes in the atmosphere, such as ozone, may result in high concentrations many miles downwind from the sources of their precursor chemicals (BAAQMD 2011).

Pollution sources are plentiful and complex in the Santa Clara Valley Climatological Subregion. The Santa Clara Valley has a high concentration of industry at the northern end, in Silicon Valley. Some of these industries are sources of air toxics as well as criteria air pollutants. In addition, the Santa Clara Valley's large population and many work-site destinations generate the highest mobile source emissions of any subregion in the SFBAAB.

AIR POLLUTANTS OF CONCERN

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants are known as criteria air pollutants and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_x), sulfur dioxide (SO₂), coarse particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}), lead, and fugitive dust are primary air pollutants. Of these, CO, SO₂, PM₁₀, and PM_{2.5} are criteria pollutants. ROG and NO_x are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O₃) and nitrogen dioxide (NO₂) are the principal secondary pollutants. Presented in **Table 3.5-1** is a description of each of the primary and secondary criteria air pollutants and their known health effects.

**TABLE 3.5-1
CRITERIA AIR POLLUTANTS SUMMARY OF COMMON SOURCES AND EFFECTS**

Pollutant	Major Man-Made Sources	Human Health Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO ₂)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O ₃)	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (NO _x) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Particulate Matter (PM ₁₀ & PM _{2.5})	Produced by power plants, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.

Pollutant	Major Man-Made Sources	Human Health Effects
Sulfur Dioxide (SO ₂)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.

Source: CAPCOA 2011

AMBIENT AIR QUALITY

Ambient air quality in Sunnyvale can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. Existing levels of ambient air quality and historical trends and projections in the vicinity of Sunnyvale are documented by measurements made by the BAAQMD, the air pollution regulatory agency in the SFBAAB that maintains air quality monitoring stations which process ambient air quality measurements.

As described in more detail under the Regulatory Framework subsection below, ozone, PM₁₀, and PM_{2.5} are the primary pollutants affecting the SFBAAB. The 22601 Voss Avenue air quality monitoring station in Cupertino is the closest station to the project site, approximately 5.5 miles to the southwest. This station monitors ambient concentrations of ozone, PM₁₀, and PM_{2.5}. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in Sunnyvale. The concentrations of pollutants monitored at this station are representative of Sunnyvale because it is the closest monitoring station to the city and is located in the same climatological subregion.

Table 3.5-2 summarizes the published data since 2012 from the Cupertino-Voss Avenue air quality monitoring station for each year that monitoring data is provided.

**TABLE 3.5-2
SUMMARY OF AMBIENT AIR QUALITY DATA**

Pollutant Standards	2012	2013	2014
Ozone			
Max 1-hour concentration (ppm)	0.083	0.091	*
Max 8-hour concentration (ppm) (state/federal)	0.067 / 0.066	0.078 / 0.077	* / *
Number of days above state 1-hour standard	0	0	0
Number of days above state/federal 8-hour standard	0 / 0	1 / 1	* / *
Respirable Particulate Matter (PM₁₀)			
Max 24-hour concentration (µg/m ³) (state/federal)	27.5 / *	38.9 / *	* / *
Number of days above state/federal standard	0 / 0	0 / 0	* / *
Fine Particulate Matter (PM_{2.5})			
Max 24-hour concentration (µg/m ³) (state/federal)	27.5 / *	38.9 / *	* / *
Number of days above federal standard	*	*	*

Source: CARB 2015

Notes:

µg/m³ = micrograms per cubic meter; ppm = parts per million

* = No data is currently available from CARB to determine the value.

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Areas with air quality that exceed adopted air quality standards are designated as nonattainment areas for the relevant air pollutants, while areas that comply with air quality standards are designated as attainment areas for the relevant air pollutants. The attainment status for the Sunnyvale portion of the SFBAAB is included in **Table 3.5-3**. The region is nonattainment for state ozone, PM₁₀, and PM_{2.5} standards in addition to federal ozone and PM_{2.5} standards (BAAQMD 2015a).

**TABLE 3.5-3
FEDERAL AND STATE AMBIENT AIR QUALITY ATTAINMENT STATUS FOR SUNNYVALE**

Pollutant	Federal	State
Ozone (O ₃)	Nonattainment	Nonattainment
Coarse Particulate Matter (PM ₁₀)	Unclassified	Nonattainment
Fine Particulate Matter (PM _{2.5})	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Unclassified/Attainment	Attainment
Nitrogen Dioxide (NO ₂)	Unclassified/Attainment	Attainment
Sulfur Dioxide (SO ₂)	Attainment	Attainment

Source: BAAQMD 2015a

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes, such as petroleum refining; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects associated with TACs are quite diverse and generally are assessed locally rather than regionally.

To date, the California Air Resources Board (CARB) has designated nearly 200 compounds as TACs. Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds.

Most recently, CARB identified diesel particulate matter (diesel PM) as a TAC. Diesel PM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. Diesel PM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. Diesel PM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of diesel PM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations

(high/low sulfur fuel), and the year of the engine (EPA 2002, pp. 1-1 and 1-2). Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. Diesel PM poses the greatest health risk among the TACs; due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

TAC sources in the LSAP area are identified under Impact 3.5.6 and include Caltrain, Lawrence Expressway, and stationary sources in the area.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others because of the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Children are considered more susceptible to the health effects of air pollution due to their immature immune systems and developing organs (OEHHA 2007). As such, schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities.

3.5.2 REGULATORY FRAMEWORK

During construction and operation under the proposed plan area there is potential that gaseous emissions of criteria pollutants and dust into the ambient air would be emitted; therefore, development activities under the project fall under the ambient air quality standards promulgated at the local, state, and federal levels. The federal Clean Air Act of 1971 and the Clean Air Act Amendments (1977) established the national ambient air quality standards (NAAQS), which are promulgated by the US Environmental Protection Agency (EPA). The State of California has also adopted its own California ambient air quality standards (CAAQS), which are promulgated by CARB. Implementation of the project would occur in the SFBAAB, which is under the air quality regulatory jurisdiction of the BAAQMD and is subject to the rules and regulations adopted by the air district to achieve the national and state ambient air quality standards. Federal, state, regional, and local laws, regulations, plans, and guidelines are summarized below.

AMBIENT AIR QUALITY STANDARDS

The Clean Air Act established NAAQS, with states retaining the option to adopt more stringent standards or to include other pollution species. These standards are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect those sensitive receptors most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both the State of California and the federal government have established health-based ambient air quality standards for six air pollutants. As shown in **Table 3.5-4**, these pollutants include ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

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**TABLE 3.5-4
AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California Standards	National Standards
Ozone (O ₃)	8 Hour	0.070 ppm (137 μg/m ³)	0.075 ppm
	1 Hour	0.09 ppm (180 μg/m ³)	—
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)
Nitrogen Dioxide (NO ₂)	1 Hour	0.18 ppm (339 μg/m ³)	100 ppb
	Annual Arithmetic Mean	0.030 ppm (57 μg/m ³)	53 ppb (100 μg/m ³)
Sulfur Dioxide (SO ₂)	24 Hour	0.04 ppm (105 μg/m ³)	N/A
	3 Hour	—	N/A
	1 Hour	0.25 ppm (665 μg/m ³)	75 ppb
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 μg/m ³	N/A
	24 Hour	50 μg/m ³	150 μg/m ³
Particulate Matter – Fine (PM _{2.5})	Annual Arithmetic Mean	12 μg/m ³	15 μg/m ³
	24 Hour	N/A	35 μg/m ³
Sulfates	24 Hour	25 μg/m ³	N/A
Lead	Calendar Quarter	N/A	1.5 μg/m ³
	30 Day Average	1.5 μg/m ³)	N/A
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m ³)	N/A
Vinyl Chloride (chloroethene)	24 Hour	0.01 ppm (26 μg/m ³)	N/A
Visibility-Reducing Particles	8 Hour (10:00 to 18:00 PST)	—	N/A

Source: BAAQMD 2015a

Notes: mg/m³ = milligrams per cubic meter; ppm = parts per million; ppb = parts per billion; μg/m³ = micrograms per cubic meter

AIR QUALITY ATTAINMENT PLANS

The BAAQMD is responsible for preparing plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans for the national ozone standard and clean air plans for the California standard, both in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG).

With respect to applicable air quality plans, the BAAQMD prepared the Bay Area 2010 Clean Air Plan to address nonattainment of the national 1-hour ozone standard in the air basin. The Clean Air Plan defines a control strategy that the BAAQMD and its partners will implement to (1) reduce emissions and decrease ambient concentrations of harmful pollutants; (2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and (3) reduce greenhouse gas (GHG) emissions to protect the climate. It is important to note that, in addition to updating the previously prepared ozone plan, the Clean Air Plan also serves as a multipollutant plan to protect public health and the climate. This effort to develop its first-ever multipollutant air quality

plan is a voluntary initiative by the BAAQMD. The district believes that an integrated and comprehensive approach to planning is critical to respond to air quality and climate protection challenges in the years ahead. In its dual roles as an update to the state ozone plan and a multipollutant plan, the Bay Area 2010 Clean Air Plan addresses four categories of pollutants (BAAQMD 2010):

- Ground-level ozone and its key precursors, ROG and NOX
- Particulate matter: primary PM_{2.5}, as well as precursors to secondary PM_{2.5}
- Air toxics
- Greenhouse gases

The Clean Air Plan provides local guidance for the State Implementation Plan (SIP), which provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards (CAAQS and NAAQS). Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. Areas for which there is insufficient data available are designated unclassified.

TOXIC AIR CONTAMINANT REGULATIONS

The California Health and Safety Code defines a TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health.” California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics “Hot Spot” Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as toxic air contaminants. Once a TAC is identified, CARB adopts an “airborne toxics control measure” for sources that emit designated TACs. If there is a safe threshold for a substance (a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. CARB has, to date, established formal control measures for eleven TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics “Hot Spot” Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings. Stationary sources of air toxics in Sunnyvale include gasoline fuel stations, diesel-powered backup generators, and dry cleaning facilities.

Land Use Compatibility with TAC Emission Sources

The location of a development project is a major factor in determining whether it will result in localized air quality impacts. The potential for adverse air quality impacts increases as the distance between the source of emissions and members of the public decreases. While impacts on all members of the population should be considered, impacts on sensitive receptors, such as schools or hospitals, are of particular concern. CARB (2005) published an informational guide entitled *Air Quality and Land Use Handbook: A Community Health Perspective*. The purpose of this guide is to provide information to aid local jurisdictions in addressing issues and concerns related to the placement of sensitive land uses near major sources of air pollution. The handbook includes

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recommended separation distances between TAC sources and new sensitive land uses. However, these recommendations are not site-specific and should not be interpreted as mandated “buffer zones.” It is also important to note that the recommendations of the handbook are advisory and need to be balanced with other state and local policies (CARB 2005). The recommended distances for potential TAC sources that are relevant to evaluating proposed project impacts are listed in **Table 3.5-5**.

**TABLE 3.5-5
RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES NEAR AIR POLLUTANT SOURCES**

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles per day.
Dry Cleaners Using Perchloroethylene	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc. dry cleaners.
Gasoline Dispensing Facilities	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Source: CARB 2005

Notes: Recommendations are advisory, are not site-specific, and may not fully account for future reductions in emissions, including those resulting from compliance with existing/future regulatory requirements, such as reductions in diesel-exhaust emissions anticipated to occur with continued implementation of CARB’s Diesel Risk Reduction Plan.

California Diesel Risk Reduction Plan

CARB has adopted the Diesel Risk Reduction Plan (DRRP), which recommends many control measures to reduce the risks associated with diesel PM and achieve a reduction goal of 85 percent by 2020. The DRRP incorporates measures to reduce emissions from diesel-fueled vehicles and stationary diesel-fueled engines. CARB’s ongoing efforts to reduce diesel-exhaust emissions from these sources include the development of specific statewide regulations, which are designed to further reduce diesel PM emissions. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

Since the initial adoption of the DRRP in September 2000, CARB has adopted numerous rules related to the reduction of diesel PM from mobile sources, as well as the use of cleaner-burning fuels. Transportation sources addressed by these rules that pertain to projects in Sunnyvale include public transit buses, school buses, on-road heavy-duty trucks, and off-road heavy-duty construction equipment.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

The BAAQMD attains and maintains air quality conditions in the SFBAAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The BAAQMD’s clean air strategy includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen

complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the federal Clean Air Act, the Clean Air Act Amendments, and the California Clean Air Act.

Rules and Regulations

The BAAQMD develops regulations to improve air quality and protect the health and welfare of Bay Area residents and their environment. BAAQMD rules and regulations most applicable to the project area include but are not limited to the following:

- **Regulation 2, Rule 2: New Source Review.** Requires any new source resulting in an increase of any criteria pollutant to be evaluated for adherence to best available control technology. For compression internal combustion engines, best available control technology requires that the generator be fired on California diesel fuel (fuel oil with a sulfur content less than 0.05 percent by weight and less than 20 percent by volume of aromatic hydrocarbons). All stationary internal combustion engines larger than 50 horsepower must obtain a Permit to Operate. If the engine is diesel fueled, it must also comply with the BAAQMD-administered Statewide Air Toxics Control Measure for Stationary Diesel Engines.
- **Regulation 7: Odorous Substances.** Establishes general limitations on odorous substances and specific emission limitations on certain odorous compounds.
- **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 the district.
- **Regulation 8, Rule 15: Emulsified and Liquid Asphalts.** Limits the emissions of volatile organic compounds caused by the use of emulsified and liquid asphalt in paving materials and paving and maintenance operations.
- **Regulation 14: Mobile Source Emissions Reduction Measures.** Includes measures to reduce emissions of air pollutants from mobile sources by reducing motor vehicle use and/or promoting the use of clean fuels and low-emission vehicles.

The above list represents rules and regulations most applicable to the project. Additional rules and regulations may apply, depending on the sources proposed and the activities conducted.

BAAQMD Construction Mitigation Measures

The BAAQMD recommends quantifying a proposed project's construction-generated emissions implementing the Basic Construction Mitigation Measures as mitigation for dust and exhaust construction impacts in the CEQA compliance documentation. If additional construction measures are required to reduce construction generated emissions, the Additional Construction Mitigation Measures should be applied to mitigate construction impacts, according to the BAAQMD. **Table 3.5-6** identifies the Basic and Additional Construction Mitigation Measures. In addition, all projects must implement any applicable air toxic control measures (ATCM). For example, projects that have the potential to disturb asbestos (from soil or building material) must comply with all the requirements of CARB's ATCM for Construction, Grading, Quarrying, and Surface Mining Operations.

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**TABLE 3.5-6
BAAQMD BASIC AND ADDITIONAL CONSTRUCTION MITIGATION MEASURES**

BAAQMD Basic Construction Mitigation Measures
1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. All equipment shall be checked by a certified visible emissions evaluator.
8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This 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.
BAAQMD Additional Construction Mitigation Measures
1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
8. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
9. Minimize the idling time of diesel-powered construction equipment to 2 minutes.
10. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project-wide fleet average 20 percent NOx reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
11. Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
12. Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
13. Require all contractors use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines.

Source: BAAQMD 2011

CITY OF SUNNYVALE GENERAL PLAN

The Land Use and Transportation and Environmental Management chapters of the General Plan contain the following policies that are relevant to the analysis of air quality impacts:

Land Use and Transportation

- Policy LT-1.3b Promote shorter commute trips and ease congestion by advocating that all communities provide housing and employment opportunities.
- Policy LT-1.7a Locate higher intensity land uses and developments so that they have easy access to transit services.
- Policy LT-1.9b Promote modes of travel and actions that reduce single-occupant vehicle trips and trip lengths.
- Policy LT-1.10b Support alternative transportation services, such as light rail, buses and commuter rail, through appropriate land use planning.
- Policy LT-1.10c Encourage mixed uses near transit centers.
- Policy LT-2.2c Encourage development of multi-modal transportation centers.
- Policy LT-3.4a Locate higher-density housing with easy access to transportation corridors, rail transit stations, bus transit corridor stops, commercial services and jobs.
- Policy LT-4.3c Design streets, pedestrian paths and bicycle paths to link neighborhoods with services.
- Policy LT-4.14b Ensure the provision of bicycle support facilities at all major public use locations.
- Policy LT-5.2c Encourage mixed use developments that provide pedestrian scale and transit oriented services and amenities.
- Policy LT-5.5a Promote alternate modes of travel to the automobile.
- Policy LT-5.5b Require sidewalk installation in subdivisions of land and in new, reconstructed or expanded development.
- Policy LT-5.5c Support land uses that increase the likelihood of travel mode split.
- Policy LT-5.5d Maximize the provision of bicycle and pedestrian facilities.

Environmental Management

- 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.

3.5 AIR QUALITY

3.5.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Air quality impacts were assessed in accordance with methodologies recommended by the BAAQMD, based on the development potential assumptions described in Section 2.0, Project Description. This impact discussion assumes full development potential under the proposed Lawrence Station Area Plan in order to present the most potent air quality-related impacts possible. The analysis of operational TAC impacts used the BAAQMD's Railway Screening Analysis Tool (2015b), Stationary Source Screening Analysis Tool (2012a), Highway Screening Analysis Tool (2012a), and Distance Adjustment Multiplier (2012c). Construction TACs were evaluated qualitatively, and the approach to the analysis and mitigation strategy was developed through consultation with BAAQMD staff.

Proposed LSAP Policies and Guidelines

The analysis in this section assumes implementation of the relevant polices (P) and urban design guidelines (UDG) proposed in the LSAP. The guidelines listed below are not all-inclusive but are intended to highlight overall design considerations that address potential noise impacts at a programmatic level.

Land Use

- LU-G5 *Provide a mix of uses within the Plan area that encourages transit ridership, creates a neighborhood of 24-hour activity and supports the provision of amenities such as open space and support services such as retail.*
- LU-P3 *Allow transition to higher density transit-supportive uses as opportunities arise through turnover of businesses or property ownership.*

Housing

- H-G1 *Provide sufficient housing in the Plan area to support an increase rail transit ridership.*

Retail

- R-G4 *Provide retail that is convenient and accessible to pedestrians and transit users.*
- R-G5 *Do not encourage auto-oriented and auto serving retail.*

Open Space

- OSG-1 *Establish a system of parks and public spaces connected by green corridors and linear parks that serve and connect both new residential development and new non-residential development.*
- OSG-2 *Provide open space within a five- to ten minute walk of all residents and employees.*
- OSG-3 *Connect open space areas to local and regional bikeways and trail networks to the greatest extent possible.*

OSP-4 *Provide pedestrian and bicycle amenities on all Green Streets, including abundant landscaping, Class I or Class II bicycle facilities, lighting and intersection amenity and safety improvements.*

Development

D-G1 *Develop the Plan area with a diverse mix of uses at intensities sufficient to support and take advantage of the significant existing public investment in transit.*

Circulation

CF-G1 *Create a complete, multi-modal transportation network that supports a mixed-use neighborhood throughout the Plan area.*

CF-G2 *Create a balanced circulation system that is accessible to all modes of travel and does not favor one mode over another.*

CF-G3 *Create a street and block framework that provides a variety of vehicular access options and is scaled to pedestrians.*

CF-G5 *Improve access to bus and rail transit by all modes of travel.*

CF-G6 *Create streets (both new and improved) that are comfortable and convenient for pedestrians, so walking is a pleasure and accessing residences and businesses is easy.*

CF-G7 *Make the area in and around the station bicycle-friendly, so residents and employees of all ages and abilities can feel comfortable and secure biking to work, services, and for recreation.*

CF-P1 *In the residential areas south of the Caltrain tracks, retain the existing framework of streets and blocks. Improve existing streets to provide safer street crossings and minor access improvements for pedestrians, bicycles and transit users.*

CF-P12 *Provide a wide, landscaped pedestrian sidewalk zone, continuous Class II bicycle lanes, on-street parking and transit stops continuously along Kifer Road in the Plan area.*

Pedestrian

P-G1 *Provide safe, inviting, and attractive pedestrian connections for residents, workers and visitors to Lawrence Station and other key destinations in the Plan area.*

P-P1 *Promote walking access through new street connections.*

P-P2 *Provide two new Caltrain track crossings for pedestrians and bicyclists: one at the Calabazas Creek Trail (per study by the City of Santa Clara); the other west of Lawrence Expressway aligning with and connecting to The Loop near the western end of Sonora Court.*

3.5 AIR QUALITY

- P-P3 *Facilitate pedestrian access and safety along key pedestrian corridors through pedestrian enhancements, including crosswalk enhancements, sidewalk extensions (bulbouts), and wider sidewalks.*
- P-P4 *Provide enhanced crosswalks on all legs of signalized intersections and at key pedestrian crossing locations.*
- P-P5 *Provide new pedestrian crossings, including potential mid-block crosswalks, on Reed Avenue, Kifer Road, and The Loop.*
- P-P6 *Provide sidewalk extensions (bulbouts) on all new streets, where feasible, and on select existing streets along primary pedestrian corridors.*

Bicycle

- B-P1 *Require property development to provide Class I and Class II bicycle facilities to fill in the gaps in the existing and planned bicycle network.*
- B-P2 *Provide direct Class I and Class II bicycle connections to the future Calabazas Creek Trail from The Loop.*
- B-P3 *Provide direct Class I multi-use public linkages between The Loop in the northeast quadrant of the Plan area to the Calabazas Creek Trail at spacings not to exceed 400 feet.*
- B-P4 *Connect new neighborhood open spaces with publicly-accessible streets, bicycle facilities and pedestrian linkages.*
- B-P5 *Install bicycle detection loops at signalized intersections.*
- B-P6 *Provide Class I or Class II bicycle parking per Lawrence Station Area Plan bicycle parking requirements.*
- B-P7 *Implement a bicycle sharing program.*

Public Transit

- PT-P4 *Provide bus stops with bus pull-outs, shelters, furnishings, lighting and signage along the Primary Loop Road and all other bus transit streets in the Plan area.*
- PT-P5 *Locate bus stops on the Primary Loop Road approximately every ¼-mile (1,300 feet).*

Transportation Demand Management

- TDM-P2 *Achieve a daily trip reduction target of 20 percent and a peak hour trip reduction target of 30 percent for new Office/R&D development.*
- TDM-P3 *Achieve a peak hour trip reduction of 5 percent for new retail and residential development*

- TDM-P4 *Include incentives for the provision of the following features as part of a TDM program for the Plan area:*
- a) Provide shuttle service
 - b) Provide bicycle parking and end-of-trip facilities (e.g., lockers, showers)
 - c) Create marketing campaigns to discourage auto trips
 - d) Offer low-cost or free transit passes to employees
 - e) Dedicate carpool/vanpool parking spaces
 - f) Offer cash in place of a free parking space (parking cash-out)
 - g) Charge for parking
 - h) GreenTrip registration.

Parking

- PK-G1 *Manage future parking supply so that it promotes and supports transit ridership as well as the needs of local retail, employment and residential uses.*
- PK-P1 *Adopt specific parking requirements for all new development in the Plan area.*
- PK-P3 *Establish a shared parking program in advance of development, with the following features:*
- a) Require developers to submit a shared parking analysis.
 - b) Allow new development to either provide sufficient off-street parking supply to meet the incremental increase in parking demand associated with the proposed project, and/or lease parking spaces from earlier parcel owners who have available parking located adjacent to the development parcel (within ¼ mile radius or closer).
 - c) Require new residential development to provide no more than 1.7 parking spaces per residential unit for exclusive use by residents. Additional parking supply that may be needed for the development shall be provided in shared facilities that will be required to be open to all users, including transit station patrons.
 - d) Price shared parking facilities according to market conditions, and encourage management by either the parcel owner, or the Plan area Parking Management District.
 - e) Consider allowing on-street parking spaces to be added as part of the development of a parcel to count towards a project's required shared parking supply, but do not allow it to be used as reserved spaces for residential uses.

3.5 AIR QUALITY

- f) Verify the accuracy of the parking demand estimates of the shared parking model based on interim parking demand counts over the course of the build-out of the Plan area. Conduct parking counts during the peak parking demand period as identified in the shared parking analysis: weekday afternoons in December. Parking ratios in the shared parking model shall be calibrated to the parking demand counts if there is a significant discrepancy.

PMP-4: Plan for structured parking as demand increases. This can be in the form of a stand-alone parking structure for nearby users, or shared parking integrated with residential or office/R&D uses.

PMP-5: Unbundle parking costs from property or lease costs.

PMP-6: Provide parking spaces at the Lawrence Caltrain Station for the exclusive use of car sharing vehicles.

PMP-7: Implement a parking pricing system as demand for parking in the area increases.

PMP-8: Establish a residential parking permit (RPP) program in the Plan area in the future if / when analysis demonstrates a need for such measures.

Street Planting

STP-UDG1 Plant street trees on all streets

Lighting

L-UDG4 Utilize energy-efficient lighting, such as light-emitting diode (LED) bulbs.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance:

- 1) Conflict with or obstruct implementation of any applicable air quality plan.
- 2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- 3) Expose sensitive receptors to substantial pollutant concentrations.
- 4) Create objectionable odors affecting a substantial number of people.
- 5) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

CEQA Guidance

The BAAQMD publishes CEQA Air Quality Guidelines to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality. The district's guidelines were updated in June 2010 to include new thresholds of significance (2010 thresholds) adopted by the BAAQMD Governing Board on June 2, 2010. The BAAQMD's guidelines were further updated in May 2011. The 2010 thresholds included new thresholds of significance for construction emissions, cumulative toxic air contaminant impacts, and fine particulate matter concentration increases.

On March 5, 2012, the Alameda County Superior Court issued a judgment in connection with a lawsuit filed by the Building Industry Association, finding that the BAAQMD had failed to comply with CEQA when it adopted the 2010 thresholds. The court did not determine whether the 2010 thresholds were valid on the merits, but found that adoption of the 2010 thresholds was a "project" under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the 2010 thresholds and cease dissemination of them until the district had complied with CEQA. However, the court did not address the Building Industry Association's remaining arguments. The BAAQMD appealed the Alameda County Superior Court's decision and the case went to the Court of Appeal, First Appellate District.

After the Alameda County Superior Court's decision, the BAAQMD stopped recommending the 2010 thresholds be used as a generally applicable measure of a project's significant air quality impacts. The BAAQMD released a new version of its CEQA Air Quality Guidelines in May 2012 removing the 2010 thresholds. The BAAQMD, however, provided a recommendation that lead agencies determine appropriate air quality thresholds of significance based on substantial evidence in the record.

On August 13, 2013, the Court of Appeals reversed the Superior Court's decision, finding that the BAAQMD's thresholds were not a "project" under CEQA and as such, did not require CEQA review. On November 26, 2013, the California Supreme Court by unanimous vote granted review to address the legal issue of whether CEQA review is confined to an analysis of a proposed project's impacts on the existing environment or also requires analysis of the existing environment's impacts on the proposed project and its future occupants and users. On December 17, 2015, the State Supreme Court concluded that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the *project's* impact on the environment — and not the *environment's* impact on the project. Given the recent date of the Supreme Court decision compared with the writing of this DEIR, the BAAQMD has yet to announce a recommendation to use its 2010 thresholds. Nevertheless, in the mean time jurisdictions may exercise their discretion and utilize said thresholds based on a determination that they are supported by substantial evidence. For purposes of this analysis, the City of Sunnyvale has determined, in its discretion, to utilize the BAAQMD's thresholds, finding that the thresholds are supported by substantial evidence. Using these criteria, an air quality impact is considered significant if the project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.

3.5 AIR QUALITY

Air Pollutant Emissions Analysis

The BAAQMD CEQA Guidelines do not contain numeric thresholds related to criteria pollutant emissions resulting from 'plan implementation', such as implementation of the proposed Lawrence Station Area Plan. According to the BAAQMD CEQA Guidelines, in order to identify whether a plan would violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation, the proposed plan (i.e., the proposed Lawrence Station Area Plan) must demonstrate consistency with the control measures contained in the Bay Area 2010 Clean Air Plan described above, and show that projected vehicle miles traveled (VMT) increases as a result of the plan are less than or equal to projected population increases over the planning period of the plan.

CO Hot-Spot Analysis

The California 1-hour and 8-hour CO standards are:

- 1-hour = 20 parts per million
- 8-hour = 9 parts per million

The significance of localized impacts depends on whether ambient carbon monoxide levels within or in the vicinity of the project area are above state and federal CO standards. Carbon monoxide concentrations in Sunnyvale no longer exceed the CAAQS or NAAQS criteria, and the SFBAAB has been designated as attainment under the 1-hour and 8-hour standards. Based on BAAQMD guidance, projects meeting all of the following screening criteria would be considered to have a less than significant impact on localized carbon monoxide concentrations if:

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

Toxic Air Contaminant Analysis

In addition to criteria air pollutants and CO hot spots, this Draft EIR evaluates the plan area's impacts with respect to toxic air contaminants. The BAAQMD regulates levels of air toxics through a permitting process that covers both construction and operation. Per BAAQMD guidance, all other sources within 1,000 feet of a proposed sensitive receptor need to be identified and analyzed. If emissions of TAC concentrations at a new sensitive receptor generated from all TAC sources in a 1,000 foot radius result in the exceedance of an excess cancer risk level of more than 100 in one million, or a non-cancer hazard index greater than 10, the project would result in a significant impact. In terms of the placement of a source of TAC emissions in the vicinity of existing sensitive receptors, if emissions of TACs exceed an excess cancer risk level of more than 10 in one million or a non-cancer hazard index greater than 1.0, the proposed source would result in a significant impact.

IMPACTS AND MITIGATION MEASURES**Conflict with or Obstruct Implementation of the Bay Area 2010 Clean Air Plan (Standard of Significance 1)**

Impact 3.5.1 Subsequent land use activities associated with implementation of the proposed Lawrence Station Area Plan would not conflict with the *Bay Area 2010 Clean Air Plan*. This impact is **less than significant**.

Consistency of the LSAP with *2010 Clean Air Plan* control measures is demonstrated by assessing whether the LSAP implements all of the applicable Clean Air Plan control measures. The *Bay Area 2010 Clean Air Plan* (BAAQMD 2010) includes about 55 control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. The control measures are divided into five categories: 18 measures to reduce stationary and area sources; 10 mobile source measures; 17 transportation control measures, 6 land use and local impact measures; and 4 energy and climate measures.

In developing the control strategy, the BAAQMD identified the full range of tools and resources available, both regulatory and non-regulatory, to develop each measure. Implementation of each control measure will rely on some combination of the following:

- Adoption and enforcement of rules to reduce emissions from stationary sources, area sources, and indirect sources.
- Revisions to the BAAQMD permitting requirements for stationary sources.
- Enforcement of CARB rules to reduce emissions from heavy-duty diesel engines.
- Allocation of grants and other funding by the BAAQMD and/or partner agencies.
- Promotion of best policies and practices that can be implemented by local agencies through guidance documents, model ordinances, and other measures.
- Partnerships with local governments, other public agencies, the business community, nonprofits, and other groups.
- Public outreach and education.
- Enhanced air quality monitoring.
- Development of land use guidance and CEQA guidelines, and BAAQMD review and comment on Bay Area projects pursuant to CEQA.
- Leadership and advocacy.

This approach relies upon lead agencies to assist in implementing some of the control measures. A key tool for local agency implementation is the development of land use policies and implementing measures that address new development or redevelopment in local communities. The consistency of the proposed LSAP is evaluated with respect to each set of control measures.

3.5 AIR QUALITY

The *Clean Air Plan* includes stationary source control measures that the BAAQMD adopts as rules or regulations through their authority to control emissions from stationary and area sources. The BAAQMD is the implementing agency, since these control measures are applicable to sources of air pollution that must obtain BAAQMD permits. The City uses the BAAQMD's CEQA Air Quality Guidelines to evaluate air pollutant emissions from new sources. Additionally, the *Clean Air Plan* includes mobile source measures that would reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment through programs such as the BAAQMD's Vehicle Buy-Back and Smoking Vehicle Programs, and promoting advanced technology vehicles that reduce emissions. The implementation of these measures relies heavily on incentive programs, such as the Carl Moyer Program and the Transportation Fund for Clean Air, to achieve voluntary emission reductions in advance of, or in addition to, CARB requirements. CARB has new regulations that require the replacement or retrofit of on-road trucks, construction equipment, and other specific equipment that is diesel powered. The *Clean Air Plan* also includes transportation control measures (TCMs) that are strategies meant to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. While most of the TCMs are implemented at the regional level (that is, by MTC or Caltrans), the *Clean Air Plan* relies on local communities to assist with implementation of some measures. In addition, the *Clean Air Plan* includes land use measures and energy and climate measures whose implementation is aided by proper land use planning decisions.

The BAAQMD's 2010 *Clean Air Plan* includes various control strategies to reduce emissions of local and regional pollutants and promote public health and energy conservation. Consistent with the control strategies identified in the *Clean Air Plan*, the proposed LSAP include numerous provisions to reduce emissions of local and regional pollutants and to promote public health and energy conservation. The *Clean Air Plan* control strategies and policy provisions that are most applicable are summarized in **Table 3.5-7**. (The full text of each LSAP policy provision is listed above.)

**TABLE 3.5-7
LSAP CONSISTENCY WITH CLEAN AIR PLAN CONTROL STRATEGIES**

Clean Air Plan Strategies	LSAP Policies & Guidelines
Transportation Control Measures	
TCM A: Improve Transit Services A-1 Improve Local & Areawide Bus Service A-2: Improve Local & Regional Rail Service	LU-G5, LU-P3, H-G1, R-G4, D-G1, CF-G5, CF-P1, PT-P4, & PT-P5
TCM B: Improve System Efficiency B-1: Freeway & Arterial Operational Strategies B-2: Transit Efficiency & Use Strategies B-3: Bay Area Express Lane Network B-4: Goods Movement Improvements & Emission Reduction Strategies	Not directly applicable to LSAP. However, the City General Plan contains policies intended to protect and sustain a high quality of life in Sunnyvale by participating in coordinated land use and transportation planning in the region. For instance, General Plan Policy LT-1.2 supports coordinated regional transportation system planning and improvement, Policy LT-1.3 promotes integrated and coordinated local land use and transportation planning and LT-1.3a requires City participation in intergovernmental activities related to regional and subregional land use and transportation planning.
TCM C: Encourage Sustainable Travel Behavior C-1: Voluntary Employer Based Trip Reduction Program C-2: Safe Routes to School & Safe Routes to Transit C-3: Rideshare Services and Incentives	OSG-1, OSG-2, OSG-3, OSP-4, CF-G1, CF-G2, CF-G3, CF-G6, CF-G7, CF-P1, CF-P12, P-G1, P-P1, P-P2, P-P3, P-P4, P-P5, P-P6, B-P1, B-P2, B-P3, B-P5, B-P6, B-P7, TDM-P2, TDM-P3, & TDM-P4

Clean Air Plan Strategies	LSAP Policies & Guidelines
C-4: Conduct Public Outreach & Education C-5: Smart Driving	
TCM D: Support Focused Growth D-1: Bicycle Access & Facilities Improvement D-2: Pedestrian Access & Facilities Improvement D-3: Local Land Use Strategies	LU-G5, LU-P3, R-G4, R-G5, D-G1, CF-G2, CF-G3, CF-G7, P-G1, P-P1, P-P2, P-P3, P-P4, P-P5, P-P6, B-P1, B-P2, B-P3, B-P4, B-P5, B-P6, B-P7
TCM E: Implement Pricing Strategies E-1: Value Pricing Strategies E-2: Promote Parking Pricing to Reduce Motor Vehicle Travel E-3: Implement Transportation Parking Reform	PK-G1, PK-P1, PK-P3, PMP-4, PMP-5, PMP-6, PMP-7, & PMP-8
Land Use & Local Impact Measures	
LUM 1: Goods Movement LUM 4: Land Use Guidance	LU-G5, LU-P3, R-G4, R-G5, D-G1, & CG-G1. The City General Plan contains policies requiring coordinated land use and transportation planning in the region. For instance, General Plan Policy LT-1.2 supports coordinated regional transportation system planning and improvement, Policy LT-1.3 promotes integrated and coordinated local land use and transportation planning and LT-1.3a requires City participation in intergovernmental activities related to regional and subregional land use and transportation planning.
Energy & Climate Measures	
ECM 1: Energy Efficiency ECM 2: Renewable Energy ECM 3: Urban Heat Island Mitigation ECM 4: Shade Tree Planting	STP-UDG1, L-UDG4. In addition, future development within the plan area would be required to comply with the provisions of the Sunnyvale Climate Action Plan (CAP). Ways in which the project could comply include but are not limited to the following (see Section 3.13, Climate Change): <ul style="list-style-type: none"> • Use of energy-efficient lighting technologies for parking lot lighting. • Installation of interior real-time energy monitors. • Installation of new and resurfaced parking lots, sidewalks, and crosswalks made of materials with high reflectivity, such as concrete or reflective aggregate in paving materials. • Pre-wiring for solar water heating and solar electricity. • Reduction of potable indoor water consumption by 30 percent (Tier 1 CALGreen) and outdoor landscaping water use by 40 percent. • Installation of electrical outlets on the exterior of building at an accessible location to charge electric-powered lawn and garden equipment. • Designation of preferred parking stalls for electric, hybrid, and other alternative-fuel vehicles in all public and private parking lots consistent with the California Green Building Code.

3.5 AIR QUALITY

The proposed plan area is a transit-oriented development in support of the Lawrence Caltrain station. The LSAP includes strategies to establish a transit-supportive environment by improving connections between the station and adjacent destinations, densifying and intensifying land uses at key locations within the plan area, and enhancing the physical design of the urban environment. The proposed LSAP would provide moderate- to high-density housing in locations within convenient walking distance of employment centers, shopping centers, and transit routes. As such, the LSAP would result in improved access to local and regional transit services, as well as the promotion of alternative means of transportation through increased access to pedestrian and bicycle facilities. As noted previously, the BAAQMD's *2010 Clean Air Plan* includes various control strategies to reduce emissions of local and regional pollutants and promote public health and energy conservation. Consistent with the control strategies identified in the *Clean Air Plan*, the plan area includes numerous provisions to reduce emissions of local and regional pollutants and to promote public health and energy conservation (see **Table 3.5-7**).

Policy provisions proposed by the LSAP support the goals of the *2010 Clean Air Plan* as they include applicable pollutant control mechanisms. Therefore, this impact is considered **less than significant**.

Mitigation Measures

None required.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation During Long-Term Operations (Standard of Significance 2)

Impact 3.5.2 Subsequent land use activities associated with implementation of the proposed Lawrence Station Area Plan would not conflict with the Bay Area 2010 Clean Air Plan. Therefore, consistent with BAAQMD guidance, the Lawrence Station Area Plan would not result in an air quality violation and this impact is **less than significant**.

As previously described, the BAAQMD CEQA Guidelines do not contain numeric thresholds related to criteria pollutant emissions resulting from 'plan implementation', such as implementation of the proposed Lawrence Station Area Plan. According to the BAAQMD CEQA Guidelines, in order to identify whether the proposed Lawrence Station Area Plan would violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation, the proposed plan area must demonstrate consistency with the control measures contained in the *Bay Area 2010 Clean Air Plan* and show that projected VMT increases as a result of the plan area are less than or equal to projected population increases over its planning period. As demonstrated in Impact 3.5.1, the proposed plan area would be consistent with the *2010 Clean Air Plan*. Therefore, the proposed LSAP would be considered to have a less than significant impact if projected increases in VMT are less than or equal to projected increases in population growth. (Emissions resulting from operations within the plan area at buildout have been estimated for disclosure purposes.)

The proposed plan area would result in an estimated additional 5,622 residents over existing conditions by year 2035. Population within the plan area and daily VMT estimates were based on existing 2015 conditions buildout of the LSAP in 2035. **Table 3.5-8** identifies the VMT and population for the proposed plan area.

**TABLE 3.5-8
SUMMARY OF EXISTING AND HORIZON VEHICLE MILES TRAVELED AND SERVICE POPULATION**

Metric/Variable	2015 (Existing Conditions)	LSAP 2035	Percent Change
VMT ¹	105,383	220,551	109%
Population ²	3,204	8,826	175%
Are Increases in VMT > Increases in Population Compared with Existing Conditions?			No

Source: ¹Hexagon 2015, ²Section 3.0, Assumptions, Table 3.0-1.

In comparison to existing conditions, VMT attributable to the plan area is anticipated to increase 109 percent. The increase in population is estimated to be 175 percent. As a result, VMT would increase at a lower rate than population growth in comparison to existing conditions. In addition, the VMT per capita for the LSAP would be lower than the City-wide VMT at build out (see **Table 3.4-1**). Therefore, this impact would be less than significant.

For informational purposes, **Table 3.5-9** is presented in order to show estimated emissions resultant from operation of the new land uses allowed under the plan area beyond existing conditions.

**TABLE 3.5-9
CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (NEW DEVELOPMENT IN 2035)¹**

Source	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
LSAP New Development (Summer) – Pounds per Day						
Area Sources	97.75	2.20	191.29	0.01	3.57	3.54
Energy Sources	1.35	12.00	8.10	0.07	0.93	0.93
Mobile Sources ²	40.69	55.34	312.22	1.17	81.69	22.71
Total	139.80	69.56	511.63	1.25	86.20	27.19
LSAP New Development (Winter) – Pounds per Day						
Area Sources	97.75	2.20	191.29	0.01	3.57	3.54
Energy Sources	1.35	12.00	8.10	0.07	0.93	0.93
Mobile Sources ²	42.32	60.56	384.96	1.10	81.70	22.71
Total	141.42	74.77	584.37	1.18	86.21	27.19
LSAP New Development (Annual) – Tons per Year						
Area Sources	16.65	0.19	17.19	0.00	0.10	0.10
Energy Sources	0.24	2.19	1.48	0.01	0.17	0.17
Mobile Sources ²	7.15	10.62	61.99	0.20	14.37	4.01
Total	24.05	13.01	80.67	0.21	14.64	4.28

Source: CalEEMod 2013.2.2 (see **Appendix D**)

Notes:

- Emission projections account for 2,323 new multi-family residential units, 1,200,000 square feet of office/R&D square footage, 16,600 square feet of retail square footage, and 9,000 square feet of industrial square footage.
- Emission projections account for the trip generation rates and vehicle miles traveled identified in the transportation impact analysis prepared for the project (Hexagon 2015). Average daily vehicle miles traveled were further refined by Fehr and Peers Transportation Consultants (2011) to account for the additional reductions resultant from the policy provisions contained in the City of Sunnyvale Climate Action Plan.

3.5 AIR QUALITY

Long-term operational emissions attributable to the new development in the plan area are summarized in **Table 3.5-9**. The LSAP would result in a net increase of approximately 141.42 pounds per day (lbs/day) of ROG, 74.77 lbs/day of NO_x, 584.37 lbs/day of CO, 86.21 lbs/day of PM₁₀, and 27.19 lbs/day of PM_{2.5} beyond existing conditions. It is important to note that these emissions estimates reflect combined emissions from all proposed land uses and do not reflect emissions attributable to individual projects.

As previously described, the BAAQMD CEQA Guidelines do not contain numeric thresholds related to criteria pollutant emissions resulting from 'plan implementation'. According to the BAAQMD CEQA Guidelines, in order to identify whether the proposed plan area would violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation, the proposed plan area must demonstrate consistency with the control measures contained in the Bay Area 2010 Clean Air Plan and show that projected VMT increases as a result of the plan area are less than or equal to projected population increases over its planning period. As shown, the proposed project is consistent with the 2010 Clean Air Plan and VMT would increase at a lower rate than population growth in comparison to existing conditions. This impact would be **less than significant**.

Mitigation Measures

None required.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation During Short-Term Construction Activities (Standard of Significance 2)

Impact 3.5.3 The proposed project could result in short-term construction emissions that could violate or substantially contribute to a violation of federal and state standards. This is considered a **significant** impact.

Development allowed under the LSAP would include the potential construction of over 2,300 multi-family homes and more than 1.2 million square feet of nonresidential land uses. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of PM₁₀ and PM_{2.5} emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Demolition and renovation of buildings can also generate PM₁₀ and PM_{2.5} emissions. Off-road construction equipment is often diesel-powered and can be a substantial source of nitrogen oxide (NO_x) emissions, in addition to exhaust PM₁₀ and PM_{2.5} emissions. Worker commute trips and architectural coatings are dominant sources of reactive organic gas (ROG) emissions.

Quantifying the air quality pollutant emissions from future, short-term, temporary construction activities allowed under the proposed plan area is not possible due to project-level variability and uncertainties related to future individual projects in terms of detailed site plans, construction schedules, equipment requirements, etc., which are not currently determined. However, depending on how development proceeds, construction-generated emissions associated with the plan area could potentially exceed BAAQMD thresholds of significance. Therefore, future project-level analyses of air quality impacts may be conducted on a case-by-case basis as individual, future development projects allowed under the LSAP proceed. The BAAQMD has promulgated methodology protocols for the preparation of air quality analyses. For instance, the BAAQMD has adopted thresholds of significance depicting the approximate level of construction-

generated emissions that would result in a potentially significant impact (i.e., violation of an ambient air quality standard) for each pollutant of concern in the SFBAAB. The significance criteria established by the BAAQMD may be relied upon to make a determination of impact significance level. In addition, the BAAQMD recommends appropriate emissions modeling input parameters for the SFBAAB in addition to other recommended procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements.

Projects estimated to exceed BAAQMD significance thresholds are required to implement mitigation measures in order to reduce air pollutant emissions as much as feasible. Such measures could include the requirement that all construction equipment employ the use of the most efficient diesel engines available, which are able to reduce NO_x, PM₁₀, and PM_{2.5} emissions by 60–90 percent (e.g., EPA-classified Tier 3 and/or Tier 4 engines¹), and/or that construction equipment be equipped with diesel particulate filters. Furthermore, all development projects in the SFBAAB are subject to BAAQMD rules and regulations adopted to reduce air pollutant emissions. For example, BAAQMD 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 the district. Regulation 8, Rule 15: Emulsified and Liquid Asphalts, limits the emissions of volatile organic compounds caused by the use of emulsified and liquid asphalt in paving materials and paving and maintenance operations.

As previously mentioned, the quantification of air quality emissions from short-term, temporary construction activities associated with the proposed plan area is not possible due to project-level variability and uncertainties related to future individual projects in terms of market conditions of development, detailed site plans, construction schedules, equipment requirements, etc. However, all construction projects can produce ozone precursors and nuisance dust emissions. Therefore, future project-level analyses of air quality impacts, in accordance with CEQA requirements, would be required to be conducted on a case-by-case basis as individual, future development projects allowed in the proposed area plan proceed. While the BAAQMD has promulgated methodology protocols for the preparation of air quality analyses, and future development projects allowed under the LSAP that are projected to exceed BAAQMD significance thresholds are required to implement mitigation measures in order to reduce air pollutant emissions as much as feasible, BAAQMD significance thresholds may still be exceeded during project construction. Since it cannot be guaranteed that construction of future projects allowed under the LSASP would generate air pollutant emissions below BAAQMD significance thresholds due to the programmatic and conceptual nature of the proposed project and

¹ NO_x emissions are primarily associated with use of diesel-powered construction equipment (e.g., graders, excavators, rubber-tired dozers, tractor/loader/backhoes). The Clean Air Act of 1990 directed the EPA to study, and regulate if warranted, the contribution of off-road internal combustion engines to urban air pollution. The first federal standards (Tier 1) for new off-road diesel engines were adopted in 1994 for engines over 50 horsepower and were phased in from 1996 to 2000. In 1996, a Statement of Principles pertaining to off-road diesel engines was signed between the EPA, CARB, and engine makers (including Caterpillar, Cummins, Deere, Detroit Diesel, Deutz, Isuzu, Komatsu, Kubota, Mitsubishi, Navistar, New Holland, Wis-Con, and Yanmar). On August 27, 1998, the EPA signed the final rule reflecting the provisions of the Statement of Principles. The 1998 regulation introduced Tier 1 standards for equipment under 50 horsepower and increasingly more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. As a result, all off-road, diesel-fueled construction equipment manufactured in 2006 or later has been manufactured to Tier 3 standards.

On May 11, 2004, the EPA signed the final rule introducing Tier 4 emission standards, which are currently phased-in over the period of 2008-2015. The Tier 4 standards require that emissions of PM and NO_x be further reduced by about 90 percent. All off-road, diesel-fueled construction equipment manufactured in 2015 or later will be manufactured to Tier 4 standards.

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uncertainties related to future individual projects, this is considered a **significant** impact. Mitigation is required in order to reduce construction-generated air pollutants.

Mitigation Measures

MM 3.5.3a Prior to the issuance of grading or building permits, the City of Sunnyvale shall ensure that the Bay Area Air Quality Management District's (BAAQMD) basic construction mitigation measures from Table 8-1 of the BAAQMD 2011 CEQA Air Quality Guidelines (or subsequent updates) are noted on the construction documents. These basic construction mitigation measures include the following:

- 1) All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- 2) All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- 3) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- 4) All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- 5) All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- 6) All construction equipment shall be maintained and properly tuned 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.
- 7) A publicly visible sign shall be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Timing/Implementation: *Implemented during construction activities for subsequent projects under the LSAP*

Enforcement/Monitoring: *City of Sunnyvale Planning Department*

MM 3.5.3b In the cases where construction projects are projected to exceed the Bay Area Air Quality Management District's (BAAQMD) air pollutant significance thresholds for NO_x, PM₁₀, and/or PM_{2.5}, all off-road diesel-fueled equipment (e.g., rubber-tired dozers, graders, scrapers, excavators, asphalt paving equipment, cranes, and tractors) shall be at least California Air Resources Board (CARB) Tier 3 Certified or better.

Timing/Implementation: *Implemented during construction activities for subsequent projects under the LSAP*

Enforcement/Monitoring: *City of Sunnyvale Planning Department*

Implementation of the above mitigation measures would likely mitigate most construction emissions from development under the LSAP. However, it is currently unknown the extent of construction that may occur at any specific period of time to determine whether the above mitigation measures would fully mitigate this temporary impact below BAAQMD thresholds. Given this uncertainty, this impact is **significant and unavoidable**.

Expose Sensitive Receptors to Substantial Carbon Monoxide Pollutant Concentrations (Standard of Significance 3)

Impact 3.5.4 The proposed project would not contribute to localized concentrations of mobile-source CO that would exceed applicable ambient air quality standards. This is considered a **less than significant** impact.

The primary mobile-source criteria pollutant of local concern is carbon monoxide. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Transport of this criteria pollutant is extremely limited; CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours.² Modeling is therefore typically conducted for intersections that are projected to operate at unacceptable levels of service during peak commute hours.

Based on BAAQMD guidance, projects meeting all of the following screening criteria would be considered to have a less than significant impact on localized carbon monoxide concentrations if:

- 1) The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- 2) The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

According to the traffic impact analysis prepared for the project (Hexagon 2015, Figure 9; Tables 15 & 16, see **Appendix C**), none of the traffic volumes at any intersection, freeway segment, or freeway ramp would experience more than 44,000 vehicles per hour generated by the LSAP. Similarly, the project would not result in 24,000 vehicles per hour where vertical and/or horizontal

² Level of service (LOS) is a measure used by traffic engineers to determine the effectiveness of transportation infrastructure. LOS is most commonly used to analyze intersections by categorizing traffic flow with corresponding safe driving conditions. LOS A is considered the most efficient level of service and LOS F the least efficient.

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mixing of pollutants and atmosphere is substantially limited (i.e., an enclosed parking structure). As a result, this impact would be considered **less than significant**.

Mitigation Measures

None required.

Expose Sensitive Receptors to Substantial Toxic Air Contaminant Concentrations During Construction (Standard of Significance 3)

Impact 3.5.5 The proposed project could result in increased exposure of existing or planned sensitive land uses to construction-source toxic air contaminant (TAC) emissions. This impact is considered **potentially significant**.

Sensitive land uses are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers.

Implementation of the LSAP would result in the construction of new housing units and nonresidential square footage. Sources of construction-related TACs potentially affecting the sensitive receptors include off-road diesel-powered equipment. Construction would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. Concentrations of mobile-source diesel PM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB 2005). In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities.

In the case of most construction projects allowed under the LSAP, duration would be short-term, lasting less than one year. According to the BAAQMD (2011), construction-generated diesel PM emissions contribute to negative health impacts when construction is extended over lengthy periods of time. The use of diesel-powered construction equipment during construction would be temporary and episodic and would occur over several locations isolated from one another. Furthermore, the proposed project would be subject to, and would comply with, California regulations limiting idling to no more than five minutes, which would further reduce nearby sensitive receptors exposure to temporary and variable diesel PM emissions. Many of the individual construction projects would span small areas. Construction projects contained in a site of less than 5 acres are generally considered by CARB to represent less than significant health risk impacts due to (1) limitations on the off-road diesel equipment able to operate and thus a reduced amount of generated diesel PM, (2) the reduced amount of dust-generating ground disturbance possible compared to larger construction sites, and (3) the reduced duration of construction activities compared to the development of larger sites. For these reasons, and because diesel fumes disperse rapidly over relatively short distances, diesel PM generated by most construction activities, in and of itself, would not be expected to create conditions where the probability of contracting cancer is greater than 10 in 1 million for nearby receptors. In addition, mitigation measure **MM 3.5.3b** requires that off-road diesel-fueled equipment employed during construction

activities be CARB Tier 3 Certified or better when construction activities are projected to exceed NOx and PM thresholds. Implementation of this mitigation measure would reduce the emissions of toxic pollutants generated by heavy-duty diesel-powered equipment during larger scale construction projects. Also, mitigation measure **MM 3.5.3a** requires that BAAQMD basic construction mitigation measures are employed during all construction projects. These basic construction mitigation measures include measures that would substantially reduce nuisance fugitive dust.

Nonetheless, larger scale construction projects may occur within the plan area. Additionally, there is a potential for construction to occur in close proximity to residential and other sensitive land uses, making this impact **potentially significant**.

Mitigation Measures

MM 3.5.5

In the case when a subsequent project's construction is span greater than five acres and is scheduled to last more than two years, the subsequent project shall be required to prepare a site-specific construction pollutant mitigation plan in consultation with the Bay Area Air Quality Management District (BAAQMD) staff prior to the issuance of grading permits. A project-specific construction-related dispersion modeling acceptable to BAAQMD shall be used to identify potential toxic air contaminant impacts, including diesel particulate matter. If BAAQMD risk thresholds (i.e., probability of contracting cancer is greater than 10 in 1 million) would be exceeded, mitigation measures shall be identified in the construction pollutant mitigation plan to address potential impacts and shall be based on site-specific information such as the distance to the nearest sensitive receptors, project site plan details, and construction schedule. The City shall ensure construction contracts include all identified measures and that the measures reduce the health risk below BAAQMD risk thresholds. Construction pollutant mitigation plan measures shall include, but not be limited to:

- 1) Limiting the amount of acreage to be graded in a single day,
- 2) Restricting intensive equipment usage and intensive ground disturbance to hours outside of normal preschool hours,
- 3) Notification of affected sensitive receptors one week prior to commencing on-site construction so that any necessary precautions (such as rescheduling or relocation of outdoor activities) can be implemented. The written notification shall include the name and telephone number of the individual empowered to manage construction of the project. In the event that complaints are received, the individual empowered to manage construction shall respond to the complaint within 24 hours. The response shall include identification of measures being taken by the project construction contractor to reduce construction-related air pollutants. Such a measure may include the relocation of equipment.

Timing/Implementation: *Modeling shall be completed prior to grading permit issuance, and measures implemented during construction activities for subsequent projects of greater than five acres and construction lasting more than two years.*

Enforcement/Monitoring: *City of Sunnyvale Planning Department*

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As previously stated, implementation of mitigation measure **MM 3.5.3b** requires the use of the specified off-road construction equipment manufactured to Tier 3 standards or higher during all construction activities. Compared to current standards, Tier 3 standards for heavy-duty vehicles represent approximately a 60 percent reduction in per vehicle PM emissions compared with equipment that does not meet the Tier 3 standard (USEPA 2014). Implementation of this mitigation measure would reduce the emissions of toxic pollutants generated by heavy-duty diesel-powered equipment during construction. Also, mitigation measure **MM 3.5.3a** requires that BAAQMD basic construction mitigation measures are employed. These basic construction mitigation measures include measures that would substantially reduce nuisance fugitive dust. Mitigation measure **MM 3.5-5** requires a site-specific analysis of large-scale construction projects (>5 acres lasting longer than 2 years) for the potential of construction-generated air pollutant impacts based on specific project details of future development, and the development of adequate mitigation, in consultation of the BAAQMD, to address any such impacts. As a result, implementation of these mitigation measures would reduce the impact to **less than significant**.

Expose Sensitive Receptors to Substantial Toxic Air Contaminant Concentrations During Operations (Standard of Significance 3)

Impact 3.5.6 The proposed project could result in the development of housing units (sensitive land uses) near stationary or mobile-source TACs. This impact is **potentially significant**.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs potentially affecting the sensitive receptors include mobile sources, such as freeways and diesel locomotive trains. These mobile sources are sources of diesel PM, which CARB has listed as a TAC. Sensitive receptors can also be exposed to stationary sources, such as gasoline stations dry cleaners, certain manufacturing operations, and backup generators. There is a potential that future sensitive receptors in the plan area could be exposed to TAC emissions from stationary and/or mobile sources, depending on location.

The primary mobile source affecting the plan area includes the Caltrain corridor. Per BAAQMD guidance, all other sources within 1,000 feet of a proposed sensitive receptor need to be identified and analyzed and there are no freeways within 1,000 feet of the plan area. However, the plan area is generally bisected in an east-west direction by the Caltrain tracks. According to the BAAQMD's (2015b) Railway Screening Analysis Tool, there are four separate railway segments traversing through, and adjacent to, the plan area. These segments have been modeled for health risk by the BAAQMD. **Table 3.5-10** identifies the PM_{2.5} concentration, cancer risk, and non-cancer hazard index exposure at distance of 10 through 1,000 feet for each of the four railway segments traversing through, and adjacent to, the plan area.

The BAAQMD CEQA Air Quality Guidelines consider exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard to be significant. Per BAAQMD guidance, all other sources within 1,000 feet of a proposed sensitive receptor need to be identified and analyzed. If emissions of TAC concentrations at a new sensitive receptor generated from all TAC sources in a 1,000 foot radius result in the exceedance of an excess cancer risk level of more than 100 in one million, or a non-cancer hazard index³ greater than 10, the project would result in a significant impact. The BAAQMD CEQA Guidelines also consider exposure from all TAC sources

³ The Hazard Index is the ratio of the computed receptor exposure level to the level known to cause acute or chronic adverse health impacts, as identified by the BAAQMD.

in a 1,000 foot radius to annual PM_{2.5} concentrations that exceed 0.8 micrograms per cubic meter (µg/m³) to be significant.

Caltrain trains presently consist of diesel locomotive-hauled, bi-level passenger cars. As of mid-2013, Caltrain operates 46 northbound and 46 southbound (for a total of 92) trains per day between San Jose and San Francisco during the week (PCJPB 2014). According to the Caltrain Electrification Project Draft Environmental Impact Report (PCJPB 2014), electrification of the Caltrain rail line is scheduled to be operational by 2019 (PCJPB 2014) and approximately 75 percent of Caltrain trains would be powered by electricity instead of diesel fuel (PCJPB 2014). 100 percent of Caltrain trains are scheduled to be powered by electricity by 2040. Electrification of the Caltrain rail line would substantially reduce PM emissions compared with both existing conditions and with the 'No Electrification' 2020 and 2040 scenarios (PCJPB 2014). According to the Caltrain Electrification Project Draft Environmental Impact Report (PCJPB 2014), PM emissions generated along the Caltrain corridor between San Jose and San Francisco would be reduced by 71 percent in 2020 and by 100 percent in 2040. Cancer risks from the Caltrain rail line would be reduced from a probability of contracting cancer of 24 in 1 million for nearby receptors, which exceeds the individual-source significance threshold to a probability of contracting cancer of 10 in 1 million, which is within the individual-source threshold.

Another mobile source affecting the plan area includes traffic accommodated on the Lawrence Expressway. The plan area is generally bisected in a north-south direction by the Lawrence Expressway. **Table 3.5-11** identifies the PM_{2.5} concentration and cancer risk exposure at distance of 10 through 1,000 feet for two roadway segments traversing through the plan area, as identified by the BAAQMD's (2015c) Roadway Screening Analysis Tool.

The plan area has seven permitted stationary sources. These sources are all located in the industrial area north of the Caltrain tracks with the exception of one masonry operation on Aster Avenue, just south of the tracks. However, it is noted that this source does not emit enough pollutants to register a health risk (BAAQMD 2012a). There are an additional five permitted stationary sources adjacent to the plan area. **Table 3.5-12** identifies the PM_{2.5} concentration, cancer risk, and non-cancer hazard index exposure at distance of 100 through 1,000 feet for each of the permitted stationary sources in and around the plan area.

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**TABLE 3.5-10
CALTRAIN HEALTH RISK**

Railway Segment	Health Risk Type ¹	Distance North (feet)										
		10	25	50	75	100	200	300	400	500	750	1,000
Western Segment Link 365 <i>(just west of N. Wolfe Road to just east of Lawrence Expressway)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.11	0.10	0.08	0.06	0.05	0.04	0.03	0.02	0.02	0.01	0.01
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	67.97	57.45	16.34	39.29	34.29	23.71	18.42	15.25	13.06	9.73	7.79
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Central West Segment Link 374 <i>(just east of Lawrence Expressway to tracks north of Castello Way)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.90	0.07	0.06	0.05	0.04	0.03	0.02	0.01	0.01	0.01	0.00
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	51.83	43.88	35.52	29.84	25.92	17.63	13.58	11.07	9.24	6.45	4.80
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Central East Segment Link 371 <i>(tracks north of Castello Way to approximately 1,500 feet east)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.09	0.07	0.06	0.05	0.04	0.02	0.02	0.01	0.01	0.00	0.00
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	52.22	44.26	35.53	29.71	25.71	17.18	13.07	10.44	8.56	5.70	4.07
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Eastern Segment Link 360 <i>(near eastern edge of LSAP boundary to De La Cruz Boulevard/Marsalli Park)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.25	0.22	0.18	0.16	0.14	0.10	0.08	0.07	0.06	0.05	0.04
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	147.92	128.81	107.63	93.94	83.49	61.15	49.73	42.63	37.51	29.58	24.88
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.05	0.04	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.00

Railway Segment	Health Risk Type ¹	Distance South (feet)										
		10	25	50	75	100	200	300	400	500	750	1,000
Western Segment Link 365 (just west of N. Wolfe Road to just east of Lawrence Expressway)	PM_{2.5} Concentration (BAAQMD Threshold = 0.8)	0.21	0.19	0.15	0.13	0.11	0.08	0.06	0.05	0.04	0.03	0.02
	Cancer Risk (BAAQMD Threshold = 100)	125.47	109.24	89.86	76.75	67.50	46.92	36.78	30.55	26.22	19.54	15.48
	Non-Cancer Hazard Index (BAAQMD Threshold = 10)	0.04	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00
Central West Segment Link 374 (just east of Lawrence Expressway to tracks north of Castello Way)	PM_{2.5} Concentration (BAAQMD Threshold = 0.8)	0.20	0.17	0.14	0.12	0.10	0.07	0.05	0.04	0.03	0.02	0.01
	Cancer Risk (BAAQMD Threshold = 100)	115.01	101.30	83.06	70.81	61.47	41.49	31.26	24.80	20.23	13.66	10.11
	Non-Cancer Hazard Index (BAAQMD Threshold = 10)	0.04	0.03	0.03	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Central East Segment Link 371 (tracks north of Castello Way to approximately 1,500 feet east)	PM_{2.5} Concentration (BAAQMD Threshold = 0.8)	0.19	0.17	0.14	0.12	.010	0.06	0.05	0.03	0.03	0.02	0.01
	Cancer Risk (BAAQMD Threshold = 100)	114.84	100.65	82.05	69.70	60.26	39.85	29.32	22.81	18.46	12.26	8.82
	Non-Cancer Hazard Index (BAAQMD Threshold = 10)	0.04	0.03	0.03	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Eastern Segment Link 360 (near eastern edge of LSAP boundary to De La Cruz Boulevard/Marsalli Park)	PM_{2.5} Concentration (BAAQMD Threshold = 0.8)	0.22	0.18	0.15	0.12	0.11	0.07	0.06	0.05	0.04	0.03	0.02
	Cancer Risk (BAAQMD Threshold = 100)	128.87	109.07	87.68	74.11	64.58	44.63	34.97	29.17	25.14	19.06	15.50
	Non-Cancer Hazard Index (BAAQMD Threshold = 10)	0.04	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00

Source: BAAQMD 2015b

Note: ¹ The BAAQMD thresholds are cumulative thresholds. The health risk from all local sources (i.e., stationary and mobile sources in a 1,000 foot radius) to a proposed new sensitive receptor would be added together and compared to these thresholds on a project-by-project basis.

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**TABLE 3.5-11
LAWRENCE EXPRESSWAY HEALTH RISK**

Lawrence Expressway Segment	Health Risk Type ¹	Distance (feet)										
		10	25	50	75	100	200	300	400	500	750	1,000
East of Lawrence Expressway												
<i>Arques Avenue to Kifer Road</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	1.79	0.93	1.12	0.70	0.78	0.49	0.33	0.26	0.22	0.13	0.09
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	75.60	39.88	47.77	30.08	33.52	21.27	14.54	11.26	9.59	6.02	4.15
<i>Kifer Road to Reed Avenue</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	1.59	0.90	1.00	0.65	0.69	0.44	0.30	0.23	0.19	0.12	0.84
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	67.14	38.19	42.43	27.68	29.77	18.89	12.91	10.00	8.52	5.35	3.69
West of Lawrence Expressway												
<i>Arques Avenue to Kifer Road</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	1.12	0.52	0.66	0.39	0.45	0.27	0.17	0.13	0.11	0.06	0.04
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	54.01	26.34	32.57	19.89	22.42	13.85	9.02	6.81	5.77	3.38	2.21
<i>Kifer Road to Reed Avenue</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.99	0.51	0.58	0.36	0.40	0.24	0.15	0.11	0.10	0.06	0.04
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	47.97	25.54	28.93	18.34	19.92	12.30	8.01	6.04	5.12	3.00	1.96

Source: BAAQMD 2015c

Note: ¹ The BAAQMD thresholds are cumulative thresholds. The health risk from all local sources (i.e., stationary and mobile sources in a 1,000 foot radius) to a proposed new sensitive receptor would be added together and compared to these thresholds on a project-by-project basis.

**TABLE 3.5-12
STATIONARY SOURCE HEATH RISK**

Stationary Source Location	Health Risk Type ¹	Distance (feet)							
		At source (< 100)	100	200	300	400	500	750	1,000
2455 Lawrence Expressway (adjacent to plan area, south of Caltrain)	PM_{2.5} Concentration (BAAQMD Threshold = 0.8)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Cancer Risk (BAAQMD Threshold = 100)	41.86	23.40	8.22	4.36	2.76	1.93	0.96	0.62
	Non-Cancer Hazard Index (BAAQMD Threshold = 10)	0.06	0.03	0.01	0.00	0.00	0.00	0.00	0.00
2384 Pacific Drive (adjacent to plan area, south of Caltrain)	PM_{2.5} Concentration (BAAQMD Threshold = 0.8)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cancer Risk (BAAQMD Threshold = 100)	51.32	37.46	21.04	12.83	8.21	6.15	3.59	2.05
	Non-Cancer Hazard Index (BAAQMD Threshold = 10)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
1155 Aster Avenue (within plan area, south of Caltrain)	PM_{2.5} Concentration (BAAQMD Threshold = 0.8)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Cancer Risk (BAAQMD Threshold = 100)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Non-Cancer Hazard Index (BAAQMD Threshold = 10)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2900 Semiconductor Drive (within plan area, north of Caltrain)	PM_{2.5} Concentration (BAAQMD Threshold = 0.8)	0.66	0.48	0.27	0.16	0.10	0.07	0.04	0.02
	Cancer Risk (BAAQMD Threshold = 100)	87.46	63.84	35.85	21.86	13.94	10.49	6.12	3.49
	Non-Cancer Hazard Index (BAAQMD Threshold = 10)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

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Stationary Source Location	Health Risk Type ¹	Distance (feet)							
		At source (< 100)	100	200	300	400	500	750	1,000
3000 Corvin Drive <i>(within plan area, north of Caltrain)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3305 Kifer Road <i>(within plan area, north of Caltrain)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1390 Kifer Road <i>(within plan area, north of Caltrain)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	1.70	1.24	0.69	0.42	0.27	0.20	0.11	0.06
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2985 Mead Avenue <i>(adjacent to plan area, north of Caltrain)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2925 Mead Avenue	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Stationary Source Location	Health Risk Type ¹	Distance (feet)							
		At source (< 100)	100	200	300	400	500	750	1,000
<i>(adjacent to area, north of Caltrain)</i>	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3305 Agate Drive <i>(adjacent to plan area, south of Caltrain)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	13.30	9.70	5.45	3.32	2.12	1.59	0.93	0.53
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Lawrence Station <i>(within plan area, north of Caltrain)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	192.97	107.87	37.92	20.13	12.74	8.90	4.45	2.88
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.31	0.17	0.06	0.03	0.02	0.01	0.00	0.00
3070 Lawrence Expressway <i>(adjacent to plan area, north of Caltrain)</i>	PM_{2.5} Concentration <i>(BAAQMD Threshold = 0.8)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cancer Risk <i>(BAAQMD Threshold = 100)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Non-Cancer Hazard Index <i>(BAAQMD Threshold = 10)</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: BAAQMD 2012a; 2012c

Note: ¹ The BAAQMD thresholds are cumulative thresholds. The health risk from all local sources (i.e., stationary and mobile sources in a 1,000 foot radius) to a proposed new sensitive receptor would be added together and compared to these thresholds on a project-by-project basis.

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As previously stated, BAAQMD guidance recommends that all other sources within 1,000 feet of a proposed sensitive receptor need to be identified and analyzed and there are no freeways within 1,000 feet of the plan area. **Table 3.5-10** identifies the PM_{2.5} concentration, cancer risk, and non-cancer hazard index exposure at a distance of 10 through 1,000 feet for each of the four Caltrain railway segments traversing through, and adjacent to, the plan area. **Table 3.5-11** identifies the PM_{2.5} concentration and cancer risk exposure at a distance of 10 through 1,000 feet for the portion of the Lawrence Expressway traversing through the plan area. **Table 3.5-12** identifies the PM_{2.5} concentration, cancer risk, and non-cancer hazard index exposure at distances from 10 through 1,000 feet for each of the permitted stationary sources in and around the plan area. The impact of these sources on future sensitive receptors in the plan area can only be addressed on a project-by-project basis, since impacts are generally localized and specific development have not yet been proposed. Subsequent analysis for specific development proposals within the plan area can rely on **Tables 3.5-10** through **Table 3.5-12** to identify the health risk at the proposed receptor. The health risk from all local sources (i.e., stationary and mobile sources in a 1,000 foot radius) to a proposed new sensitive receptor would be added together and compared to these thresholds on a project-by-project basis. **Tables 3.5-10** through **Table 3.5-12** are based off BAAQMD health risk screening tools intended to assist with air quality analyses. The BAAQMD health risk screening tools interface with *Google Earth* to allow a user to identify stationary, freeway, roadway, and train sources within 1,000 feet of a receptor (BAAQMD 2012a; 2012b; 2015b; 2015c). In addition to source identification, the tool identifies conservative screening levels of cancer risk, hazards, and PM_{2.5} concentrations. TAC sources that show the potential for significant community risk impacts after this first level of review are further analyzed by contacting the BAAQMD for additional information and applying distance adjustment factors. A refined modeling analysis would be required if there are sources that still have potentially significant impacts after this level of review. A refined analysis would include dispersion modeling of the source using emissions and source information provided by the BAAQMD. If the source still has significant community risk impacts following this level of effort, risk reduction strategies would have to be implemented by the project on a case-by-case basis.

Sensitive receptors can also be exposed to TAC concentrations from future nonresidential land uses proposed by the LSAP. Development projects that involve numerous heavy-duty truck trips on-site create substantial quantities of diesel PM emissions, and therefore can negatively affect sensitive land uses. According to CAPCOA's (2009) Health Risk Assessments for Proposed Land Use Projects, operations that require fewer than 100 delivery trucks daily are not considered a potential health risk. It is anticipated that the majority of nonresidential land uses developed in the plan area would generate less than 100 delivery trucks daily.

The following mitigation is required in order to protect sensitive receptors in the plan area from substantial concentrations of air toxics.

Mitigation Measures

MM 3.5.6 The following measures shall be utilized in site planning and building designs to reduce TAC and PM_{2.5} exposure where new receptors are located within 1,000 feet of emission sources:

- Future development with the LSAP that includes sensitive receptors (such as residences, schools, hospitals, daycare centers, or retirement homes) located within 1,000 feet from Caltrain and/or stationary sources shall require site-specific analysis to determine the level of health risk. This analysis shall be conducted following procedures outlined by BAAQMD. If the site-specific analysis reveals significant exposures from all sources (i.e., health risk in terms of excess cancer risk greater than 100 in one million,

acute or chronic hazards with a hazard Index greater than 10, or annual PM_{2.5} exposures greater than 0.8 µg/m³) measures shall be employed to reduce the risk to below the threshold (e.g., electrostatic filtering systems or equivalent systems and location of vents away from TAC sources). If this is not possible, the sensitive receptors shall be relocated.

- Future nonresidential developments projected to generate more than 100 heavy-duty trucks daily will be evaluated through the CEQA process or BAAQMD permit process to ensure they do not cause a significant health risk in terms of excess cancer risk greater than 10 in one million, acute or chronic hazards with a hazard Index greater than 1.0, or annual PM_{2.5} exposures greater than 0.3 µg/m³.

Implementation of the above mitigation measures in addition to BAAQMD permitting requirements would ensure that adequate measures and associated performance standards are in place to mitigate this impact to **less than significant**.

Exposure of Sensitive Receptors to Odorous Emissions (Standard of Significance 4)

Impact 3.5.7 Future development within the LSAP would not result in exposure of sensitive receptors to substantial odorous emissions. This impact is considered **less than significant**.

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact. Land uses commonly considered to be potential sources of odorous emissions include, but are not limited to, wastewater treatment plants, sanitary landfills, food processing facilities, chemical manufacturing plants, rendering plants, paint/coating operations, asphalt batch plants, agricultural feedlots, and dairies. Short-term construction activities may also result in localized increases of odorous emissions. Short- and long-term increases in localized concentrations of odors are discussed below.

Short-Term Exposure to Odors

Construction within the plan area is not anticipated to expose nearby receptors to objectionable odors. Construction-generated odors are typically associated with exhaust emissions from diesel-fueled equipment and the application of architectural coatings and paving materials, which may be considered objectionable to some individuals. However, because construction-related odors would be intermittent, temporary, and would disperse rapidly with distance from the source, construction-related odors would not result in the frequent exposure of a substantial number of individuals to objectionable odors. It is also important to note that projects developed as part of the LSAP would be required to comply with BAAQMD Regulation 8, Rule 3, Architectural Coatings, and Rule 15, Emulsified Asphalt, which establish VOC content limits for these construction materials. VOCs are the main sources of odors from these sources. Therefore, compliance with these regulatory requirements would further reduce odor impacts associated with these sources. Short-term exposure to odorous emissions would therefore be considered less than significant.

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Long-Term Exposure to Odors

The proposed plan area will guide the development of residential, institutional, office, and commercial land uses, which are not considered major sources of odorous emissions. The proposed project would not be expected to result in the installation of any major odor emission sources. In addition, no existing major stationary sources of odors have been identified in the plan area. Therefore, long-term exposure to odorous emissions would be considered less than significant.

Mitigation Measures

None required.

3.5.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for air quality includes Sunnyvale and the San Francisco Bay Area Air Basin. The SFBAAB is designated as a nonattainment area related to the state standards for ozone, PM₁₀, and PM_{2.5} in addition to federal ozone and PM_{2.5} standards. The basin is designated as being unclassified and/or attainment for all other pollutants. Cumulative growth in population, vehicle use, and industrial activity could inhibit efforts to improve regional air quality and attain the ambient air quality standards. Thus, the setting for this cumulative analysis consists of the SFBAAB and associated growth and development anticipated in the air basin.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Air Quality Impacts (Standard of Significance 5)

Impact 3.5.8 The proposed project, in combination with cumulative development in the SFBAAB, would not result in a cumulatively considerable net increase of criteria air pollutants for which the air basin is designated nonattainment. This would be a **cumulatively considerable** impact.

By its very nature, air pollution is largely a cumulative impact. According to the BAAQMD, no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. According to the BAAQMD, if a project exceeds its identified significance thresholds, the project would be cumulatively considerable (BAAQMD 2011). As stated under Impact 3.5.3, it cannot be guaranteed, despite mitigation, that construction of subsequent projects allowed under the LSASP would generate air pollutant emissions below BAAQMD significance thresholds due to the programmatic and conceptual nature of the proposed project and uncertainties related to future subsequent projects. Therefore, future uncertainties cumulative impacts would be **cumulatively considerable** and **significant and unavoidable**.

Mitigation Measures

Implementation of mitigation measures MM 3.5.3a and b would likely mitigate most construction emissions from development under the LSAP. However, it is currently unknown the extent of construction that may occur at any specific period of time to determine whether the above mitigation measures would fully mitigate this temporary impact below BAAQMD thresholds.

REFERENCES

BAAQMD (Bay Area Air Quality Management District). 2010. *Bay Area 2010 Clean Air Plan*. <http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/Clean-Air-Plans.aspx>.

———. 2011. *CEQA Air Quality Guidelines*.

———. 2012a. *Stationary Source Screening Analysis Tool*.
<http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>

———. 2012b. *Highway Screening Analysis Tool*.
<http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>

———. 2012c. *Distance Adjustment Multiplier Tool [Gasoline Dispensing Facility & Diesel Internal Combustion Engine]*.
<http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>

———. 2015a. *Air Quality Standards and Attainment Status*.
<http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status>

———. 2015b. *Railway Screening Analysis Tool*.
<http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>

———. 2015c. *Roadway Screening Analysis Tool*.
<http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>

CAPCOA (California Air Pollution Control Officers Association). 2009. *Health Risk Assessments for Proposed Land Use Projects*.

———. 2011. *Health Effects*.

CARB (California Air Resources Board). 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*.

———. 2015. *Air Quality Data Statistics*. <http://www.arb.ca.gov/adam/index.html>.

EPA (US Environmental Protection Agency). 2002. *Health Assessment Document for Diesel Engine Exhaust*. <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=29060>.

Hexagon (Hexagon Transportation Consultants, Inc.) 2015. *Lawrence Station Area-Wide Transportation Plan and Near-Term Traffic Impact Analysis*. June 25, 2015.

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OEHHA (Office of Environmental Health Hazard Assessment). 2007. *Air Toxicology and Epidemiology: Air Pollution and Children's Health*.
http://oehha.ca.gov/public_info/facts/airkids.html.

PCJPB (Peninsula Corridor Joint Powers Board). 2014. *Peninsula Corridor Electrification Project Draft Environmental Impact Report*. February 2014

Sunnyvale, City of. 2014. *Climate Action Plan*.

USEPA. 2014. *EPA Sets Tier 3 Motor Vehicle Emission and Fuel Standards*. March 2014.
<http://www.epa.gov/otaq/documents/tier3/420f14009.pdf>

3.6 NOISE

This section describes the existing noise environment in the project area and the potential for the project to result in noise impacts exceeding the City of Sunnyvale’s applicable noise level criteria. Data used to prepare this section was taken from the traffic impact study (**Appendix C**) and information obtained by measuring and modeling existing and future traffic noise levels within the plan area and in the surrounding area (**Appendix E**).

A summary of the impact conclusions related to noise is provided below.

Impact Number	Impact Topic	Impact Significance
3.6.1	Exposure of Persons to Generation of Noise Levels in Excess of Standards	Less than significant
3.6.2	Results in Substantial Permanent Increase in Ambient Noise Levels Above Levels Existing Without the Project	Less than significant with mitigation
3.6.3	Exposure to Groundborne Vibration	Less than significant
3.6.4	Exposure to Short-Term Construction Noise	Less than significant
3.6.5	Cumulative Traffic Noise Impacts	Less than cumulatively considerable

3.6.1 EXISTING SETTING

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations which make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Because the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise, on the other hand, is typically defined as unwanted sound because of its potential to disrupt sleep, to interfere with speech communication, and to damage hearing. A typical noise environment consists of a base of steady “background” noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway.

Amplitude

Amplitude is the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels on a logarithmic scale. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3 dB change in amplitude as the minimum audible difference perceptible to the average person.

Frequency

Frequency is the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz. One Hertz equals one cycle per second. The human ear is not equally sensitive to sound

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of different frequencies. To approximate this sensitivity, environmental sound is usually measured in A-weighted decibels. On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA. Common community noise sources and associated noise levels, in dBA, are depicted in **Figure 3.6-1**.

**FIGURE 3.6-1
TYPICAL COMMUNITY NOISE LEVELS**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	
Quiet Urban Daytime	50	Large Business Office
		Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
Quiet Rural Nighttime	30	Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans 2012

Addition of Decibels

Because decibels are logarithmic units, sound levels 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, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dB.

Sound Propagation and Attenuation

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics. No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

NOISE DESCRIPTORS

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. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined below.

- L_{eq} , the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- L_{dn} , the Day-Night Average Level, is a 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .

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- CNEL, the Community Noise Equivalent Level, is a 24-hour average L_{eq} with a 5 dBA “weighting” during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
- L_{min} is the minimum instantaneous noise level experienced during a given period of time.
- L_{max} is the maximum instantaneous noise level experienced during a given period of time.
- Percentile Noise Level (L_n) is the noise level exceeded for a given percentage of the measurement time. For example, L_{10} is the noise level exceeded for 10 percent of the measurement duration, and L_{50} is the noise level exceeded for 50 percent of the measurement duration.

HUMAN RESPONSE TO NOISE

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night, or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings that can provide noise levels as low as 20 dBA and quiet, suburban, residential streets that can provide noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with more noisy urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted for understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans.
- Outside of the laboratory, a 3 dB change is considered a just-perceivable difference.
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected. An increase of 5 dB is typically considered substantial.
- A 10 dB change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

EFFECTS OF NOISE ON PEOPLE

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard which is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors, the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn} . Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn} and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection, and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12–17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57–62 dBA L_{dn} with open windows and 65–70 dBA L_{dn} if the windows are closed. Levels of 55–60 dBA are common along collector streets and secondary arterials, while 65–70 dBA is a typical value for a primary/major arterial. Levels of 75–80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed; those facing major roadways and freeways typically need special glass windows with Sound Transmission Class (STC) ratings greater than 30 STC.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 55 dBA L_{dn} . At a L_{dn} of about 60 dBA, approximately 2 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population. Therefore, there is an increase in annoyance due to ground vehicle noise of approximately 1 percent per dBA for a L_{dn} of 60–70 dBA. For a L_{dn} of 70–80 dBA, each decibel increase increases the percentage of the population highly annoyed by about 2 percent. People appear to respond more adversely to aircraft noise. When the L_{dn} due to aircraft noise is 60 dBA, approximately 10 percent of the population is believed to be highly annoyed.

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Each decibel increase to 70 dBA adds about 2 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase in aircraft noise results in about a 3 percent increase in the percentage of the population highly annoyed.

FUNDAMENTALS OF ENVIRONMENTAL GROUND BORNE VIBRATION

Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and in the United States is referenced as vibration decibels (VdB).

The background vibration velocity level in residential areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. Groundborne vibration is almost never annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of a building, the motion does not provoke the same adverse human reaction. In addition, the rumble noise that usually accompanies building vibration is perceptible only inside buildings (FTA 2006). As such, 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 in fragile buildings.

The general human response to different levels of groundborne vibration velocity levels is described in **Table 3.6-1**.

**TABLE 3.6-1
HUMAN RESPONSE TO DIFFERENT LEVELS OF GROUND BORNE VIBRATION**

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people.
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.

Source: FTA 2006

NOISE-SENSITIVE RECEPTORS

Noise-sensitive land uses are those that may be subject to stress and/or interference from excessive noise. Noise-sensitive land uses include public schools, hospitals, and institutional uses such as churches, museums, and private schools. Typically, residential uses are also considered noise-sensitive receptors. Industrial and commercial land uses are generally not considered sensitive to noise. Noise-sensitive receptors in the plan area include residences. South of the Caltrain tracks, the plan area is primarily low-density neighborhoods consisting of single-family detached homes and areas of multi-family apartments and condominiums.

EXISTING AMBIENT NOISE LEVELS

According to the Noise Chapter of the City's General Plan (2011), noise is a significant and inherent part of Sunnyvale's environment. The noise environment is a result of historical land use decisions, competing regional and community goals, geographic factors, and limited local controls. Major noise sources in Sunnyvale consist of transportation sources and community sources. Major roadways cause most of the ambient noise in Sunnyvale. Highways include US 101, Interstate 280, State Route (SR) 85, and SR 237. Major local roadways include Mathilda Avenue, Wolfe Road, Lawrence Expressway, El Camino Real (SR 82), and Homestead Road. Mary Avenue, Hollenbeck Road, Fremont Avenue, and Remington Drive are relatively quiet roads, but they are adjoined by a large number of residences and therefore contribute to residential noise exposure in Sunnyvale.

Aircraft operations at Moffett Federal Airfield, located northwest of the plan area, contribute to the noise environment in Sunnyvale. Commuter and freight train operations affect noise levels in central Sunnyvale. Light rail trains now operate in the city along the Tasman roadway corridor. Stationary noise sources in the city include light industrial and manufacturing facilities generally located in an area between the East Evelyn Avenue/Caltrain rail corridor and Central Expressway.

The plan area is generally bisected in a north-south direction by Lawrence Expressway and by the Caltrain tracks in the east-west direction, and thus is affected by these noise sources. The area north of the Caltrain tracks is dominated by industrial and commercial uses on large parcels which contribute to the noise environment within this portion of the plan area. A review of the *Moffett Federal Airfield Comprehensive Land Use Plan* (2012) shows the plan area outside of the Moffett Federal Airfield noise contours.

Ambient Noise Measurements

The noise environment in the plan area is defined primarily by vehicular traffic on area roadways and Caltrain. To a lesser extent, industrial land uses contributes to the noise environment. To document existing ambient noise levels in the plan area, short-term ambient noise measurements were conducted by Michael Baker International staff on August 10, 2015 and a long-term measurement was conducted from July 21, 2015 to July 22, 2015. Existing daytime noise levels were monitored at two locations and the average 24-hour noise levels were monitored at one location within the plan area, which are depicted in **Figure 3.6-2**, in order to identify representative noise levels at various areas. The measurements were taken with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. The average noise levels and sources of noise measured at each location are identified in **Table 3.6-2**. The existing daytime noise levels ranged from 57.2 to 64.5 dBA L_{dn} . The 24-hour noise levels averaged 71.3 dBA L_{dn} .

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**TABLE 3.6-2
EXISTING NOISE LEVELS THROUGHOUT THE PLAN AREA**

Map #	Location	Run Time	Primary Noise Sources	Noise Level Statistics		
				L _{dn} (dBA)	L _{min} (dBA)	L _{max} (dBA)
Short Term						
1	Willow Avenue, approximately 300 feet north of Reed Avenue	August 10, 2015 1:28 PM	Traffic on Reed Avenue	57.2	48.4	86.7
2	San Zeno Way, just south of Kifer Road	August 10, 2015 1:49 PM	Traffic on Kifer Road and Lawrence Expressway	64.5	56.2	93.3
Long Term						
3	Aster Avenue, approximately 400 feet west of intersection with Willow Avenue.	July 21, 2015 1.02 PM	Industrial Operations, Caltrain, & Traffic on Lawrence Expressway	71.3	35.1	115.1

EXISTING CALTRAIN NOISE AND VIBRATION LEVELS

There are two main sources of train noise — engine noise and train horn noise. Train horns blow at the Lawrence Station. According to the City General Plan (2011), the areas affected by train noise had an L_{dn} of 71-73 dBA at 50 feet from the tracks. Maximum noise events can reach 90 dBA (engines) and 105 dBA (horns). According to the Noise Chapter of the General Plan (2011), all residences in the city experience “acceptable” train-generated noise levels with the exception of approximately 80 homes near the tracks which experience “conditionally acceptable” noise levels as a result of train operations. Train-generated noise levels are considered to be generally acceptable for all of the nonresidential uses (Sunnyvale 2011).

Caltrain trains presently consist of diesel locomotive-hauled, bi-level passenger cars. As of mid-2013, Caltrain operates 46 northbound and 46 southbound (for a total of 92) trains per day between San Jose and San Francisco during the week (PCJPB 2014). According to the Caltrain Electrification Project Draft Environmental Impact Report (PCJPB 2014) which contains ground vibration measurements conducted in Sunnyvale in 2010, the highest groundborne vibration velocity levels (VdB) reach 77 VdB at 50 feet from the tracks, which is a perceptible level (see **Table 3.6-1**). The measured VdB is below 75 at all other distances measured in Sunnyvale (65 to 215 feet away from the tracks).

Electrification of the rail line is scheduled to be operational by 2019 (PCJPB 2014) and approximately 75 percent of Caltrain trains would be powered by electricity (PCJPB 2014). Operational train noise impacts would include both a decrease in train noise, because electrified trains are quieter than diesel locomotives, and an increase in train noise, primarily during peak hours due to a future projected increase in Caltrain service. In Sunnyvale, the positive effect of quieter trains would be offset by the increase in horn noise such that noise conditions would not change (PCJPB 2014).

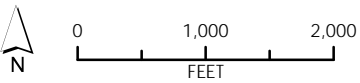


Figure 3.6-2
Noise Monitoring Locations

EXISTING ROADWAY NOISE LEVELS

Existing roadway noise levels were calculated for the roadway segments within and surrounding the plan area. This task was accomplished using the Federal Highway Administration (FHWA) Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the project traffic analysis (see **Appendix 3.4**). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) utilized in the FHWA model have been modified to reflect average vehicle noise rates identified for California by the California Department of Transportation (Caltrans). The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in **Table 3.6-3**.

**TABLE 3.6-3
EXISTING TRAFFIC NOISE LEVELS**

Roadway Segment	Surrounding Uses	L _{dn} at 75 Feet from Near-Travel-Lane Centerline
Lawrence Expressway		
Tasman Drive to Sandia Avenue	Residential	72.8
Oakmead Parkway to Arques Avenue	Commercial	73.1
Arques Avenue to Kifer Road	Commercial	73.8
Kifer Road to Reed Avenue	Residential & Commercial	74.1
Wolfe Road		
Duane Avenue to Stewart Drive	Residential	65.4
Stewart Drive to Arques Avenue	Residential & Commercial	62.1
Arques Avenue to Kifer Road	Commercial	68.0
Kifer Road to Evelyn Avenue	Residential & Commercial	64.4
Evelyn Avenue to Reed Avenue	Residential	63.9
Fair Oaks Boulevard		
Evelyn Avenue to Reed Avenue	Residential	64.2
Evelyn Avenue		
Sunnyvale Avenue to Fair Oaks Boulevard	Residential & Commercial	60.8
Fair Oaks Boulevard to Wolfe Road	Residential & Commercial	59.9
Kifer Road		
Wolfe Road to Semiconductor Drive	Residential & Commercial	61.7
Semiconductor Drive to Lawrence Expressway	Residential & Commercial	62.3
Arques Avenue		
Wolfe Road to Lawrence Expressway	Residential & Commercial	64.4

Note: Traffic noise levels were calculated using the FHWA roadway noise prediction model. Refer to **Appendix 3.6** for noise modeling assumptions and results.

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3.6.2 REGULATORY FRAMEWORK

FEDERAL

Department of Housing and Urban Development

The US Department of Housing and Urban Development (HUD) environmental criteria and standards are presented in 24 CFR Part 51. New residential construction qualifying for HUD financing proposed in high noise areas (exceeding 65 dBA L_{dn}) must incorporate noise attenuation features to maintain acceptable interior noise levels. A goal of 45 dBA L_{dn} is set for interior noise levels, and attenuation requirements are geared toward achieving that goal. It is assumed that with standard construction any building will provide sufficient attenuation to achieve an interior level of 45 dBA L_{dn} or less if the exterior level is 65 dBA L_{dn} or less. Approvals in a normally unacceptable noise zone (exceeding 65 decibels but not exceeding 75 decibels) require a minimum of 5 decibels additional noise attenuation for buildings if the day-night average is greater than 65 decibels but does not exceed 70 decibels, or minimum of 10 decibels of additional noise attenuation if the day-night average is greater than 70 decibels but does not exceed 75 decibels.

STATE

California Noise Insulation Standards

The State of California establishes minimum noise insulation performance standards for hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings as set forth in the 2010 California Building Code (Chapter 12, Appendix Section 1207.11). The noise limit is a maximum interior noise level of 45 dBA L_{dn} . Where exterior noise levels exceed 60 dBA L_{dn} , a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit. General plans facilitate the implementation of the Building Code noise insulation standards.

LOCAL

City of Sunnyvale General Plan

The City has established noise standards in its adopted General Plan intended to protect community 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 3.6-4**. For instance, the land use compatibility noise standard for residential land uses is 60 dBA L_{dn} , though noise levels up to 75 dBA are conditionally acceptable (Sunnyvale 2011). It is important to note that these noise criteria apply to newly proposed land uses and are based on average-daily noise levels. The land use compatibility standards mean that the proposed new land use cannot be sited in a location where it would receive exterior and interior noise above the maximum levels specified, unless adequate noise reduction measures have been incorporated to reduce noise levels to within acceptable levels.

**TABLE 3.6-4
CITY OF SUNNYVALE MAXIMUM PERMISSIBLE NOISE CRITERIA
FOR DETERMINATION OF LAND USE COMPATIBILITY**

Land Use	Maximum L _{dn} (dBA)		
	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--	--

Source: Sunnyvale 2011

The Noise Chapter of the General Plan contains the following policies that are relevant to the analysis of noise impacts:

Safety and Noise

- Policy SN-8.1 Enforce and supplement state laws regarding interior noise levels of residential unit.
- Policy SH-8.2 Apply Title 24 noise Insulation Requirements to all new single-family detached homes
- Policy SN-8.3 Attempt to achieve a maximum instantaneous noise level of 50 dBA in bedrooms and 55 dBA in other areas of residential units exposed to train or aircraft noise, where the exterior L_{dn} exceeds 55 dBA.
- Policy SN-8.5 Comply with "State of California Noise Guidelines for Land Use Planning" (Figure 6-5) for the compatibility of land uses with their noise environments, except where the City determines that there are prevailing circumstances of a unique or special nature.
- Policy SN-8.8 Avoid construction of new residential uses where the outdoor L_{dn} is greater than 70 dBA as a result from train noise.
- Policy SN-8.9a Use a combination of barriers, setbacks, site planning and building design techniques to reduce noise impacts, keeping in mind their benefits and shortcomings.
- Policy SN-9.3 Apply conditions to discretionary land use permits which limit hours of operation, hours of delivery and other factors which affect noise.

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- Policy SN-10.4a Monitor plans and projects which would increase the number of commuter or freight trains and evaluate their noise impacts and seek mitigation for any change that worsens local conditions.
- Policy SN-10.4d Seek the cooperation of train engineers to avoid unnecessary and prolonged use of air horns except for safety purposes.
- Policy SN-10.4e Monitor regional plans for light rail facilities in Sunnyvale to ensure that noise impacts are identified and mitigated.

Sunnyvale Municipal Code

Municipal Code Title 19, Chapter 19.42, presents operational noise standards that would be enforced on residentially zoned property. Operational noise cannot exceed 75 dBA at any point on the property line of the premises upon which the noise or sound is generated or produced; provided, however, that the noise or sound level is not to exceed 50 dBA during nighttime or 60 dBA 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 dBA.

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. daily Monday through Friday. Saturday hours of operation are between 8:00 a.m. and 5:00 p.m. No construction activity is allowed on Sundays or national holidays when City offices are closed.

3.6.4 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. The residential uses in the plan area and vicinity are considered noise-sensitive receptors. Policies contained in the Sunnyvale General Plan and regulations set forth in the City's Municipal Code summarized in the Regulatory Framework subsection establish local noise standards. Vibration guidelines established by state and federal agencies address vibration issues. Future noise levels resulting from development facilitated by the proposed plan area and cumulative growth in the area were modeled and used to evaluate the significance of impacts assessed with respect to the applicable criteria. The compatibility of new development is evaluated with respect to the future (2035) noise environment assuming the buildout of the plan area and cumulative development, because this corresponds to the highest expected noise environment. The impact of increased traffic noise is assessed for the project (plan area facilitated development) and the future (2035) condition assuming the buildout of the plan area and other cumulative development.

Year 2035 conditions assume build out under the proposed draft Land Use and Transportation Element (LUTE) update, which would result in additional growth beyond the existing adopted LUTE. However, noise impact conclusions identified below would be the same if the proposed LUTE update was not adopted.

Proposed LSAP Policies and Guidelines

The analysis in this section assumes implementation of the relevant goals (G), policies (P), and urban design guidelines (UDG) proposed in the LSAP. The guidelines listed below are not all-inclusive but are intended to highlight overall design considerations that address potential noise impacts at a programmatic level.

Land Use

LU-P1 *Buffer/transition new development located adjacent to existing residential neighborhoods through site planning, land use and design strategies.*

Industrial

I-G1 *Allow existing industrial uses to remain in the area, but ensure materials used, operations and work hours are compatible with nearby residential users.*

Transit Core Subarea

TC-UDG4 *For development directly adjoining the Lawrence Station and Caltrain tracks on the south side of Sonora Court, incorporate landscape and building design measures to mitigate the negative effects of noise and vibration.*

Peninsula, West, East, Subarea

PS-UDG3, WE-UDG3, and ES-UDG1: *For buildings adjacent to the tracks, incorporate landscape and building design measures to mitigate the negative effects of noise and vibration from train operations.*

STANDARDS OF SIGNIFICANCE

According to California Environmental Quality Act (CEQA) Guidelines Appendix G, impacts related to noise are considered significant if the project would result in any of the following conditions:

- 1) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or of applicable standards of other agencies.
- 2) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- 3) Exposure of persons to or generation of an excessive groundborne vibration or groundborne noise level.
- 4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- 5) 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.

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- 6) For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

As previously described, a review of the *Moffett Federal Airfield Comprehensive Land Use Plan* (2012) shows the plan area outside of the Moffett Federal Airfield noise contours. Additionally, the plan area is not located in the vicinity of a private airstrip. Therefore, this analysis does not further evaluate Standards of Significance 5 and 6.

Criteria for determining the significance of noise impacts were developed based on information contained in CEQA Guidelines Appendix G and the City's noise standards and guidelines. Sunnyvale's land use compatibility noise standards for various land uses are shown in **Table 3.6-4**. In addition to reviewing proposed development for compliance with these noise standards, the analysis takes into account the increases in noise levels over the pre-project noise conditions. **Table 3.6-5** shows General Plan standards for evaluating a projects contribution to ambient noise level increases.

**TABLE 3.6-5
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 dBA and the total L _{dn} exceeds the "normally acceptable" category
Normally Acceptable	An increase of more than 5 dBA
Conditionally Acceptable	An increase of more than 3 dBA
Unacceptable	An increase of more than 3 dBA

Source: Sunnyvale 2011

As depicted in **Table 3.6-5**, a noise level increase of 5.1, or greater, would typically be considered to result in increased levels of annoyance where existing ambient noise levels are normally acceptable. A noise level increase of 3.1, or greater, would be considered to result in increased levels of annoyance where existing ambient noise levels are normally acceptable but the increased noise level as a result of the project pushes noise levels beyond the normally acceptable threshold. Additionally, an increase of 3.1, or greater, would be considered to result in increased levels of annoyance where existing ambient noise levels are conditionally acceptable or unacceptable.

PROJECT IMPACTS AND MITIGATION MEASURES

Exposure of Persons to or Generation of Noise Levels in Excess of Standards (Standard of Significance 1)

- Impact 3.6.1** The proposed project would not expose residents to traffic noise or stationary sources of noise in excess of established standards. Impacts would be **less than significant**.

Automobile Traffic Noise

Future traffic noise levels throughout the plan area were modeled based on the traffic volumes identified by Hexagon Transportation Consultants (2015) to determine the noise level contours along plan area roadways. **Table 3.6-6** shows the calculated roadway noise levels under existing traffic levels compared to the condition of plan area buildout.

**TABLE 3.6-6
PROJECT CONDITIONS NOISE LEVELS ALONG SUNNYVALE ROADWAYS**

Roadway Segment	L _{dn} at 75 ft, dBA*	
	Existing Conditions	Existing Conditions Plus LSAP
Lawrence Expressway		
Tasman Drive to Sandia Avenue	72.8	73.0
Oakmead Parkway to Arques Avenue	73.1	73.5
Arques Avenue to Kifer Road	73.8	74.3
Kifer Road to Reed Avenue	74.1	74.6
Wolfe Road		
Duane Avenue to Stewart Drive	65.4	65.6
Stewart Drive to Arques Avenue	62.1	62.5
Arques Avenue to Kifer Road	68.0	68.6
Kifer Road to Evelyn Avenue	64.4	65.0
Evelyn Avenue to Reed Avenue	63.9	64.1
Fair Oaks Boulevard		
Evelyn Avenue to Reed Avenue	64.2	64.4
Evelyn Avenue		
Sunnyvale Avenue to Fair Oaks Boulevard	60.8	61.1
Fair Oaks Boulevard to Wolfe Road	59.9	60.6
Kifer Road		
Wolfe Road to Semiconductor Drive	61.7	63.5
Semiconductor Drive to Lawrence Expressway	62.3	64.1
Arques Avenue		
Wolfe Road to Lawrence Expressway	64.4	64.5

* Noise levels for highways and expressways are given at a distance of 75 feet from the center of the near direction of travel.

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Residential and mixed-use residential development is proposed by the LSAP along major roadways. Noise levels in these areas range from 60.8 to 74.6 dBA L_{dn} , a conditionally acceptable noise environment for all land uses according to City noise provisions. (As previously stated, in addition to reviewing proposed development for compliance with City noise standards, the analysis takes into account the increases in noise levels over the pre-project noise conditions. The reader is referred to Impact 3.6.2 for an evaluation of traffic accounting for the increases in noise levels over the pre-project noise conditions.)

New Residential Development

The LSAP is a flexible mixed-use plan that would result in a blend of residential and non-residential uses. In many areas, the LSAP would allow for the development of significantly higher densities than currently allowed under existing General Plan land use designations and zoning. Development facilitated by the proposed plan area would include noise-sensitive land uses (residences) that would be located in varying noise environments, including adjacent to and in the vicinity of major roadways such as Lawrence Expressway, Reed Avenue, and Kifer Road, and adjacent to and in the vicinity of the Caltrain tracks. Residential development is sensitive to community noise both outdoors and indoors during the daytime and nighttime. (High-density/mixed-use residential, commercial, and office development is less noise sensitive because uses are primarily indoors and noise levels are mitigated with building design and construction.) The placement of new residential development within near major roadways, such as Lawrence Expressway and Wolfe Road, and/or the Caltrain corridors could result in noise exposures exceeding the 45 dBA L_{dn} interior compatibility level and the 60 dBA L_{dn} exterior compatibility level for sensitive residential uses.

Residential and mixed-use residential development is proposed by the LSAP along the Caltrain line. For the purposes of this assessment, noise levels along the existing railroad and light rail corridors are estimated to remain similar to existing conditions. According to the Caltrain Electrification Project Draft Environmental Impact Report (PCJPB 2014), the positive effect of quieter, electric trains would be offset by the increase in horn noise such that noise conditions would not change. (It is noted that City General Plan Policy SN-10.4a requires the City to monitor plans and projects which would increase the number of commuter or freight trains and evaluate their noise impacts and seek mitigation for any change that worsens local conditions.) According to the City General Plan (2011), the areas in Sunnyvale affected by train noise had an L_{dn} of 71-73 dBA at 50 feet from the tracks. City General Plan Policy SN-8.8 prohibits the construction of new residential uses where the outdoor L_{dn} is greater than 70 dBA as a result of train noise, thus protecting future residences from excessive noise levels. Additionally, LSAP provisions require future development near the Caltrain tracks in the plan area to mitigate train-generated noise and vibration impacts consistent with City General Plan noise standards and land use compatibility and must also meet California Building Code interior noise standards of 45 dBA L_{dn} (TC-UDG4, PS-UDG3, WE-UDG3, and ES-UDG1).

Where exterior noise levels exceed 60 dBA L_{dn} in new residential development areas, interior levels may exceed 45 dBA L_{dn} . Interior noise levels are a function of the space but should generally be limited to 45 dBA L_{dn} or less. Interior noise levels are about 12 to 17 dBA lower than exterior levels in residential units with the windows partially open and approximately 20 to 25 decibels lower than exterior noise levels with the windows closed, assuming typical California construction methods. Where exterior day-night average noise levels are 60 to 70 dBA L_{dn} , interior noise levels can typically be maintained below 45 dBA L_{dn} with the incorporation of an adequate forced air mechanical ventilation system in the residential units to allow residents the option of controlling noise by keeping the windows closed. (Standard office construction methods typically provide about 25 to 30 decibels of noise reduction in interior spaces.) In all areas exceeding 70 dBA L_{dn} ,

the inclusion of windows and doors with high Sound Transmission Class (STC) ratings, and the incorporation of forced-air mechanical ventilation systems would most likely be necessary to meet 45 dBA. As previously stated, the State of California establishes minimum noise insulation performance standards for hotels, motels, dormitories, and apartment houses. Where exterior noise levels exceed 60 dBA L_{dn} , a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit.

The need for noise attenuation measures in building construction and project design from any noise source and for all land uses will be determined on a project-by-project basis at the time development is proposed. The City land use compatibility noise standard for all sensitive receptors in the city is 60 dBA L_{dn} , though noise levels up to 75 dBA are conditionally acceptable (General Plan noise standards for all land uses are summarized in **Table 3.6-4**). The proposed LSAP would not make any changes to current City noise standards. Implementation of existing regulations would address noise compliance impacts.

For the reasons described, the proposed project would not expose residents to traffic noise or stationary sources of noise in excess of established standards. Impacts would be **less than significant**.

Mitigation Measures

None required

Result in a Substantial Permanent Increase in Ambient Noise Levels Above Levels Existing Without the Project (Standard of Significance 2)

Impact 3.6.2 Project operation would generate increased local traffic volumes that could cause a substantial permanent increase in ambient noise levels in the project vicinity. This would be a **less than significant** impact.

As previously described, in addition to reviewing proposed development for compliance with specific noise thresholds, the General Plan requires that analyses account for the increases in noise levels over the pre-project noise conditions. **Table 3.6-5** shows General Plan standards for evaluating a projects contribution to ambient noise level increases. The primary factor contributing to the ambient noise environment as a result of the plan area would be the increase of vehicular traffic from proposed increased densities. **Table 3.6-7** shows the calculated roadway noise levels under existing traffic levels compared to the buildout of the plan area. In comparison to existing traffic noise levels, the project would result in a predicted increase in traffic noise levels below the applicable noise level thresholds. Therefore, predicted traffic noise levels would not result in a substantial increase in traffic noise levels along other primarily affected roadways.

3.6 NOISE

**TABLE 3.6-7
PREDICTED INCREASES IN TRAFFIC NOISE LEVELS EXISTING PLUS PROJECT CONDITIONS**

Roadway Segment	L _{dn} at 75 Feet from Near-Travel-Lane Centerline ¹		Increase	Threshold	Impact	Affected Land Use
	Without Project	With Project				
Lawrence Expressway						
Tasman Drive to Sandia Avenue	72.8	73.0	0.2	> 3.0	No	Residential
Oakmead Parkway to Arques Avenue	73.1	73.5	0.4	> 3.0	No	Commercial
Arques Avenue to Kifer Road	73.8	74.3	0.5	> 3.0	No	Commercial
Kifer Road to Reed Avenue	74.1	74.6	0.5	> 3.0	No	Residential & Commercial
Wolfe Road						
Duane Avenue to Stewart Drive	65.4	65.6	0.2	> 3.0	No	Residential
Stewart Drive to Arques Avenue	62.1	62.5	0.4	> 3.0	No	Residential & Commercial
Arques Avenue to Kifer Road	68.0	68.6	0.6	> 3.0	No	Commercial
Kifer Road to Evelyn Avenue	64.4	65.0	0.6	> 3.0	No	Residential & Commercial
Evelyn Avenue to Reed Avenue	63.9	64.1	0.2	> 3.0	No	Residential
Fair Oaks Boulevard						
Evelyn Avenue to Reed Avenue	64.2	64.4	0.2	> 3.0	No	Residential
Evelyn Avenue						
Sunnyvale Avenue to Fair Oaks Boulevard	60.8	61.1	0.3	> 3.0	No	Residential & Commercial
Fair Oaks Boulevard to Wolfe Road	59.9	60.6	0.7	> 3.0	No	Residential & Commercial
Kifer Road						
Wolfe Road to Semiconductor Drive	61.7	63.5	1.8	> 5.0	No	Commercial & Industrial
Semiconductor Drive to Lawrence Expressway	62.3	64.1	1.8	> 5.0	No	Commercial & Industrial
Arques Avenue						
Wolfe Road to Lawrence Expressway	64.4	64.5	0.1	> 3.0	No	Residential & Commercial

Notes:

1. Traffic noise levels were calculated using the FHWA roadway noise prediction model based on data obtained from the traffic analysis prepared for this project (Hexagon 2015; **Appendix E**).

2. For purposes of this analysis, a noise level increase of 5.1, or greater, would typically be considered to result in increased levels of annoyance where existing ambient noise levels are normally acceptable. A noise level increase of 3.1, or greater, would be considered to result in increased levels of annoyance where existing ambient noise levels are normally acceptable but the increased noise level as a result of the project pushes noise levels beyond the normally acceptable threshold. Additionally, an increase of 3.1, or greater, would be considered to result in increased levels of annoyance where existing ambient noise levels are conditionally acceptable or unacceptable.

3. Areas where the noise threshold is > 5.0 are commercial/industrial areas devoid of residential land uses, currently within the normally acceptable noise level range, and are less than 5.1 dBA from exceeding the normally acceptable noise threshold.

As shown in **Table 3.6-7**, predicted increases in traffic noise levels associated with the project would not be greater than the appropriate noise level thresholds and therefore would be **less than significant**.

Mitigation Measures

None required.

Exposure to Groundborne Vibration (Standard of Significance 3)

Impact 3.6.3 Planned development under the proposed LSAP would be required to comply with City noise standards set forth in the General Plan and Municipal Code. This is considered a **less than significant** impact.

The proposed LSAP proposes sensitive land uses in portions of the city adjacent to the existing Caltrain corridors. Ground vibration from conventional railroad trains or light rail trains passing could exceed the guidelines set forth by the Federal Transit Administration if new buildings housing sensitive uses such as residences are constructed within approximately 100 feet of the tracks. Employment areas such as offices and research & development facilities can also be sensitive to groundborne vibration. The specific locations of proposed buildings and their sensitivities to vibration levels are not known at this time; however, such uses located in these areas could be exposed to ground vibration levels exceeding FTA guidelines.

As previously described, measured groundborne VdB levels in Sunnyvale have reached as high as 77 VdB at 50 feet from the tracks, which is a perceptible level (see **Table 3.6-1**). Many people find that transportation-related vibration at this level is unacceptable. However, 85 VdB is the level considered by the FTA to be acceptable, though only if there are an infrequent number of events per day. The LSAP proposes policies and guidelines specific to each subarea within the plan area that are intended to highlight overall design considerations and address potential noise impacts at a programmatic level. LSAP contains provisions specific to areas adjacent to the Caltrain tracks which address groundborne vibration. For instance, Design Guideline *TC-UDG4* states that for development directly adjoining the Lawrence Station and Caltrain tracks on the south side of Sonora Court, landscape and building design measures must be incorporated to mitigate the negative effects of noise and vibration. Design Guidelines *PS-UDG3*, *WE-UDG3*, and *ES-UDG1* require the same of buildings developed in the Peninsula, West, and East subareas. Examples of mitigation that address groundborne vibration include the use of setbacks, the use of structural design features, or both.

Construction activities would require the use of off-road equipment such as tractors, jackhammers, and haul trucks. The FTA vibration impact threshold of 85 VdB for construction, which is the vibration level that is considered by the FTA to be acceptable if there are an infrequent number of events per day, can be applied to construction activities. Groundborne vibration levels associated with representative construction equipment are summarized in **Table 3.6-8**. Based on the vibration levels presented in the table, ground vibration generated by construction equipment would not be anticipated to exceed 85 VdB at 50 feet.

3.6 NOISE

**TABLE 3.6-8
REPRESENTATIVE VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT**

Equipment	Approximate VdB	
	50 Feet	100 Feet
Large Bulldozer	81	75
Caisson Drilling	81	75
Loaded Trucks	80	74
Jackhammer	73	67
Small Bulldozer	52	46

Source: FTA 2006

Notes: The vibration levels at the off-site sensitive uses are determined with the following equation from the FTA Transit Noise and Vibration Impact Assessment, Final Report: $L_v(D) = L_v(25 \text{ ft}) - 20 \log(D/25)$, where L_v = vibration level of equipment, D = distance from the equipment to the receiver, $L_v(25 \text{ ft})$ = vibration level of equipment at 25 feet

The majority of construction equipment does not result in VdB in excess of FTA thresholds, even at 50 feet. In addition, according to Municipal Code Chapter 16.08, the legal hours of construction are between the hours of 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. These hours are intended to mitigate temporary noise impacts, including groundborne vibration impacts, by avoiding construction during nighttime periods that would disturb noise-sensitive land uses (residential). Because construction noise would be temporary, intermittent, short in duration, and would take place during legal hours of construction, future projects in the plan area would be considered insubstantial.

For the reasons described, this impact would be **less than significant** during both operations and construction of the project.

Mitigation Measures

None required.

Exposure to Short-Term Construction Noise (Standard of Significance 4)

Impact 3.6.4 Planned development under the proposed LSAP would not result in the exposure of persons to or generation of noise levels in excess of the City of Sunnyvale's noise standards, as short-term construction noise is exempt from all noise level standards and construction is limited to daytime hours. However, this temporary noise impact would be **potentially significant**.

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise-sensitive receptors. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), when construction occurs in areas immediately adjoining noise-sensitive land uses, or when construction durations last over extended periods of time.

Major noise-generating construction activities associated with new projects would include removal of existing pavement and structures, site grading and excavation, installation of utilities, the construction of building foundations, cores, and shells, paving, and landscaping. The highest noise levels would be generated during the demolition of existing structures when impact tools

are used (e.g., jackhammers, hoe rams) and during the construction of building foundations when impact pile driving is required to support the structure. Site grading and excavation activities would also generate high noise levels, as these phases often require the simultaneous use of multiple pieces of heavy equipment such as dozers, excavators, scrapers, and loaders. Lower noise levels result from building construction activities when these activities move indoors and less heavy equipment is required to complete the tasks. Construction equipment would typically include, but would not be limited to, earth-moving equipment and trucks, pile driving rigs, mobile cranes, compressors, pumps, generators, paving equipment, and pneumatic, hydraulic, and electric tools. Noise levels associated with individual construction equipment are summarized in **Table 3.6-9**.

TABLE 3.6-9
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Typical Noise Level (dBA L _{max}) 50 Feet from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Vibrator	76
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jackhammer	88
Loader	85
Truck	88
Paver	89
Pneumatic Tool	85
Roller	74
Saw	76

Source: FTA 2006

As depicted in **Table 3.6-9**, noise levels generated by individual pieces of construction equipment typically range from approximately 74 dBA to 89 dBA L_{max} at 50 feet (FTA 2006). Average-hourly noise levels associated with construction projects can vary, depending on the activities performed, reaching levels of up to approximately 83 dBA L_{eq} at 50 feet. Short-term increases in vehicle traffic, including worker commute trips and haul truck trips, may also result in temporary increases in ambient noise levels at nearby receptors. During each stage of construction, there would be a different mix of equipment operating, and noise levels would vary based on the amount of equipment on site and the location of the activity. Construction noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor. Intervening structures or terrain would result in lower noise levels at distant receivers.

3.6 NOISE

The City of Sunnyvale does not establish quantitative noise limits for demolition or construction activities occurring in the city. According to Municipal Code Chapter 16.08, the legal hours of construction are between the hours of 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. These hours are intended to mitigate temporary noise impacts by avoiding construction during nighttime periods that would disturb noise-sensitive land uses (residential). Noise generated by small infill projects would likely have relatively short overall construction durations, with the noisiest phases of construction (e.g., demolition, foundations, project infrastructure, building core and shell) limited to a time frame of one year or less. These phases of construction are not anticipated to generate noise levels in excess of 60 dBA L_{eq} and would not increase the ambient noise environment by 5 dBA L_{eq} or more at sensitive land uses in the area over extended periods of time (beyond one construction season). Interior construction, landscaping, and finishing activities would not be expected to result in noise levels in excess of 60 dBA L_{eq} . The following mitigation measures are identified to ensure that temporary construction noise impacts are minimized.

Mitigation Measures

MM 3.6.4 Subsequent projects in the LSAP shall employ site-specific noise attenuation measures during construction to reduce the generation of construction noise. These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by the City of Sunnyvale Building Services Division. Measures specified in the Noise Control Plan and implemented during construction shall include, at a minimum, the following noise control strategies:

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds;
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used; and
- Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.
- Noise reducing pile-driving techniques shall be employed during Project construction. These techniques shall include:
 - Installing intake and exhaust mufflers on pile-driving equipment;
 - Vibrating piles into place when feasible, and installing shrouds around the pile-driving hammer where feasible;

- Implement “quiet” pile-driving technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions;
- Use cushion blocks to dampen impact noise, if feasible based on soil conditions. Cushion blocks are blocks of material that are used with impact hammer pile drivers. They consist of blocks of material placed atop a piling during installation to minimize noise generated when driving the pile. Materials typically used for cushion blocks include wood, nylon and micarta (a composite material); and
- At least 48 hours prior to pile-driving activities, the applicant shall notify building owners and occupants within 600 feet of the Project area of the dates, hours, and expected duration of such activities.

Timing/Implementation: *Included in improvement plans for all subsequent projects*

Enforcement/Monitoring: *City of Sunnyvale Community Development Department Building Services Division*

3.6.5 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The geographic extent of the cumulative setting for noise consists of the project site and vicinity. Based on the noise measurement surveys conducted, ambient noise levels in the plan area are primarily affected by vehicle traffic on nearby area roadways. As a result, the primary factor for cumulative noise impact analysis is the consideration of future traffic noise levels along area roadways. For the purposes of this assessment, noise levels along the existing railroad and light rail corridors are estimated to remain similar to existing conditions. According to the Caltrain Electrification Project Draft Environmental Impact Report (PCJPB 2014), the positive effect of quieter, electric trains would be offset by the increase in horn noise such that train-related noise conditions would not change in the future.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Traffic Noise Impacts

Impact 3.6.5 Project operation would not result in a substantial contribution to cumulative noise levels. This impact would be considered **less than cumulatively considerable**.

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due buildout of the LSAP and other projects in the vicinity. Therefore, cumulative traffic-generated noise impacts have been assessed based on the contribution of plan area buildout to the future cumulative base traffic volumes in the plan area and vicinity. The noise levels associated with cumulative base traffic volumes without the project and cumulative base traffic volumes with the project are identified in **Table 3.6-10**.

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**TABLE 3.6-10
PREDICTED INCREASES IN CUMULATIVE TRAFFIC NOISE LEVELS**

Roadway Segment	L _{dn} at 75 Feet from Near-Travel-Lane Centerline ¹		Increase	Threshold	Impact	Affected Land Use
	Without Project	With Project				
Lawrence Expressway						
Tasman Drive to Sandia Avenue	74.1	74.4	0.3	> 3.0	No	Residential
Oakmead Parkway to Arques Avenue	75.0	75.5	0.5	> 3.0	No	Commercial
Arques Avenue to Kifer Road	75.3	76.0	0.7	> 3.0	No	Commercial
Kifer Road to Reed Avenue	74.6	75.5	0.9	> 3.0	No	Residential & Commercial
Wolfe Road						
Duane Avenue to Stewart Drive	66.3	66.5	0.2	> 3.0	No	Residential
Stewart Drive to Arques Avenue	64.6	65.1	0.5	> 3.0	No	Residential & Commercial
Arques Avenue to Kifer Road	69.9	70.6	0.7	> 3.0	No	Commercial
Kifer Road to Evelyn Avenue	67.3	68.0	0.7	> 3.0	No	Residential & Commercial
Evelyn Avenue to Reed Avenue	67.4	67.6	0.2	> 3.0	No	Residential
Fair Oaks Boulevard						
Evelyn Avenue to Reed Avenue	65.2	65.7	0.5	> 3.0	No	Residential
Evelyn Avenue						
Sunnyvale Avenue to Fair Oaks Boulevard	60.3	61.0	0.7	> 3.0	No	Residential & Commercial
Fair Oaks Boulevard to Wolfe Road	60.3	61.5	1.2	> 3.0	No	Residential & Commercial
Kifer Road						
Wolfe Road to Semiconductor Drive	63.2	65.6	2.4	> 5.0	No	Commercial & Industrial
Semiconductor Drive to Lawrence Expressway	63.0	65.7	2.7	> 5.0	No	Commercial & Industrial
Arques Avenue						
Wolfe Road to Lawrence Expressway	67.3	67.4	0.1	> 3.0	No	Residential & Commercial

Notes:

1. Traffic noise levels were calculated using the FHWA roadway noise prediction model based on data obtained from the traffic analysis prepared for this project (Hexagon 2015; **Appendix 3.6**).

2. For purposes of this analysis, a noise level increase of 5.1, or greater, would typically be considered to result in increased levels of annoyance where existing ambient noise levels are normally acceptable. A noise level increase of 3.1, or greater, would be considered to result in increased levels of annoyance where existing ambient noise levels are normally acceptable but the increased noise level as a result of the project pushes noise levels beyond the normally acceptable threshold. Additionally, an increase of 3.1, or greater, would be considered to result in increased levels of annoyance where existing ambient noise levels are conditionally acceptable or unacceptable.

3. Areas where the noise threshold is > 5.0 are commercial/industrial areas devoid of residential land uses, currently within the normally acceptable noise level range, and are less than 5.1 dBA from exceeding the normally acceptable noise threshold.

As shown in **Table 3.6-10**, under the cumulative project scenario, the project would not result in cumulatively considerable roadway noise level increases beyond noise level thresholds at all vicinity roadway segments. City General Plan noise standards for residential uses of a maximum of 75 dBA L_{dn} would occur along Lawrence Expressway between Kifer Road and Reed Avenue, but the LSAP's contribution to this noise level would not be perceivable and future development in this area would be required to meet interior noise standards of 45 dBA L_{dn} under California Building Code requirements. This impact would be **less than cumulatively considerable**.

Mitigation Measures

None required.

3.6 NOISE

REFERENCES

Caltrans (California Department of Transportation). 2002. *Transportation Related Earthborne Vibrations*.

———. 2012. *IS/EA Annotated Outline*.
<http://www.dot.ca.gov/ser/vol1/sec4/ch31ea/chap31ea.htm>.

FTA (Federal Transit Administration). 2006. *Transit Noise and Vibration Impact Assessment*.

Hexagon (Hexagon Transportation Consultants, Inc.). 2015. *Lawrence Station Area-Wide Transportation Plan and Near-Term Traffic Impact Analysis*. 2015.

OPR (Governor's Office of Planning and Research). 2003. *State of California General Plan Guidelines*.

PCJPB (Peninsula Corridor Joint Powers Board). 2014. *Peninsula Corridor Electrification Project Draft Environmental Impact Report*. February 2014

(ALUC) Santa Clara County Airport Land Use Commission. 2012. *Final Draft Comprehensive Land Use Plan Santa Clara County, Moffett Federal Airfield*.

Sunnyvale, City of. 2011. *Sunnyvale General Plan (consolidated in 2011), Safety and Noise Chapter*.

3.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

3.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

This section describes geologic and seismic hazards, such as ground shaking and liquefaction, and soil-related hazards, such as expansive soils, in the Lawrence Station Area Plan (LSAP) plan area, and evaluates the potential for the LSAP to affect or be affected by geologic and soil hazards. Paleontological resources impacts are also evaluated in this section.

A summary of the impact conclusions related to geology, soils, and paleontological resources is provided below.

Impact Number	Impact Topic	Impact Significance
3.7.1	Seismic Hazards	Less than significant
3.7.2	Erosion and Loss of Topsoil	Less than significant
3.7.3	Development on Unstable or Expansive Soils	Less than significant
3.7.4	Paleontological Resources	Less than significant with mitigation
3.7.5	Cumulative Geologic, Seismic, and Soil Hazards	Less than cumulatively considerable
3.7.6	Cumulative Paleontological Resources Impacts	Less than cumulatively considerable

3.7.1 EXISTING SETTING

REGIONAL GEOLOGIC SETTING

The San Francisco Bay region is located along the boundary between the Pacific and North American plates, two large crustal plates that are separated by the north–northwest-trending San Andreas fault, in the California Coast Ranges Geomorphic Province. The geomorphology of the region includes parts of three prominent, northwest-trending geologic/geomorphic features, which include from west to east the Santa Cruz Mountains, the Santa Clara Valley, and the Diablo Range. The Santa Clara Valley forms part of an elongated structural block (the San Francisco Bay block) in the central Coast Ranges that contains the San Francisco Bay and its surrounding alluvial margins. This structural block is bounded by the San Andreas fault to the southwest and by the Hayward-Calaveras fault zone to the northeast. The plan area is in the Santa Clara Valley.

LOCAL GEOLOGY AND TOPOGRAPHY

The plan area is approximately 3 miles south of the San Francisco Bay and overlies Holocene-age alluvial deposits that surround the margins of the bay. Generally, the alluvial deposits increase in age toward the south, toward Sunnyvale, where locally Late Pleistocene–age alluvial deposits occur. The plan area is generally flat and averages approximately 60 to 80 feet above mean sea level.

FAULTS AND SEISMICITY

Faults are classified as “active” and “potentially active.” An active fault is one that has had surface displacement within Holocene time (about the last 11,000 years), while a potentially active fault is one that has been active during Quaternary time (last 1,600,000 years). These definitions are used in delineating Earthquake Fault Zones as mandated by the Alquist-Priolo Earthquake Fault Zoning Act of 1972. The intent of this act is to ensure that development does not occur across the traces of active faults.

3.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

The plan area is not located in an Alquist-Priolo Earthquake Fault Zone and contains no active fault traces (CGS 2015). Three active faults are located near the plan area: the Hayward fault (11.7 miles east), the San Andreas fault (7.5 miles west), and the Monte Vista–Shannon fault (4.3 miles west). Two potentially active faults are near the plan area: the Stanford fault (1 mile southwest) and the Cascade fault (2.5 miles southwest). There is one potentially active fault in the plan area. The San Jose fault is a concealed fault (i.e., it does not have a surface trace) that crosses the southwestern portion of the plan area in a northwest–southeast direction (CGS 2010).

In a study completed in 2014, the U.S. Geological Survey Working Group on California Earthquake Probabilities estimates there is a 72 percent probability between 2014 and 2044 that an M6.7 or greater magnitude earthquake will occur in the San Francisco Bay Region (USGS 2015).

Ground Shaking

Ground shaking is the most widespread effect of an earthquake. The sudden release of energy in an earthquake causes waves to travel through the earth. These waves not only shake structures to the breaking point but can trigger secondary effects such as landslides or other types of ground failure.

The strength of an earthquake is generally expressed in two ways: magnitude and intensity. The magnitude is a measure that depends on the seismic energy radiated by the earthquake as recorded on seismographs. The intensity at a specific location is a measure that depends on the effects of the earthquake on people or buildings and is used to express the severity of ground shaking. There may be many values of intensity (damage) for a specific earthquake at different sites, depending on the underlying soil conditions.

The most commonly used magnitude scale today is the moment magnitude (M_w) scale. Moment magnitude is related to the physical size of fault rupture and the movement (displacement) across the fault, and it is therefore a more uniform measure of the strength of an earthquake. Earthquake intensities (ground shaking and damage) are estimated by the Modified Mercalli Intensity Scale, which characterizes the intensity of an earthquake's effects in a given locality and is based on observations of earthquake effects in specific places. On the Modified Mercalli Intensity Scale, values range from I to XII (see **Table 3.7-1**). While an earthquake has only one magnitude, it can have various intensities, which decrease with distance from the epicenter (CGS 2002a).

TABLE 3.7-1
MODIFIED MERCALLI INTENSITY SCALE

Modified Mercalli Scale	Effects of Intensity
I	I. Not felt except by a very few under especially favorable conditions.
II–III	II. Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
	III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.

3.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

Modified Mercalli Scale	Effects of Intensity
IV–V	<p>IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.</p> <p>V. Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.</p>
VI–VII	<p>VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.</p> <p>VII. Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.</p>
VIII–IX	<p>VIII. Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.</p> <p>IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.</p>
X or higher	<p>X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.</p> <p>XI. Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.</p> <p>XII. Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.</p>

Source: CGS 2002a

Strong ground shaking can be expected in the plan area during moderate to severe earthquakes. The USGS has developed maps of earthquake ground shaking intensity for major regional faults. For a large earthquake on the San Andreas fault (Mw 7.9), Sunnyvale could be susceptible to very strong ground shaking effects (VIII on the Modified Mercalli Intensity Scale) (ABAG 2013).

Liquefaction

Liquefaction occurs when loose sand and silt that is saturated with water behaves like a liquid when shaken by an earthquake. The soil can lose its ability to support structures, flow down even very gentle slopes, and erupt to the ground surface to form sand boils. Many of these phenomena are accompanied by settlement of the ground surface, usually in uneven patterns that damage buildings, roads, and pipelines. Most ground failure from earthquake shaking results in displacement at the surface due to the loss of strength of the underlying materials. The various types of ground failure include landsliding, liquefaction, lateral spreading, lurching, and differential settlement.

These effects usually occur in soft, fine-grained, water-saturated alluvium, as generally found in the Santa Clara Valley. Portions of Sunnyvale are designated as Liquefaction Hazard Zones (Sunnyvale 2011; CGS 2002b, 2006). In the plan area, there is a liquefaction hazard along

3.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

Calabazas Creek and in the central and eastern portions of the plan area. The potential for liquefaction in those areas is between 5 and 10 percent (USGS 2008).

Earthquake-Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, non-compacted, and variable sandy sediments) due to the rearrangement of soil particles during prolonged ground shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different rates). In general, areas are susceptible to earthquake-induced settlement if underlain by compressible sediments, such as poorly engineered artificial fill or young unconsolidated sediments.

SOILS

The most prominent soil types in the plan area are Urban Land, Urban Land-Hangerone complex, and Urban Land-Bayshore complex. The plan area is built out with paved surfaces, except for an approximately 8-acre site in the eastern part of the Corn Palace property, which is mapped as Urban-Land Bayshore complex. This site is not Prime Farmland or a source of topsoil.

Erosion

Soil with high amounts of silt can be easily eroded, while sandy soils are less susceptible to erosion. Erosion is most likely on sloped areas with exposed soil, especially where unnatural slopes are created by cut-and-fill activities. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, or asphalt. Most of the plan area has been developed and is covered with impervious surfaces; therefore, erosion potential is low.

Settlement

Surface settlement can occur due to immediate settlement of coarse-grained soils or consolidation of fine-grained soils under increased loading. Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs relatively quickly and is typically substantially complete within several hours or days after placement of the final load. Consolidation settlement occurs in saturated or near-saturated fine-grained (clay) soil due to volume change caused by load-induced squeezing of water from the pore spaces. Consolidation occurs over a relatively long period of time (often years or even decades) and is followed by secondary compression, which is a continued change in void ratio under the continued application of the load from the pore water to the soil grains. Total settlements can vary over an area, referred to as differential settlement, due to variations in loading, soil characteristics, and thickness of compressible layers. Areas are generally susceptible to differential settlement if underlain by compressible sediments, such as poorly engineered artificial fill or young unconsolidated sediments. The plan area is underlain by young alluvial sediments that can be susceptible to settlement.

Expansive Soils

Expansive soils are soils that tend to shrink or swell depending on their moisture content. As expansive soils get wet, the clay minerals absorb water molecules and expand; conversely, as they dry they shrink. When structures are located on expansive soils, foundations have the tendency to rise during the wet season and shrink during the dry season. This movement can create new stresses on various sections of the foundation and connected utilities and can lead to

3.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

structural failure and damage to infrastructure. Cracked foundations, floors, and basement walls are typical types of damage created by expansive soils. Damage to the upper floors of the building can occur when differential movement of the structure is significant. Surficial soils in Sunnyvale are largely composed of expansive clays (Sunnyvale 2011). Undisturbed native soils in the plan area may have a slight to moderate shrink-swell potential, which could result in development constraints.

SUBSIDENCE

Land subsidence results in a slow-to-rapid downward movement of the ground surface as a result of the vertical displacement of the ground surface, usually resulting from groundwater withdrawal. Periodic surveys of land elevation have been conducted in Santa Clara County since 1934. The lowest historical water levels were generally observed in the 1960s and 1970s. Since then, groundwater levels have recovered, primarily due to the Santa Clara Valley Water District's (SCVWD) managed recharge and in-lieu recharge programs. The SCVWD measures water levels at ten subsidence index wells on a regular basis (daily to quarterly) to ensure they remain above established thresholds. Measured groundwater levels have been consistently above subsidence thresholds from 2003 to 2013 at all index wells (SCVWD 2013). Although human-caused subsidence has been minimal since 1967, a certain amount of subsidence is continuing to occur naturally due to regional tectonic movements, peat decay, and a 3-inch rise in the sea level during the last 50 years (Sunnyvale 2011).

PALEONTOLOGICAL RESOURCES

Paleontological resources include fossil remains of vertebrate and invertebrate organisms, fossil tracks, and plant fossils, as well as fossil localities and formations that have produced fossil material. A unique paleontological site would include a known area of fossil-bearing rock strata. Such locations and specimens are important nonrenewable resources. The California Environmental Quality Act (CEQA) offers protection for these sensitive resources and requires that they be addressed during the environmental review process.

The Society for Vertebrate Paleontologists (SVP) has developed criteria for screening the paleontological potential of rock units. High-potential units are geologic units for which vertebrate or significant invertebrate or plant fossils have been recovered. Only invertebrate fossils that provide new information on existing flora or fauna on the age of a rock unit would be considered significant. Geologic units for which little to no information is available are considered to have undetermined sensitivity. A low-sensitivity unit is a geologic unit that is not known to have produced a substantial body of significant paleontological material.

The University of California Museum of Paleontology (UCMP) collections database contains two records for Holocene-age invertebrate fossils in Sunnyvale (UCMP 2015). The specific locations are not identified, but known fossils from the Holocene in the greater Bay Area are sparse and represent common taxa. The Holocene-age sediments have low potential to yield fossil resources or to contain significant nonrenewable paleontological resources. However, remains of a Rancholabrean Columbian mammoth (*Mammuthus columbi*) were found along the Guadalupe River in San Jose, in a strata identified as Holocene by published geologic maps. Either the mammoth remains were reworked from older deposits, or some strata identified as Holocene in the Santa Clara Valley are actually of Pleistocene age. In either case, Holocene materials in the Santa Clara Valley may have some level of sensitivity for paleontological resources. The younger Holocene-age deposits may also overlie older Pleistocene sediments, depending on location. These older sediments, often found at depths of greater than 10 feet below the ground surface, have yielded the fossil remains of plants and extinct terrestrial Pleistocene vertebrates (Sunnyvale 2015). Because of their vertebrate content,

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Pleistocene alluvial strata are considered highly sensitive for paleontological resources (Santa Clara 2011; Sunnyvale 2015).

3.7.2 REGULATORY FRAMEWORK

FEDERAL

Uniform Building Code

The purpose of the Uniform Building Code (UBC) is to provide minimum standards to preserve the public peace, health, and safety by regulating the design, construction, quality of materials, certain equipment, location, grading, use, occupancy, and maintenance of all buildings and structures. UBC standards address foundation design, shear wall strength, and other structural-related conditions.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The act's main purpose is to prevent the construction of buildings used for human occupancy on the surface of active faults. The act requires the State Geologist to establish regulatory zones known as earthquake fault zones (EFZ) around the surface traces of active faults and to issue appropriate maps. The State Geologist has delineated EFZs in Santa Clara County, but none are within Sunnyvale.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 directs the Department of Conservation, California Geological Survey to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the act is to minimize loss of life and property through the identification, evaluation, and mitigation of seismic hazards. The CGS has published regulatory maps identifying areas that require special evaluation.

California Building Code

The State of California provides minimum standards for building design through the California Code of Regulations, Title 24, also known as the California Building Standard Code or the California Building Code (CBC). The CBC is based on the Uniform Building Code but modifies UBC regulations for specific conditions found in California and includes a large number of more detailed and/or more restrictive regulations.

For example, the CBC includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil related impacts. The CBC requires structures to be built to withstand ground shaking in areas of high earthquake hazards and the placement of strong motion instruments in larger buildings to monitor and record the response of the structure and the site of seismic activity. Compliance with CBC regulations ensures the adequate design and construction of building foundations to resist soil movement. In addition, the CBC contains drainage requirements in order to control surface drainage and to reduce seasonal fluctuations in soil moisture content.

Paleontological Resources

Paleontological resources are classified as nonrenewable scientific resources and are protected by state statute (Public Resources Code Chapter 1.7, Section 5097.5). No state or local agencies have specific jurisdiction over paleontological resources, nor do they require a paleontological collecting permit to allow the recovery of fossil remains discovered as a result of construction-related earth moving on state or private land on a project site.

LOCAL

City of Sunnyvale Municipal Code

Sunnyvale has adopted the most current CBC (2013) as part of the City's Municipal Code (Chapter 16.16). In addition, the City's grading standards (Section 18.12.110) specify that when grading will create a nuisance or hazard to other properties, public way, or public facilities due to erosion from storm runoff or rainfall, grading cannot commence or continue without specific consent in writing from the Director of Public Works or the Director of Community Development. The grading standards also regulate gradients for cut-and-fill slopes.

Hazard Mitigation Plans

In March 2005, the Association of Bay Area Governments (ABAG) adopted a multi-jurisdictional Hazard Mitigation Plan for the Bay Area. Each participating local county and city government in the Bay Area prepares an annex to this plan to explain how the plan specifically applies to that agency. The City of Sunnyvale has established a Local Hazard Mitigation Plan as an annex to the ABAG regional Hazard Mitigation Plan.

3.7.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following impact analysis is based on a review of published information, surveys, and reports regarding regional geology and soils. Information was obtained from private and governmental agencies and Internet websites, including the USDA Natural Resources Conservation Service, the California Geological Survey (formerly the California Department of Mines and Geology), and the US Geological Survey.

Paleontological resources were evaluated based on a review of geologic information for the plan area and a search of the database at the Museum of Paleontology at the University of California, Berkeley.

STANDARDS OF SIGNIFICANCE

This analysis evaluates the proposed project's impacts on geology and soils based on the standards identified in CEQA Guidelines Appendix G. A geology and soils impact is considered significant if implementation of the project would:

- 1) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

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- i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence or other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.
 - ii) Strong seismic ground shaking.
 - iii) Seismic-related ground failure, including liquefaction.
 - iv) Landslides.
- 2) Result in substantial soil erosion or the loss of topsoil.
 - 3) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, creating substantial risks to life or property.
 - 4) Be located on expansive soils, as defined in Section 1803.5.3 of the 2013 CBC, creating substantial risks to life or property.
 - 5) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.
 - 6) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

Impacts Not Evaluated in Detail

The plan area is not in an Alquist-Priolo Earthquake Fault Zone or landslide hazard zone and therefore would not be subject to hazards associated with significant fault surface rupture or landslides. Therefore, standards of significance 1(i) and 1(iv) are not evaluated in this Draft EIR.

Section 12.08.010 of the City of Sunnyvale Municipal Code requires sewer connections for all new development. Septic tanks would not be used for new development; therefore, standard of significance 5 is not evaluated in this Draft EIR.

PROJECT IMPACTS AND MITIGATION MEASURES

Seismic Hazards (Standard of Significance 1)

Impact 3.7.1 Subsequent projects developed under the LSAP would result in the exposure of people, structures, and infrastructure to strong seismic ground shaking. However, California Building Code standards, as implemented by the City through Chapter 16.16 of the Municipal Code, would address seismic hazards. This is a **less than significant** impact.

The plan area is located in a seismically active area and could experience strong seismic ground shaking and seismic-related ground failure (e.g., liquefaction and settlement) from earthquakes on active faults located outside of the plan area. The anticipated increase in population and development under the proposed LSAP could result in the exposure of more people, structures, and infrastructure to seismic-related hazards.

3.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

All new development and redevelopment would be required to comply with the current adopted CBC, which includes design criteria for seismic loading and other geologic hazards, including design criteria for geologically induced loading that govern sizing of structural members and provide calculation methods to assist in the design process. While ground shaking impacts could be potentially damaging, they would also tend to be reduced in their structural effects because of CBC criteria that recognize this potential. The CBC includes provisions for buildings to structurally survive an earthquake without collapsing and includes measures such as anchoring to the foundation and structural frame design.

Thus, while subsequent development associated with implementation of the proposed LSAP would inherently result in the exposure of people, structures, and infrastructure to dangers associated with earthquakes because of its location in a seismically active region, continued implementation of the City's Municipal Code would help minimize these dangers. There are no aspects of the LSAP that would increase the potential for seismic activity or the inherent risks associated with such activity. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required.

Erosion and Loss of Topsoil (Standard of Significance 2)

Impact 3.7.2 Subsequent projects developed under the LSAP would involve construction and grading activities that could temporarily increase soil erosion. However, continued implementation of the City's Municipal Code would ensure no adverse impacts from erosion. This impact is considered to be **less than significant**.

Implementation of the proposed LSAP would allow new development, redevelopment, and infrastructure improvements. Grading and site preparation activities associated with such development could remove buildings and pavement, which could expose the underlying soils to wind and water erosion. Because erosion would depend on the type of development, intensity of development, and amount of lot coverage of a particular project site, impacts would vary.

Ground-disturbing activities at projects in the LSAP plan area would be required to comply with CBC Chapter 70 standards, which would ensure implementation of appropriate measures during grading activities to reduce soil erosion. Additionally, any development involving clearing, grading, or excavation that causes soil disturbance of 1 or more acres would be required to prepare and comply with a stormwater pollution prevention plan (SWPPP) which provides a schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details and a time schedule. The SWPPP would consider the full range of erosion control best management practices (BMPs), including any additional site-specific and seasonal conditions. As further discussed in Section 3.8, Hydrology and Water Quality, the State Water Resources Control Board has adopted a Construction General Permit (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order 2012-0006-DWQ) that provides additional standards and requirements to avoid soil erosion.

In addition, the City's grading standards (Municipal Code Section 18.12.110) specify that when grading will create a nuisance or hazard to other properties, public way, or public facilities due to erosion from storm runoff or rainfall, grading cannot commence or continue without specific consent in writing from the Director of Public Works or the Director of Community Development. The grading standards also regulate gradients for cut-and-fill slopes. The City's grading regulations

3.7 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

would further ensure that all public and private development projects would include the necessary control measures for erosion and sediment control as well as permanent features to minimize stormwater pollution from development projects. The City's current development review process also ensures that construction projects have the necessary permits and that on-site regional control measures are considered for new development projects.

After projects are completed, little or no soil would be subject to erosion because it would be covered with impervious surfaces such as buildings and pavement. Landscaped areas would generally be covered with vegetation, which would minimize erosion potential.

Compliance with adopted City grading regulations and SWPPP requirements would ensure that soil erosion and related impacts would be **less than significant**.

Mitigation Measures

None required.

Development on Unstable or Expansive Soils (Standards of Significance 3 and 4)

Impact 3.7.3 Subsequent projects developed under the LSAP could occur on a geologic unit or soil that is unstable, thus creating substantial risks to life and property. However, continued implementation of the City's Municipal Code and compliance with the CBC would ensure that potential development is not adversely impacted by unstable soils. This is considered a **less than significant** impact.

Future structures and improvements that could be developed under the LSAP could experience stresses on various sections of foundations and connected utilities, as well as structural failure and damage to infrastructure if located on expansive or unstable soils. In addition, the plan area is underlain by young alluvial sediments that may be susceptible to settlement.

The City requires preparation of geotechnical reports for all development projects (Sunnyvale 2011). These geotechnical reports would include soil sampling and laboratory testing to determine the soil's susceptibility to expansion and differential settlement and would provide recommendations for design and construction methods to reduce potential impacts, as necessary. Furthermore, the CBC includes common engineering practices requiring special design and construction methods that reduce potential expansive soil and settlement-related impacts. Preparation of site-specific geotechnical reports and continued compliance with CBC regulations would ensure the adequate design and construction of building foundations to resist soil movement.

Adherence to the City's Municipal Code and the CBC would reduce potential impacts associated with developing on unstable soils to a **less than significant** level.

Mitigation Measures

None required.

Paleontological Resources (Standard of Significance 6)

Impact 3.7.4 Construction of subsequent projects developed under the LSAP could affect paleontological resources. This is a **potentially significant** impact.

The underlying geology of the plan area consists of basin and alluvial deposits that have the potential to contain fossils, based on previously reported finds in similar materials in other locations in the Bay Area. New development and redevelopment activities in the plan area could involve the installation of footings and foundations and/or excavations. Because the plan area is developed, it is likely that a substantial amount of ground disturbance and placement of fill has altered the subsurface soils and underlying geologic materials at varying depths. However, if a large area were excavated to depths greater than 10 feet, it is possible the excavation could be within Holocene-age deposits or older Pleistocene alluvial materials, which could contain fossils. Paleontological resources are classified as nonrenewable scientific resources. The inadvertent damage or destruction during excavation and grading activities at construction sites could further reduce this finite resource base. This is a **potentially significant** impact.

Mitigation Measures

MM 3.7.4 All subsequent projects within the LSAP plan area shall be required to include information on the improvement plans that if, during the course of grading or construction fossils are discovered, work shall be halted immediately within 50 feet of the discovery, the Sunnyvale Community Development Department shall be notified, and the significance of the find and recommended actions must be determined by a qualified paleontologist. In addition, prior to the commencement of project site preparation, all construction personnel shall be informed of the potential to discover fossils and the procedures to follow.

Timing/Implementation: Included in improvement plans for all subsequent projects

Enforcement/Monitoring: City of Sunnyvale Community Development Department Planning Division

Implementation of mitigation measure **MM 3.7.4** would mitigate potentially significant impacts on archaeological resources to a level that is **less than significant**.

3.7.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for geology, soils, and paleontological resources impacts is the city of Sunnyvale.

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CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Geologic, Seismic, and Soil Hazards

Impact 3.7.5 Cumulative development, including the LSAP, could expose people and structures to seismic hazards, be located on soil or rock units that could be unstable, or cause or increase erosion. The proposed project's contribution would be **less than cumulatively considerable**.

Geologic impacts tend to be site-specific rather than cumulative in nature. For example, seismic events may damage or destroy a building on a project site, but the construction of a development project on one site would not cause any adjacent parcels to become more susceptible to seismic events, nor can a project affect local seismicity in such a manner as to increase risks regionally. Similarly, hazards associated with development on unstable soils would also be site-specific. Because the plan area is built out and flat, potential erosion effects would be limited to construction periods only and would not be cumulatively considerable.

The City requires preparation of geotechnical reports for all development projects, as do adjoining local jurisdictions. The reports provide recommendations for design and construction methods to reduce potential seismic hazard and soils impacts in order to ensure compliance with the CBC. The proposed project's contribution to this impact is **less than cumulatively considerable**.

Mitigation Measures

None required.

Cumulative Paleontological Resources Impacts

Impact 3.7.6 Cumulative development, including the LSAP, could result in cumulative impacts on paleontological resources. The proposed project's contribution would be **less than cumulatively considerable**.

Development projects in Sunnyvale and neighboring jurisdictions such as Mountain View and the City of Santa Clara, which are generally underlain by the same geologic materials as Sunnyvale, have the potential to encounter fossil-bearing materials. These fossils include plants, microfossils, and vertebrates. Large development projects that involve a substantial amount of excavation, in particular, have a greater potential to damage or destroy paleontological resources unless properly managed. Proper planning and appropriate mitigation can provide opportunities for increasing the understanding of the past environmental conditions by recording data about sites discovered and preserving fossils, if any are found. With implementation of mitigation measure **MM 3.7.4**, the project's contribution to the potential loss of paleontological resources would be **less than cumulatively considerable**.

Mitigation Measures

None required.

REFERENCES

- ABAG (Association of Bay Area Governments). 2013. Santa Clara County Earthquake Hazard (interactive map). <http://resilience.abag.ca.gov/earthquakes/santaclara/>
- CGS (California Geological Survey). 2002a. *Note 32: How Earthquakes and Their Effects Are Measured*.
- . 2002b. Seismic Hazard Zones, Cupertino Quadrangle, Official Map, released September 23.
- . 2006. Seismic Hazard Zones, Mountain View Quadrangle, Official Map, released October 18.
- . 2010. Fault Activity Map of California, 1:750,000 scale.
- . 2015. CGS Information Warehouse Regulatory Maps (Mountain View, Cupertino, San Jose West, Milpitas)
<http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc>
- Santa Clara, City of. 2011. *City of Santa Clara Draft 2010–2035 General Plan Integrated Final Environmental Impact Report*.
- Santa Clara, County of. 2006. *Santa Clara County Geologic Hazard Zones*.
- SCVWD (Santa Clara Valley Water District). 2013. *Annual Groundwater Report for Calendar Year 2013*.
- Sunnyvale, City of. 2011. *Sunnyvale General Plan* (consolidated in 2011).
- . 2015. *915 DeGuigne Residential Project Draft Environmental Impact Report*.
- UCMP (University of California Museum of Paleontology). 2015. UCMP Database.
<http://ucmpdb.berkeley.edu/>
- USDA-NRCS (US Department of Agriculture, Natural Resources Conservation Service). 2012. Soil Map – Santa Clara Area, California, Western Part. Accessed June 18.
http://soils.usda.gov/survey/printed_surveys/state.asp?state=California&abbr=CA.
- USGS (US Geological Survey). 2008. Liquefaction probability for M7.8 San Andreas Fault earthquake scenario, Santa Clara County, CA.
- . 2015. UCERF3: A New Earthquake Forecast for California’s Complex Fault System. USGS Fact Sheet 2015-3009.

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3.8 HYDROLOGY AND WATER QUALITY

3.8 HYDROLOGY AND WATER QUALITY

This section identifies the hydrological resources, the existing drainage conditions, and the surface water and groundwater quality in the plan area and surrounding vicinity in Sunnyvale and Santa Clara. This section also evaluates the potential impacts of the proposed LSAP with respect to flooding, drainage, erosion, and water quality, and identifies feasible mitigation measures to lessen significant impacts, where necessary. The reader is referred to Section 3.11, Public Services and Utilities, for the analysis of water supply impacts of the proposed project and Section 3.13, Greenhouse Gases and Climate Change regarding sea level rise.

A summary of the impact conclusions related to hydrology and water quality is provided below.

Impact Number	Impact Topic	Impact Significance
3.8.1	Construction and Operational Water Quality Impacts	Less than significant
3.8.2	Deplete Groundwater Supplies or Interfere with Groundwater Recharge	Less than significant
3.8.3	Flood Hazards	Less than significant with mitigation
3.8.4	Cumulative Water Quality Impacts	Less than cumulatively considerable
3.8.5	Cumulative Groundwater Resources Impacts	Less than cumulatively considerable
3.8.6	Cumulative Flood Hazards	Less than cumulatively considerable

3.8.1 EXISTING SETTING

HYDROLOGY AND DRAINAGE

The plan area is situated approximately 3 miles south of San Francisco Bay, near the southern end of the Bay. The entire San Francisco Bay comprises a group of interconnecting bays and rivers including the Sacramento River, San Joaquin River, and Napa River; Suisun Bay, San Pablo Bay, and the main San Francisco Bay; and the Carquinez Strait. The main part of San Francisco Bay measures between 3 and 12 miles wide from east to west and 48 to 60 miles long north to south. San Francisco Bay has been filled in by as much as a third compared to its original since the mid-1800s as development in the Bay Area occurred. The areas that were filled were primarily wetlands, which once consisted of many thousands of acres that formed the edges of San Francisco Bay.

The plan area is within the boundaries of the Calabazas Creek watershed, which covers an area of approximately 20 square miles. This 13.3-mile-long creek originates from the northeast-facing slopes of the Santa Cruz Mountains and flows into the Lower South San Francisco Bay via the Guadalupe Slough. The creek traverses a small portion of unincorporated county land and flows through the cities of Saratoga, Cupertino, Sunnyvale, San Jose, and Santa Clara. The Calabazas Creek watershed is highly urbanized with residential and industrial/commercial development comprising nearly 84% of the land use.

Storm Water Drainage System

Local storm drainage facilities in Sunnyvale are owned by the City and maintained by the Environmental Services Department. The local system discharges into a regional system, under the jurisdiction of the Santa Clara Valley Water District (SCVWD), which conveys storm runoff to the San Francisco Bay.

3.8 HYDROLOGY AND WATER QUALITY

SCVWD facilities in the plan area are the El Camino Storm Drain Channel (ECSDC) and Calabazas Creek. From the residential neighborhood located in the plan area's southwest quadrant, the ECSDC flows northward and then eastward, running along the Caltrain tracks southern edge before connecting to Calabazas Creek, approximately one-half mile east of the Lawrence Station. Calabazas Creek flows from south to north through the eastern part of the plan area through a concrete-lined channel, connecting into the San Tomas Aquino Creek, which empties into Guadalupe Slough approximately 3 miles north of the El Camino Storm Drain Channel confluence (City of Sunnyvale 2011b).

The plan area consists of parcels with a diverse mix of uses ranging from residential to commercial and industrial, but the majority of the plan area is developed land with a high percentage of impervious surfaces. Stormwater runoff drains directly into the City's storm drain infrastructure with little or no retention to reduce flows or treatment to remove pollutants (City of Sunnyvale 2015).

Flood Hazards

Flooding has been an ongoing problem in Santa Clara County since the earliest settlement of the valley floor. Much of the valley is susceptible to flooding (approximately 60 out of 300 square miles), and despite efforts to provide adequate flood control, many of the streams, rivers, and creeks that flow through the region are still incapable of carrying flows from a 100-year storm event with flooding issues involving Calabazas Creek. Santa Clara Valley is an active floodplain that has been severely altered by human activity and is subject to periodic flooding from storm events. The increased amount of impervious area as a result of urban development has amplified the volume of storm water runoff, thereby increasing the flooding potential in the valley.

The regional flood control agency is the Santa Clara Valley Water District (SCVWD), which provides flood control protection throughout Santa Clara County, including the plan area. SCVWD has constructed three open channels (Sunnyvale West Channel, Sunnyvale East Channel, and the ECSDC) to increase drainage capacity to San Francisco Bay to provide flood protection of urbanized areas. A portion of the ECSDC is in the plan area.

A system of levees protects Sunnyvale and Santa Clara at their northern borders from encroachment of San Francisco Bay waters. Some of these levees were constructed by and remain in the ownership and operation of the Cargill Salt Company. Storm water runoff in low-lying areas is pumped out over the levees for discharge into San Francisco Bay pump stations.

Plan Area Flood Hazard Zones

The Federal Emergency Management Agency (FEMA) publishes Flood Insurance Rate Maps (FIRMs) that identify locations subject to 100-year flood hazard and other types of flooding. As shown in **Figure 3.8-1**, there are 100-year flood hazard zones in the plan area. South of the Caltrain tracks west of Lawrence Expressway and just north the tracks east of Lawrence Expressway and on the west side of Lawrence Expressway south of Aster Avenue to the LSAP southern boundary is within Zone AO. The segment of Calabazas Creek that flows through the eastern part of the plan area is mapped as Zone A. However, as noted on the FIRM, flooding is contained within the channel. The remainder of the plan area is located in Zone X (FEMA 2009).¹

¹ Zone AO: Areas subject to inundation by 1% annual chance shallow flooding where average depths are between 1 and 3 feet. Zone A: 1% annual chance of flooding, no base flood elevation determined. Zone X: Other flood area – 0.2% annual chance of flood, areas of 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance of flood.

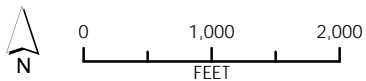
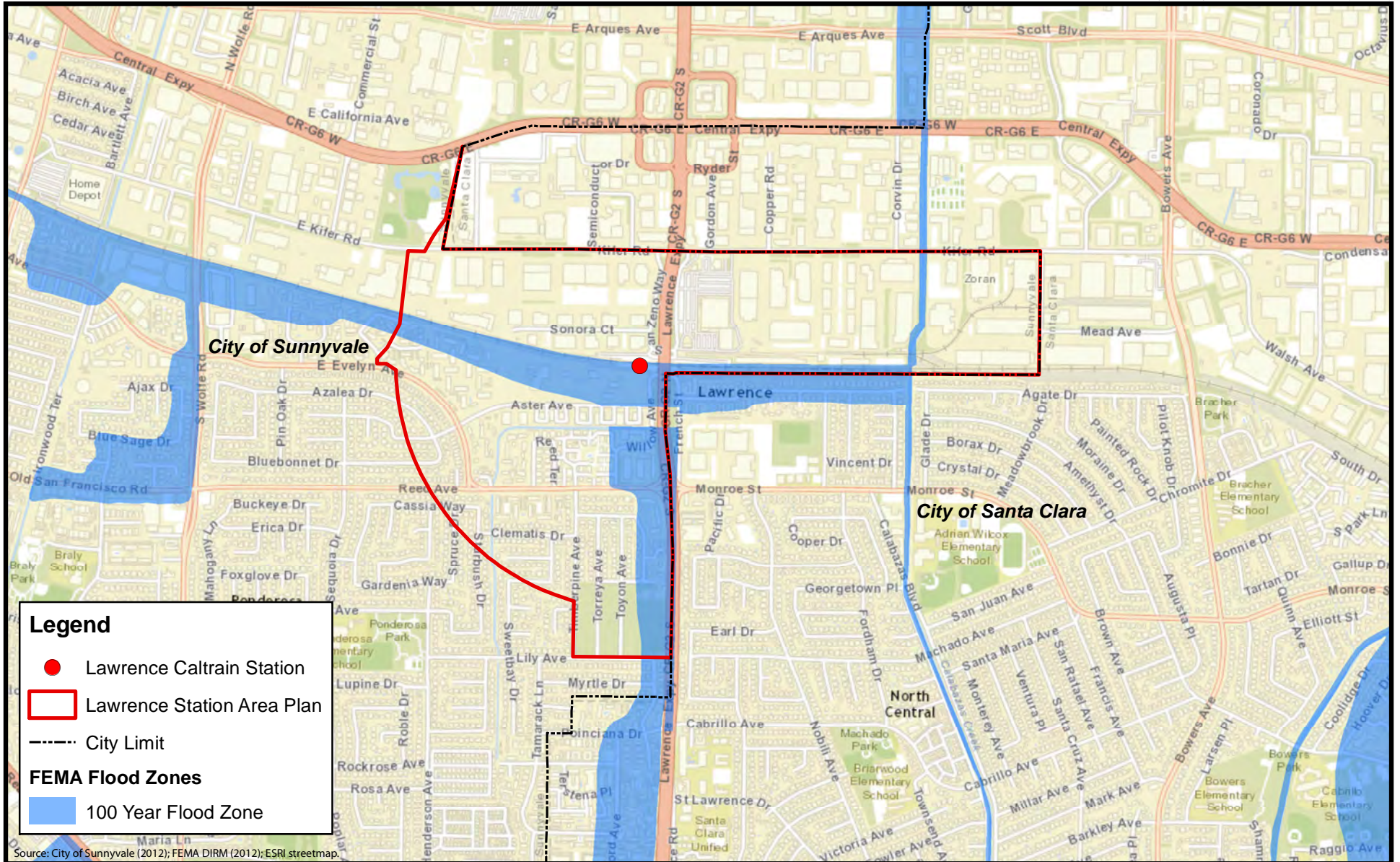


Figure 3.8-1
FEMA Flood Zones

Sea Level Rise

The plan area is approximately 3 miles inland from San Francisco Bay. Based on maps developed by the National Oceanic and Atmospheric Administration, the plan area is not in an area susceptible to climate change-induced sea level rise.

Seismically Induced Flooding

Earthquakes may generate flooding from a tsunami (sea wave or "tidal wave" caused by an earthquake), seiche (wave generated in an enclosed body of water such as a lake or swimming pool) or dam failure. The reader is referred to Section 3.7, Geology and Soils, for further discussion of seismic hazards.

A tsunami inundation map prepared as part of a statewide multi-agency effort shows that the Bay shoreline and areas along sloughs up to approximately 1 mile inland could be affected in the region during an extreme, but realistic tsunami. Mapped potential inundation areas are limited to marshy, undeveloped areas along the Bay shore and portions of salt evaporation ponds adjacent to sloughs and do not include currently developed portions of Sunnyvale or Santa Clara (Cal EMA, CGS, and USC 2009).

Tidal records for San Francisco Bay have been maintained for over 100 years and during that time, a damaging seiche has not occurred. A seiche of approximately 4 inches occurred during the 1906 earthquake, an earthquake of magnitude 8.3 on the Richter scale. However, the plan area is more than 3 miles from San Francisco Bay, so the risk of flooding from a seiche would be negligible.

Failure of the Stevens Creek Reservoir dam caused by an earthquake could affect Sunnyvale. However, the most significantly affected area would be the southwest part of the city, south of plan area (City of Sunnyvale 2011a).

GROUNDWATER

Within Santa Clara County, Santa Clara Valley Water District (SCVWD) manages two groundwater subbasins that transmit, filter, and store water: the Santa Clara Subbasin (Department of Water Resources [DWR] Subbasin 2-9.02) and the Llagas Subbasin (DWR Subbasin 3.301). In its water supply planning, the District frequently splits the Santa Clara Subbasin into two subareas, the Santa Clara Plain and the Coyote Valley. Although part of the same subbasin, these two subareas have different groundwater management challenges and opportunities and are in different groundwater charge zones.

These subbasins contain young alluvial fill formation and the older Santa Clara Formation. Both formations are similar in character and consist of gravel, sandy gravel, gravel and clay, sand, and silt and clay. The coarser materials are usually deposited along the elevated lateral edges of the subbasins, while the flat subbasin interiors are predominantly thick silt and clay sections interbedded with smaller beds of clean sand and gravel. The City's groundwater comes from the Santa Clara Plain subarea of the Santa Clara Subbasin. A general discussion of this subarea is provided below.

3.8 HYDROLOGY AND WATER QUALITY

Santa Clara Plain

The Santa Clara Plain is part of the Santa Clara Subbasin, located in a structural trough that is bounded by the Santa Cruz Mountains to the west and the Diablo Range to the east. The Plain, which is approximately 22 miles long, narrows from a width of 15 miles near the county's northern boundary to about half a mile wide at the Coyote Narrows, where the two ranges nearly converge. The Plain has a surface area of 225 square miles. The Santa Clara Plain is approximately 15 square miles smaller than the Santa Clara Subbasin (Basin 2-9.02) as defined by the DWR in Bulletin 118, Update 2003 since it does not include the Coyote Valley portion of the Santa Clara Subbasin. Although hydraulically connected, SCVWD refers to the Coyote Valley separately since it is in a different groundwater charge zone and has fewer water supply options than the Santa Clara Plain. The Plain underlies the northern portion of Santa Clara County and includes the majority of the streams and recharge facilities operated by SCVWD (SCVWD UWMP, 2010).

In April of each year, when the quantity of imported water available to SCVWD by contract and the local water yield can be estimated somewhat accurately, SCVWD estimates the carryover storage. Based on the calculated carryover capacity and anticipated customer demand, SCVWD reviews and modifies its groundwater management strategy in order to maintain adequate water in the basin and avoid subsidence.

WATER QUALITY

Stormwater runoff in urban areas typically contains oils, grease, fuel, antifreeze, and byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as nutrients, sediments, and other pollutants. Additionally, sizable quantities of animal waste from pets (e.g., dogs and cats) could lead to fecal contamination of water sources. Precipitation during the early portion of the wet season (December to April) displaces these pollutants into stormwater runoff, resulting in high pollutant concentrations in the initial wet weather runoff. This initial runoff, containing peak pollutant levels, is referred to as the "first flush" of storm events. It is estimated that during the rainy season, the first flush of heavy metals and hydrocarbons would occur during the first 5 inches of seasonal rainfall. The water quality of streams, creeks, ponds, and other surface water bodies can be greatly affected by pollution carried in contaminated surface water runoff.

Impaired Water Bodies

The lower San Francisco Bay is listed under the Clean Water Act Section 303(d) List of Limited Water Quality Segments (see Regulatory Framework subsection below). This issue is being addressed by a total maximum daily load (TMDL), approved by the US Environmental Protection Agency (USEPA) in 2007. TMDLs identify the total pollutant loading that a water body can receive and still meet water quality standards, and specifies a pollutant allocation to specific point and non-point sources. See the TMDL discussion in the Regulatory Framework subsection below.

Lower San Francisco Bay is listed for multiple pollutants. Chlordane, DDT, and dieldrin, all from non-point sources, require TMDLs. Dioxin and furan compounds due to atmospheric deposition require TMDLs with completion dates of 2019, as do exotic species pollutants from ballast water and PCBs (dioxin-like) from unknown point sources. Polychlorinated biphenyls (PCBs) from unknown point sources and mercury from atmospheric deposition, industrial and municipal point sources, natural sources, non-point sources, and mineral resource extraction required TMDLs, which were addressed through implementation of the National Pollutant Discharge Elimination System (NPDES) permits for stormwater and wastewater (RWQCB 2007).

3.8.2 REGULATORY FRAMEWORK

FEDERAL

Clean Water Act

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States, including wetlands and perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water quality certification requirements for “any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters.” Section 404, Title 33, Section 1344 of the CWA in part authorizes the US Army Corps of Engineers to:

- Set requirements and standards pertaining to such discharges: subparagraph (e);
- Issue permits “for the discharge of dredged or fill material into the navigable waters at specified disposal sites”: subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if “the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas”: subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual state or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);
- Withdraw approval of such state or interstate permit programs: subparagraph (i);
- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain federal or state projects from regulation under this Section: subparagraph (r); and
- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).

Section 401 certification is required prior to final issuance of Section 404 permits from the US Army Corps of Engineers.

Section 303(d) of the Clean Water Act requires that all states in the United States identify water bodies that do not meet specified water quality standards and that do not support intended beneficial uses. Identified waters are placed on the Section 303(d) List of Impaired Water Bodies. Once placed on this list, states are required to develop a water quality control plan—called a total maximum daily load (TMDL)—for each water body and each associated pollutant/stressor. TMDLs are discussed in more detail below.

3.8 HYDROLOGY AND WATER QUALITY

National Pollutant Discharge Elimination System

As authorized by Section 402(p) of the CWA, the National Pollutant Discharge Elimination System (NPDES) Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The SWRCB issues NPDES permits to cities and counties through the Regional Water Quality Control Boards, and it is the responsibility of the RWQCBs to preserve and enhance the quality of the state's waters through the development of water quality control plans and the issuance of waste discharge requirements. Waste discharge requirements for discharges to surface waters also serve as NPDES permits.

Total Maximum Daily Loads

Under CWA Section 303(d) and California's Porter-Cologne Water Quality Control Act (discussed below), the State of California is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) establishes the TMDL process to assist in guiding the application of state water quality standards, requiring the states to identify waters whose water quality is impaired (affected by the presence of pollutants or contaminants) and to establish a TMDL or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects on the beneficial use identified.

TMDLs serve as a regulatory mechanism to identify and implement additional controls on both point and non-point source discharges in water bodies that are impaired from one or more pollutants and are not expected to be restored through normal point source controls. In California, the Regional Water Quality Control Boards generally prepare TMDLs for the impaired water bodies under their jurisdiction. Implementation of the TMDL is accomplished through amendments to the RWQCB Basin Plans, which are reviewed and if necessary, modified or amended triennially. Several TMDLs, described above, apply to water bodies that receive drainage from the plan area.

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers a National Flood Insurance Program (NFIP), in which participating agencies must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 adopted a desired level of protection with an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once every 100 years, although such a flood may occur in any given year. The act made federally subsidized flood insurance available to property owners if their communities participate in the NFIP. A community establishes its eligibility to participate by:

- Adopting and enforcing floodplain management measures to regulate new construction; and
- Ensuring that substantial improvements within Special Flood Hazard Areas (SFHA) are designed to eliminate or minimize future flood damage.

An SFHA is an area within a floodplain having a 1 percent or greater chance of flood occurrence within any given year. SFHAs are delineated on flood hazard boundary maps issued by FEMA. The Flood Disaster Protection Act of 1973 and the National Flood Insurance Reform Act of 1994 make flood insurance mandatory for most properties in SFHAs.

STATE

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act of 1969 governs the coordination and control of water quality in the state and includes provisions relating to non-point source pollution. The California Coastal Commission, pursuant to the Coastal Act, specifies duties regarding the federally approved California Coastal Management Program. This law required that the State Water Resources Control Board (SWRCB), along with the California Coastal Commission, Regional Water Quality Control Boards (RWQCBs), and other appropriate state agencies and advisory groups, prepare a detailed program to implement the state's non-point source management plan on or before February 1, 2001. The law also required that the SWRCB, in consultation with the California Coastal Commission and other agencies, submit copies of prescribed state and regional board reports containing information related to non-point source pollution, on or before August 1 of each year.

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California of 2005 addresses a gap in water quality standards covering priority toxic pollutants. The State Implementation Program (SIP) established the policy for development of new standards for a variety of toxic pollutants, as required by the CWA. It applies to discharges of toxic pollutants into California's inland surface waters, enclosed bays, and estuaries subject to regulation under the Porter-Cologne Water Quality Control Act and the Clean Water Act. Such regulation may occur through the issuance of NPDES permits, the issuance or waiver of waste discharge requirements, or other regulatory approaches.

NPDES General Permit for Stormwater Discharges Associated with Construction

The SWRCB has adopted a General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (CAS000002, Waste Discharge Requirements, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order 2012-0006-DWQ). The Construction General Permit applies to any construction activity affecting 1 acre or more. The focus of the permit is to minimize the potential effects of construction runoff on receiving water quality. The permit requires preparation of a stormwater pollution prevention plan (SWPPP) that identifies best management practices (BMPs) describing erosion control measures. Examples of typical construction BMPs to address water quality include using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils.

Project proponents are required to submit a Notice of Intent, a site map, a signed certification statement, an annual fee, and a SWPPP. The permit program is risk-based, wherein a project's risk is based on the project's potential to cause sedimentation and the risk of such sedimentation on the receiving waters. A project's risk determines its water quality control requirements, ranging from Risk Level 1, which consists of only narrative effluent standards, implementation of best management practices, and visual monitoring, to Risk Level 3, which consists of numeric effluent limitations, additional sediment control measures, and receiving water monitoring. Additional requirements include compliance with post-construction standards focusing on low impact development (LID), preparation of rain event action plans, increased reporting requirements, and specific certification requirements for certain project personnel.

The SWPPP must include best management practices to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges. Examples of typical construction best management practices included in SWPPPs include, but are not limited to, using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that

3.8 HYDROLOGY AND WATER QUALITY

spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the drainage system or receiving waters.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act was enacted in 2014 and establishes phased requirements for high- and medium-priority basins to adopt groundwater sustainability plans, depending on whether or not a basin is in critical overdraft. The act requires adoption of groundwater sustainability plans by January 31, 2020, for all high or medium-priority basins in overdraft condition and by January 31, 2022, for all other high- and medium-priority basins unless legally adjudicated or otherwise managed sustainably.

REGIONAL

Regional Water Quality Control Board, San Francisco Bay Region

The San Francisco Bay RWQCB regulates surface water and groundwater quality in San Francisco Bay. The area under the RWQCB's jurisdiction comprises all of the San Francisco Bay segments extending to the mouth of the Sacramento-San Joaquin Delta (Winter Island near Pittsburg). In its efforts to protect surface waters and groundwater of the San Francisco region, the RWQCB addresses region-wide water quality concerns through the creation and triennial update of a Water Quality Control Plan (Basin Plan) and adopts, monitors compliance with, and enforces waste discharge requirements and National Pollutant Discharge Elimination System permits.

San Francisco Bay Regional Water Quality Control Plan (Basin Plan)

The Basin Plan is a master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the San Francisco Bay region. The plan describes the beneficial uses to be protected in these waterways, water quality objectives to protect those uses, and implementation measures to make sure those objectives are achieved.

In 2007, the SWRCB approved the Basin Plan amendment that established new water quality objectives for mercury in the tissues of Bay fish and a total maximum daily load for mercury in San Francisco Bay. Also in 2007, San Francisco Bay RWQCB staff released a proposed Basin Plan amendment for the incorporation of a TMDL for polychlorinated biphenyls (PCBs) in all segments of San Francisco Bay. In March 2010, the USEPA approved a Basin Plan amendment incorporating a total maximum daily load for PCBs in San Francisco Bay and an implementation plan to achieve the TMDL. The RWQCB is now implementing the TMDL on the variety of fronts.

Municipal Regional Permit

The City of Sunnyvale is one of 76 co-permittees listed under a regional Municipal Regional Stormwater Permit (MRP) for the San Francisco Bay (Order No. R2-2015-0049) administered by the San Francisco Bay RWQCB. The MRP regulates discharges from municipal separate storm drain systems into waterways under each co-permittee's jurisdiction. The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPP) assists the co-permittees in implementing the provisions of this permit.

The MRP defines which projects must comply with the design standards. New and redevelopment projects that create or replace 10,000 square feet or more of impervious surface are subject to MRP Provision C.3. Those projects must provide permanent/post-construction treatment controls for stormwater according to specific calculations. If the redevelopment results in an alteration of more than 50 percent of the existing impervious surfaces, permanent BMPs must be implemented to treat runoff from the entire project site. The City of Sunnyvale has developed a Stormwater Quality BMP Guidance Manual for New and Redevelopment Projects to ensure compliance with the MRP requirements.

Low Impact Design (LID)

The SCVURPP has published a C.3 Stormwater Handbook that assists developers in meeting local municipal and State regulations through the use of low impact design (LID) strategies. The goal of LID is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover, and then infiltrating, storing, detaining, and/or biotreating stormwater close to the source. LID uses principles such as preserving and re-creating natural landscape features and minimizing imperviousness to create a functional and appealing site drainage that treats stormwater as a resource rather than a waste product. MRP Provision C.3.c requires source control and landscaping that minimizes irrigation and runoff and promotes surface infiltration. A regulated project must implement at least one of the design strategies identified in the MRP (e.g., minimizing impervious surfaces and/or directing roof runoff into cisterns). Each regulated project must identify how much stormwater must be treated, and the project is required to treat 100 percent of the amount of that runoff (e.g., using infiltration or biotreatment techniques).

Santa Clara Valley Water District Comprehensive Water Resources Management Plan

The SCVWD's Comprehensive Water Resources Management Plan is organized in the following elements: Water Supply, Natural Flood Protection, and Water Resources Stewardship. Each element includes an informational overview that describes overarching goals and related objectives on a broad level and places them in a countywide context.

At the heart of the plan are the ends, goals, objectives, and strategies that serve as the SCVWD's framework and provide information for partner agencies. The Santa Clara Valley Water District is involved in water management at varying levels of involvement. In some instances, it plays a primary role; in others, it collaborates with other agencies and/or partners; in still other cases, the SCVWD serves as an informational resource and public advocate. The Comprehensive Water Resources Management Plan clarifies these degrees of involvement.

LOCAL

City of Sunnyvale General Plan

The Environmental Management chapter of the General Plan contains the following policies that are relevant to the analysis of hydrology and water quality impacts:

Policy EM-8.3 Ensure that stormwater control measures and best management practices (BMPs) are implemented to reduce the discharge of pollutants in storm water to the maximum extent practicable.

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- Policy EM-8.5 Prevent accelerated soil erosion. Continue implementation of a construction site inspection and erosion control program to prevent discharges of sediment from erosion and discharges of other pollutants from new and redevelopment projects.*
- Policy EM-8.6 Minimize the impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies.*
- Policy EM-9.1 Maintain and operate the storm drain system so that storm waters are drained from 95 percent of the streets within one hour after a storm stops.*
- Policy EM-10.1 Consider the impacts of surface runoff as part of land use and development decisions and implement BMPs to minimize the total volume and rate of runoff of waste quality and quantity (hydromodification) of surface runoff as part of land use and development decisions.*
- Policy EM-10.2 Consider the ability of a land parcel to detain excess storm water runoff in flood prone areas and require incorporation of appropriate controls. Require the incorporation of appropriate stormwater treatment and control measures for new and redevelopment regulated projects and/or any sites that may reasonably be considered to cause or contribute to the pollution of stormwater and urban runoff as defined in the current version of the stormwater Municipal Regional Permit.*
- Policy EM-10.3 Require the incorporation of appropriate stormwater treatment and control measures for industrial and commercial facilities as identified in the stormwater Municipal Regional Permit.*

Sunnyvale Urban Runoff Management Plan

Sunnyvale has developed an Urban Runoff Management Plan (URMP) to reduce, control, or otherwise manage pollutant sources in discharges to the storm drain system. City of Sunnyvale departments have adopted best management practices (BMPs) and standard operating procedures to reduce the presence of pollutants in stormwater discharges to the maximum extent practicable.

The Sunnyvale URMP focuses on prevention of illicit connection/illegal dumping, quality of industrial and commercial discharges, and minimizing impacts from new development and construction activities. The City implements BMPs for maintaining street and roads, storm drains, and water utilities and preventing stormwater pollution. The City also provides public education and outreach activities related to the prevention of discharges of pollutants such as pesticides, copper, mercury, and other wastes that may have an impact on water quality.

Sunnyvale also implements a Hydrograph Modification Management Plan Program requirements (MRP Provision C.3f.i) to ensure that post-project runoff does not exceed estimated pre-project rates, durations, and volumes from a project.

Sunnyvale Municipal Code

Chapter 12.60: Stormwater Management

The purpose of the Stormwater Management chapter of the Municipal Code is to provide regulations and give legal effect to certain requirements of the NPDES permit issued to Sunnyvale. This chapter includes:

- Discharge prohibitions to the storm water conveyance system;
- Requirements for storm water pollution prevention and the development of Storm Water Management Plans;
- Numeric sizing criteria for pollutant removal treatment systems;
- Applicability of Hydromodification Management requirements to certain areas of the City based on drainage area to creeks and watersheds;
- Requirements for agreements to maintain storm water treatment Best Management Practices (BMPs) once constructed;
- Guidance on the selection of BMPs as well as minimum Best Management Practices for all dischargers;
- Authority for City staff to inspect and require the proper operation and maintenance of treatment devices;
- The process by which waivers and alternative compliance with permit requirements may be demonstrated; and
- Penalties for failure to comply with provisions of the chapter.

Chapter 16.62: Prevention of Flood Damage

Chapter 16.62 of the Municipal Code Title 16 Buildings and Construction provides regulations to prevent flood damage in Sunnyvale. This chapter lays out provisions for reducing flood hazards, including standards for construction, utilities, subdivisions, manufactured homes, floodways and coastal high hazard areas.

3.8.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following impact analysis is based on a review of published information, reports, maps and plans regarding regional hydrology, climate, geology, water quality, and regulations. The capacity of City-owned utilities, such as storm drains, was assessed for the LSAP in early 2015, and the analysis incorporates the findings of those studies, as reported in the LSAP.

3.8 HYDROLOGY AND WATER QUALITY

Proposed LSAP Policies and Guidelines

The analysis in this section assumes implementation of the following relevant goals (G) and policies (P) and proposed in the LSAP that address drainage and water quality.

- U-G1 Ensure that stormwater management programs in the plan area achieve overall stormwater quality compliance at both the individual project level as well as the areawide level.
- U-G5 Avoid flooding of new development by requiring flood prevention measures for those developments located in the flood zone.
- U-P1 Promote the use of bio-retention basins and flow-through planters, as well as green roofs, infiltration trenches, media filtration devices, and pervious surface treatment as part of stormwater management strategies for new development.
- U-P2 Prepare standards for public streets that allow stormwater to be treated "at the source."
- U-P3 Prepare a comprehensive areawide plan for stormwater management and treatment.
- U-P4 Ensure adequate land area is allocated for areawide stormwater management and treatment facilities.
- U-P5 Require all proposed habitable structures' finished floors to have a least 0.5 feet freeboard to the 1% flood elevation.
- U-P11 A regional study and Conditional Letter of Map Revision by Fill (CLOMR-F) shall be submitted and approved by FEMA for each development.

STANDARDS OF SIGNIFICANCE

Pursuant to California Environmental Quality Act (CEQA) Guidelines Appendix G, a hydrologic or water quality impact of the proposed project would be considered significant if the project would result in any of the following actions:

- 1) Violate any water quality standards or waste discharge requirements.
- 2) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- 3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.
- 4) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- 5) Otherwise substantially degrade water quality.

- 6) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- 7) Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
- 8) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam.
- 9) Expose people or structures to inundation by seiche, tsunami, or mudflow.

Water supply demand impacts to groundwater resources are addressed in Section 3.11, Public Services and Utilities. Therefore, impacts to aquifer volumes is not addressed further in this Section

Soil erosion is addressed in Section 3.7, Geology and Soils, of this Draft EIR. Therefore, Standard of Significance 3 is not discussed further in this Section.

As discussed under the Existing Setting subsection above, the plan area is located outside of the inundation area for Stevens Creek Reservoir and is not considered to be at risk of inundation in the event of a dam failure. The plan area is not in an area subject to flooding from levee failure or sea level rise. Therefore, Standard of Significance 8 as it relates to dam or levee failure or sea level rise is not evaluated in this section.

As described in the Existing Setting subsection, seiches and tsunamis would not be expected to affect the plan area because it is more than 3 miles from San Francisco Bay. Mudflow would not present a hazard because there are no steep, erodible slopes near the plan area. Therefore, Standard of Significance 9 regarding seiche, tsunami, or mudflow is not evaluated in this section.

PROJECT IMPACTS AND MITIGATION MEASURES

Construction and Operational Water Quality Impacts (Standards of Significance 1, 3, 4, and 5)

Impact 3.8.1 Subsequent projects developed under the LSAP would include construction-related activities that could expose soil to erosion during storm events, causing degradation of water quality. Runoff from urban uses may contribute to the degradation of downstream water quality. Compliance with existing regulations would reduce this impact to a level that is **less than significant**.

Construction Water Quality Impacts

Construction activities associated with development of projects allowed under the proposed LSAP would include grading, demolition, and vegetation removal which would disturb and expose soils to water erosion, potentially increasing the amount of silt and debris entering downstream waterways. In addition, refueling and parking of construction equipment and other vehicles on-site during construction could result in oil, grease, or related pollutant leaks and spills that may discharge into storm drains. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery near storm drains could cause water quality degradation in ECSDC or Calabazas Creek, which receive stormwater flows from the plan area. As indicated in Impact 3.8.3, development of projects could result in placement of fill in flood hazard zones that correspond to the ECSDC, which could also be a source of sediment discharge to that waterway.

3.8 HYDROLOGY AND WATER QUALITY

Individual development projects would be required to comply with Chapter 12.60 Stormwater Management of the Sunnyvale Municipal Code, as well as implement best management practices (BMPs) for the prevention of erosion and the control of loose soil and sediment, to ensure that construction does not result in the movement of unwanted material into waters within or outside the plan area. As noted in the Regulatory Framework subsection above, the Stormwater Management chapter provides regulations and gives legal effect to certain requirements of the NPDES permit issued to Sunnyvale regarding municipal stormwater and urban runoff requirements. During construction of projects in the city, the dischargers, through individual coverage under the State's General Construction NPDES permit must develop and implement a SWPPP and perform monitoring of discharges to stormwater systems to ensure compliance with State regulations and General Plan policy EM-8.5. Placement of fill that could affect ECSDC (a Water of the U.S. [see Section 3.9, Biological Resources]) would be required to comply with Clean Water Act Section 404 (wetlands), Section 401 (water quality certification), and Section 1600 Streambed Alteration Agreement regulations to protect water quality. Construction impacts would be less than significant.

Operational Water Quality Impacts

Potential changes in drainage patterns and stormwater runoff water quality are a function of the rate and amount of stormwater generated and whether there is a substantial change in land use. The plan area is largely built out with impervious surfaces, and runoff from those areas (along with roadways and the few undeveloped areas) flows to storm drains that discharge to the ECSDC or Calabazas Creek.

Subsequent development under the proposed LSAP would result in urban development within the plan area, and the following surface water quality impacts could occur from the following general land use activities envisioned under the LSAP:

- Residential: Maintenance of landscaped common spaces in multi-family housing (fertilizers, herbicides, and pesticides, and motor vehicle operation and maintenance).
- Office/R&D/Retail: Maintenance of landscaped areas within specific projects and public streetscapes (fertilizers, herbicides, pesticides).
- Public roadway improvements and private parking facilities: vehicle use and maintenance (oil, grease, metals, trash, sediment).

Stormwater runoff from redeveloped locations and associated roadway improvements would enter local storm drains. However, development under LSAP is not expected to increase impervious surface area because any project that would create or replace more than 10,000 square feet of impervious surface must comply with MRP Provision C.3 and the City's requirements for controlling runoff. As such, it is anticipated peak runoff flow rates and stormwater volumes would not be greater than existing conditions. Further, the City requires that storm drains must accommodate a 10-year storm, and post-development flow rates cannot exceed pre-development flow rates on a project-by-project basis (City of Sunnyvale 2015).

Urban runoff pollutants such as heavy metals, oil, and grease, sediment, and other chemicals would continue to be generated, but because the changes in land use are primarily related to increased intensity of development and not new land uses, the types and amounts of pollutants in stormwater runoff would not vary considerably from existing conditions. All private development projects would be required to include appropriate features to meet applicable MRP Provision C.3 requirements and implement LID. Common LID strategies that would be appropriate for the plan

area would include treatment methods such as bio-retention basins and flow-through planters, green roofs, media filtration devices, and pervious surfaces (City of Sunnyvale 2015). These features would be included within individual sites on a project-by-project basis. In addition, runoff from new or improved public streets and pedestrian/bicycle facilities would be managed in accordance with policy U-P2.

Compliance with existing requirements of Chapter 12.60 of the Municipal Code, the City's Municipal Code Chapter 12.60, the City of Sunnyvale Urban Runoff Management Plan, and MRP Provision C.3 requirements, along with implementation of General Plan policies EM-8.6, EM-10.1, and EM-10.3 and LSAP goal UG-1 and policies U-P1 through U-P4, would reduce surface water quality impacts associated with occupancy of projects in the LSAP to a less than significant level.

Mitigation Measures

None required.

Groundwater Interference (Standard of Significance 2)

Impact 3.8.2 Subsequent projects developed under the LSAP would not result in the interference with groundwater recharge or flows. This impact is considered **less than significant**.

Implementation of projects allowed by the LSAP would have little or no effect on groundwater recharge because the plan area is largely built out and would not reduce the amount of permeable surfaces, and the area is underlain by soils with low percolation rates. The LSAP does not propose the installation of any wells in the plan area that could alter groundwater flows. The reader is referred to Section 3.11, Public Services and Utilities, regarding water supply impacts on groundwater volumes.

Mitigation Measures

None required.

Flood Hazards (Standards of Significance 4, 6, and 7)

Impact 3.8.3 Subsequent projects developed under the LSAP could result in the exposure of additional people and/or structures to potential risks from flooding hazards. This impact is considered **less than significant with mitigation**.

Flooding

There are some locations within the plan area that are within FEMA-designated 100-year flood hazard Zone AO. Areas that could be redeveloped under the LSAP (i.e., where new buildings could be constructed) would be limited to the Peninsula subarea (the current location of the Calstone/Peninsula Building Materials operations), the Lawrence/Reed/Willow subarea and a small part of the Southern Residential subarea north of the Lawrence/Reed Willow subarea, and the undeveloped part of the Southern Residential area at the southern boundary of the LSAP (i.e. Corn Palace parcel). There is also narrow band of Zone AO mapped just north of the Caltrain tracks at the southern parts of the Transit Core and West and East subareas.

3.8 HYDROLOGY AND WATER QUALITY

Projects within Zone AO could be subject to 100-year flood hazard. The Prevention of Flood Damage chapter (Chapter 16.62) of Sunnyvale's Buildings and Construction ordinance provides standards for construction in 100-year flood hazard areas. The standards for construction generally require that the lowest floor of any structure be elevated to or above the base flood elevation, anchoring, and the use of flood damage-resistant materials and methods. LSAP goal U-G5 and policy U-P5 also direct that flood prevention measures be included in development projects.

It is possible that projects in the AO zone could require raising the existing grade, mostly likely by importing fill materials, by an average of 1.5 feet to elevate the building floor and mechanical features above the base flood elevation (City of Sunnyvale 2015). As required under LSAP policy U-P11, a regional study and Conditional Letter of Map Revision by Fill (CLOMR-F) must be submitted by the City and approved by FEMA for each development project that would be constructed in the AO zone. The purpose of this process is to demonstrate that the filled area would be elevated above the base flood elevation and therefore can be removed from the special flood hazard zone.

However, the placement of fill in a flood hazard zone to elevate a location (e.g., placing fill in the Peninsula subarea or on the agricultural parcel at the southernmost end of the plan area) could reduce the amount of area in the floodplain that acts as storage for floodwaters. This, in turn, could exacerbate an existing flood hazard or cause new flooding elsewhere. This is considered a **potentially significant impact**.

Storm Water Conveyance

As described in Impact 3.8.1, stormwater runoff in the plan area is not expected to increase. However, individual development projects would be required, per Section 12.60.160 of the City's Municipal Code, to demonstrate that development each individual development project would not increase runoff over pre-project rates and durations. In addition, General Plan policy EM-9.1 requires that the City maintain and operate the storm drain system so that stormwater is drained from 95% of the streets within one hour after a storm stops. For flood-prone locations, policy EM-10.2 requires incorporation of appropriate controls to detain excess stormwater.

Compliance with the existing regulations contained in the City's Municipal Code would reduce potential impacts associated with flooding and stormwater drainage to a level that is **less than significant**.

Mitigation Measures

MM 3.8.3 Prior to approving a subsequent project in the LSAP at any location where fill is placed in the FEMA AO zone to elevate the ground surface above the base flood elevation, the project applicant shall submit a hydraulic analysis prepared by a California-registered professional engineer for City Engineer review and approval. The analysis shall, at a minimum, identify: (1) the specific locations where changes in water surface elevations due to fill encroachment could occur; and (2) drainage improvements that will be used to ensure placement of fill will not increase flood hazards in areas not previously subject to flooding during occurrence of the base flood discharge.

Timing: Prior to approval of subdivision map, grading/improvement plans, or building permit (as applicable)

Enforcement/Monitoring: City of Sunnyvale Public Works

3.8.2 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting consists of four Santa Clara Basin watersheds in which Sunnyvale is located (Sunnyvale West, Sunnyvale East, Calabazas Creek, and Stevens Creek). These watersheds also include portions of the cities of Cupertino, Mountain View, Palo Alto, Los Altos, San Jose, Santa Clara, and Saratoga.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Drainage and Water Quality Impacts

Impact 3.8.4 Cumulative development, including the LSAP, could introduce additional non-point source pollutants to surface waters. This impact would be **less than cumulatively considerable**.

As described under Impact 3.8.1 and 3.8.3, subsequent infill and redevelopment that could occur under the LSAP could contribute to water quality degradation from construction site runoff, urban pollutants in stormwater runoff, or through alteration of drainage patterns as well as result in flooding impacts. Development associated with the proposed LSAP, in combination with cumulative development, could result in cumulative water quality and drainage impacts.

With the exception of the Stevens Creek watershed, the Calabazas Creek, Sunnyvale West, and Sunnyvale East watershed are highly urbanized. Residential and industrial/commercial land use comprise approximately 84% of the Calabazas Creek watershed (where the plan area is located), 86% of the Sunnyvale West watershed, and 97% of the Sunnyvale East watershed. Generally, these watersheds no longer reflect historic conditions in terms of stormwater quality, volume, and drainage. Stormwater flows in the majority of the watersheds are generated as runoff from impervious surfaces, which cover a substantial amount of land area in the urbanized portions of the watersheds.

All future development in the plan area and elsewhere in Sunnyvale is required to comply with the Sunnyvale Municipal Code Chapter 12.60, the State's General Construction NPDES permit, and MRP Provision C.3 requirements for post-construction urban runoff. Development projects in nearby cities that contribute stormwater flows to the four watersheds are also required to comply with construction site runoff controls and MRP Provision C.3 requirements.

The LSAP would provide opportunities to develop higher-intensity residential and non-residential development, but it would not represent a substantial land use change within the Calabazas Creek watershed, especially as compared to current conditions at the site and in the surrounding area. Further, as noted in Impact 3.8.1, it is expected there would be an overall decrease in the amount of impervious surfaces. Mitigation measure **MM 3.8.3** would ensure all development in Zone AO locations addresses and offsets LSAP changes in flood conditions and flows. As such, the LSAP would not generate either a substantial increase in flows or additional volumes of urban runoff containing pollutants that, when combined with cumulative projects, would result in a cumulative impact. Water quality and drainage impacts would be **less than cumulatively considerable**.

Mitigation Measures

None required.

3.8 HYDROLOGY AND WATER QUALITY

REFERENCES

- BCDC (San Francisco Bay Conservation and Development Commission). 2007. "Climate Change Action Plan." Accessed October 2012.
http://www.bcdc.ca.gov/planning/climate_change/summCCP.shtml.
- Cal EMA, CGS, and USC (California Emergency Management Agency, California Geological Survey, and University of Southern California). 2009. "Tsunami Inundation Map for Emergency Planning, Mountain View Quadrangle."
- City of Sunnyvale. 2011a. *Sunnyvale General Plan* (consolidated in 2011).
- . 2015. *Lawrence Station Area Plan*.
- FEMA (Federal Emergency Management Agency). 2009. Flood Insurance Rate Map 06085C0226H, effective May 18, 2009.
- NOAA (National Oceanic and Atmospheric Administration) Office for Coastal Management. 2015. <http://coast.noaa.gov/slr/>
- RWQCB (Regional Water Quality Control Board). 2007. "2006 CWA Section 303(D) List of Water Quality Limited Segments Requiring TMDLS." Accessed August 2013.
http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r8_06_303d_reqtmls.pdf.

3.9 BIOLOGICAL RESOURCES

3.9 BIOLOGICAL RESOURCES

This section describes the existing biological resources, including special-status species, and sensitive habitat known to occur and/or have the potential to occur in the Lawrence Station Area Plan (LSAP) plan area. A summary of the regulations and programs that provide protective measures to special-status species, an analysis of impacts on biological resources that could result from project implementation, and a discussion of mitigation measures necessary to reduce impacts to a less than significant level, where feasible, are included in this section.

A summary of the impact conclusions related to biological resources is provided below.

Impact Number	Impact Topic	Impact Significance
3.9.1	Burrowing Owl	Less than significant with mitigation
3.9.2	Special-Status Bats	Less than significant with mitigation
3.9.3	Nesting Raptors and Other Migratory Birds	Less than significant with mitigation
3.9.4	Bird Collisions with Buildings	No impact
3.9.5	Riparian Habitat or Sensitive Natural Communities	Less than significant
3.9.6	Federally Protected Wetlands	Less than significant
3.9.7	Wildlife Movement	Less than significant
3.9.8	Trees	Less than significant
3.9.9	Conservation Plans	No impact
3.9.10	Special-Status Species Populations	No impact
3.9.11	Cumulative Biological Resources Impacts	Less than cumulatively considerable with mitigation

3.9.1 EXISTING SETTING

GENERAL SETTING

The plan area is highly urbanized and is nearly built out, with a substantial amount of impervious surfaces. There are few distinguishing natural physical characteristics. The plan area is generally flat, with elevation relief provided only by the overpass of Lawrence Expressway at the Caltrain tracks. Calabazas Creek, which flows south-to-north to the San Francisco Bay, runs in a concrete-lined channel through the eastern part of the plan area. The creek has little to no vegetation in its approximately 65-foot right-of-way. The El Camino Storm Drain Channel (EDSDC) runs through the residential neighborhoods south of the Lawrence Caltrain Station and along the south edge of the rail tracks before draining into Calabazas Creek. This channel, although mostly concrete, has stretches of grass and earthen banks along its 40- to 45-foot right-of-way. The plan area has no public parks or open space and very little natural vegetation.

BIOLOGICAL COMMUNITIES

Biological community (land cover) types in the plan area consist of two categories: urban and cropland. Urban conditions make up the majority of the plan area. These cover types are depicted in **Figure 3.9-1** and are described below. The community descriptions are primarily derived from the California Department of Fish and Wildlife's (2015b) *A Guide to Wildlife Habitats of California*.

3.9 BIOLOGICAL RESOURCES

Urban

Urban communities are characterized by residential and commercial developments that generally include structures, roadways and other hardscape, remnant mature native trees, and ornamental landscaping. With the exception of approximately 8 acres of cropland, the plan area is an urban community. Typical landscape species in the urban community are generally non-natives such as junipers (*Juniperus* spp.), roses (*Rosa* spp.), Bradford pear (*Pyrus callereyana* 'Bradford'), crepe myrtle (*Lagerstroemia indica*), weeping willow (*Salix babylonica*), oleander (*Nerium oleander*), and English ivy (*Hedera helix*). Common urban street trees in Sunnyvale include California black walnut (*Juglans californica*), Chinese pistache (*Pistacia chinensis*), liquidamber (*Liquidamber styraciflua*), eucalyptus (*Eucalyptus* spp.), London plane (*Plantanus acerifolia*), olive (*Olea europaea*), and tulip tree (*Liriodendron tulipifera*).

Ruderal areas can be found along roadways and railroads. These areas are composed almost entirely of annual grasses and other herbaceous species. Plants typical of this community include several species of brome (*Bromus* spp.), wild oats (*Avena* spp.), filarees (*Erodium* spp.), schismus (*Schismus* spp.), and fescues (*Vulpia* spp.), along with other non-native species. Although they do not support many native species, they can be a refuge for common species such as raccoon (*Procyon lotor*), dark-eyed junco (*Junco hyemalis*), lesser goldfinch (*Carduelis psaltria*), and many others.

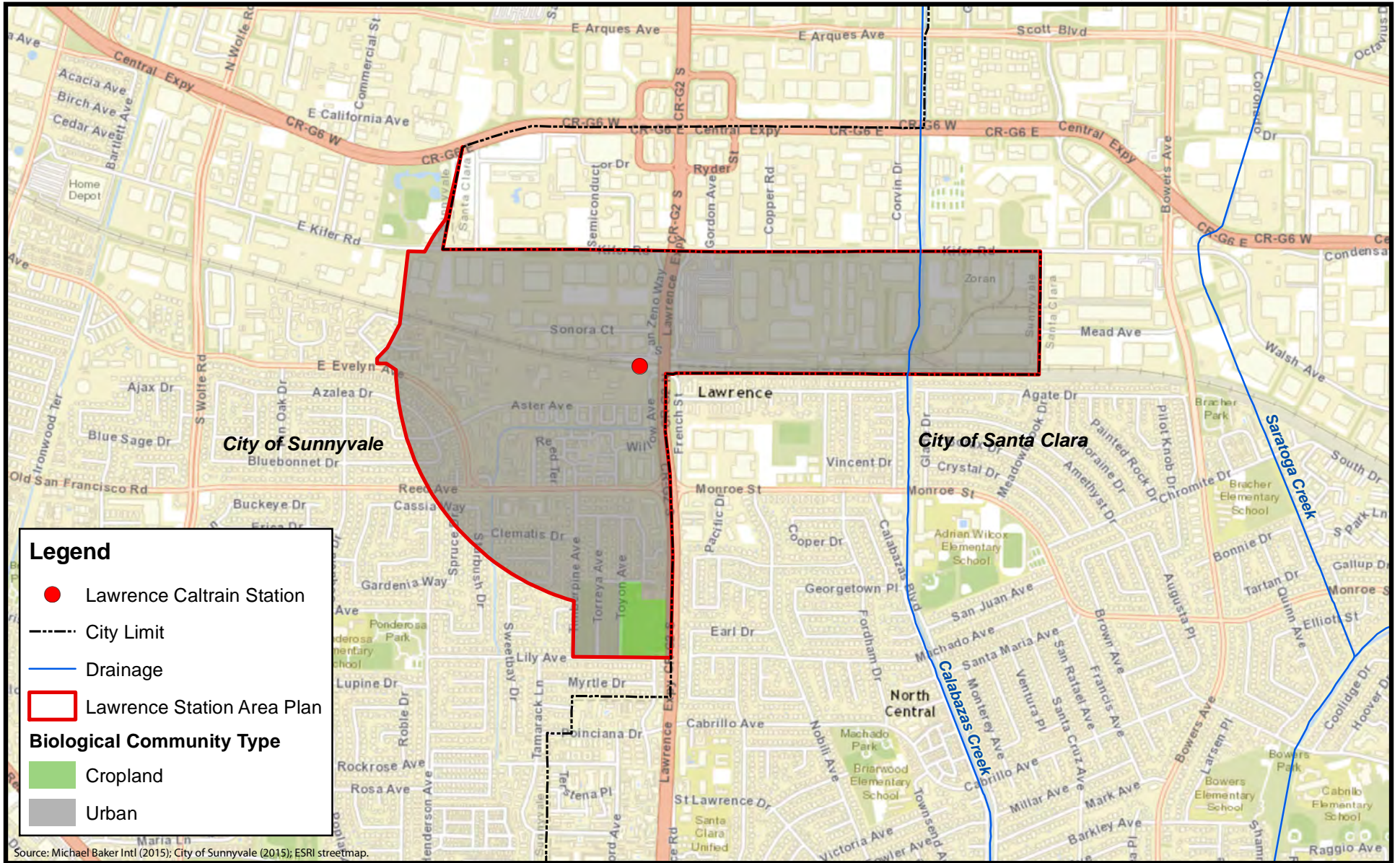
Many common wildlife species have become adapted to urban areas for foraging, shelter, and breeding habitat. These species readily adapt to tolerate human disturbance and to non-native vegetation. Species associated with urban areas in the city include mockingbird (*Mimus polyglottos*), scrub jay (*Aphelocoma californica*), house finch (*Carpodacus mexicanus*), European starling (*Sturnus vulgaris*), lesser goldfinch (*Carduelis psaltria*), house sparrow (*Passer domesticus*), western gray squirrel (*Sciurus griseus*), California ground squirrel (*Spermophilus beecheyi*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), various raptor species, raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and many species of rodents. Special-status burrowing owls (*Athene cunicularia*) may use ruderal areas in the plan area for nesting and over-wintering. In addition, shrubs and trees in the plan area provide suitable nesting habitat for raptors and migratory birds.

Cropland

Cropland communities can be characterized by a variety of shapes, sizes, and growing patterns. Typically, cropland supports annuals that are planted in spring and harvested in summer or fall. Often a second round of crops, such as wheat (*Triticum* spp.), is planted after harvesting the first. This community does not conform to normal habitat stages, but is instead regulated by the crop cycle. Most fields are subject to a crop rotation system, which helps maintain soil productivity and reduce pest populations. Cropland is present only in the southernmost part of the plan area on the eastern part of the Corn Palace property and comprises 8.2 acres.

Cropland communities are almost always surrounded by open space or rural areas, or other agricultural areas. This is not the case in the plan area, where the block of cropland is integrated into the urban community.

Generally, croplands have greatly reduced habitat richness and diversity in California; however, many common wildlife species have become adapted to cropland for foraging, shelter, and breeding habitat. These species readily adapt to tolerate human disturbance and to non-native vegetation. Species associated with croplands include a variety of rodent and bird species. The field in the plan area may provide foraging habitat for various raptor species. In addition, burrowing owl and other ground-nesting birds may use the edges of the field.



Legend

- Lawrence Caltrain Station
- - - - City Limit
- Drainage
- ▭ Lawrence Station Area Plan

Biological Community Type

- Cropland
- Urban

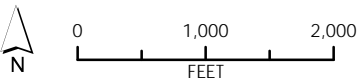


Figure 3.9-1
Biological Communities

SPECIAL-STATUS SPECIES

Special-status plant and animal species are those that are afforded special recognition by federal, state, or local resource agencies or organizations. Special-status species are of relatively limited distribution and generally require specialized habitat conditions. Special-status species are defined as:

- 1) Listed, proposed, or candidate for listing under the California or federal Endangered Species Act
- 2) Protected under other regulations (e.g., local policies, Migratory Bird Treaty Act)
- 3) Listed as California Department of Fish and Wildlife's Species of Special Concern and California Fully Protected Species
- 4) Listed as species of concern (List 1A, 1B, or 2 plants) by the California Native Plant Society
- 5) Species that receive consideration during environmental review under the California Environmental Quality Act (CEQA)

Please refer to **Appendix F** for a summary of the database search results, as well as conclusions regarding the potential for each species to occur in the plan area. **Figure 3.9-2** depicts the locations of special-status species recorded within a 1-mile radius of the plan area. Species having no potential for occurrence are not expected to occur based on the known elevation or distribution range of the species or because of the lack of suitable habitat.

Special-Status Plant Species

Due to the fully developed and/or disturbed nature of the entire plan area and the absence of extant rare plant occurrences in the vicinity, it is highly unlikely that any special-status species occur in the plan area.

Special-Status Wildlife Species

Based on database search results and habitat availability, special-status species have the potential to occur in the plan area, including burrowing owl and several special-status bat species. These species are described below.

Burrowing Owl

The burrowing owl is a California species of special concern. This species is typically a yearlong resident in open habitats below 5,300 feet. Burrowing owls are commonly associated with desert and dry grassland habitats, as well as in grass, forb, and open shrub stages of ponderosa pine and pinyon-juniper habitats. This species uses ground squirrel burrows or other small mammal burrows for roosting and nesting. Burrowing owls may dig their own burrows if the soil is friable. There are also records of the owls using culverts and pipes as cover for nesting. This species breeds from March through August (CDFW 2015c).

Burrowing owls are known to nest in highly disturbed and urban settings, such as at airports and along railroad tracks. The cropland and ruderal vacant areas in the plan area provide suitable habitat for this species. In addition, there are two recorded occurrences of burrowing owls within 1 mile of the plan area (CDFW 2015d).

3.9 BIOLOGICAL RESOURCES

Raptors and Migratory Birds

Various raptors and migratory birds have the potential to inhabit the plan area. Raptor and migratory bird species, such as American kestrel, red-tailed hawk, cooper's hawk, ferruginous hawk, California horned lark, and oak titmouse, are not considered special-status species because they are not rare or protected under the federal Endangered Species Act or the California Endangered Species Act; however, the nests of all raptor species are protected under the Migratory Bird Treaty Act (MBTA) and Section 3503.5 of the California Fish and Game Code. The nests of all migratory birds are protected under the MBTA, which makes it illegal to destroy any active migratory bird nest. Trees and shrubs found in the plan area provide potential nesting habitat for raptors and migratory birds that occur in the region. In addition, the cropland and other relatively open areas located in and adjacent to the plan area represent suitable foraging habitat for raptor species. Special-status raptors such as Swainson's hawk and white-tailed kite are not expected to occur in the plan area because of the fully urbanized setting and the scarcity of foraging habitat. The Corn Palace field is the only portion of the plan area that provides suitable foraging habitat for these species; however, its relatively small area and isolation from other raptor habitat makes it an unlikely foraging ground for special-status species.

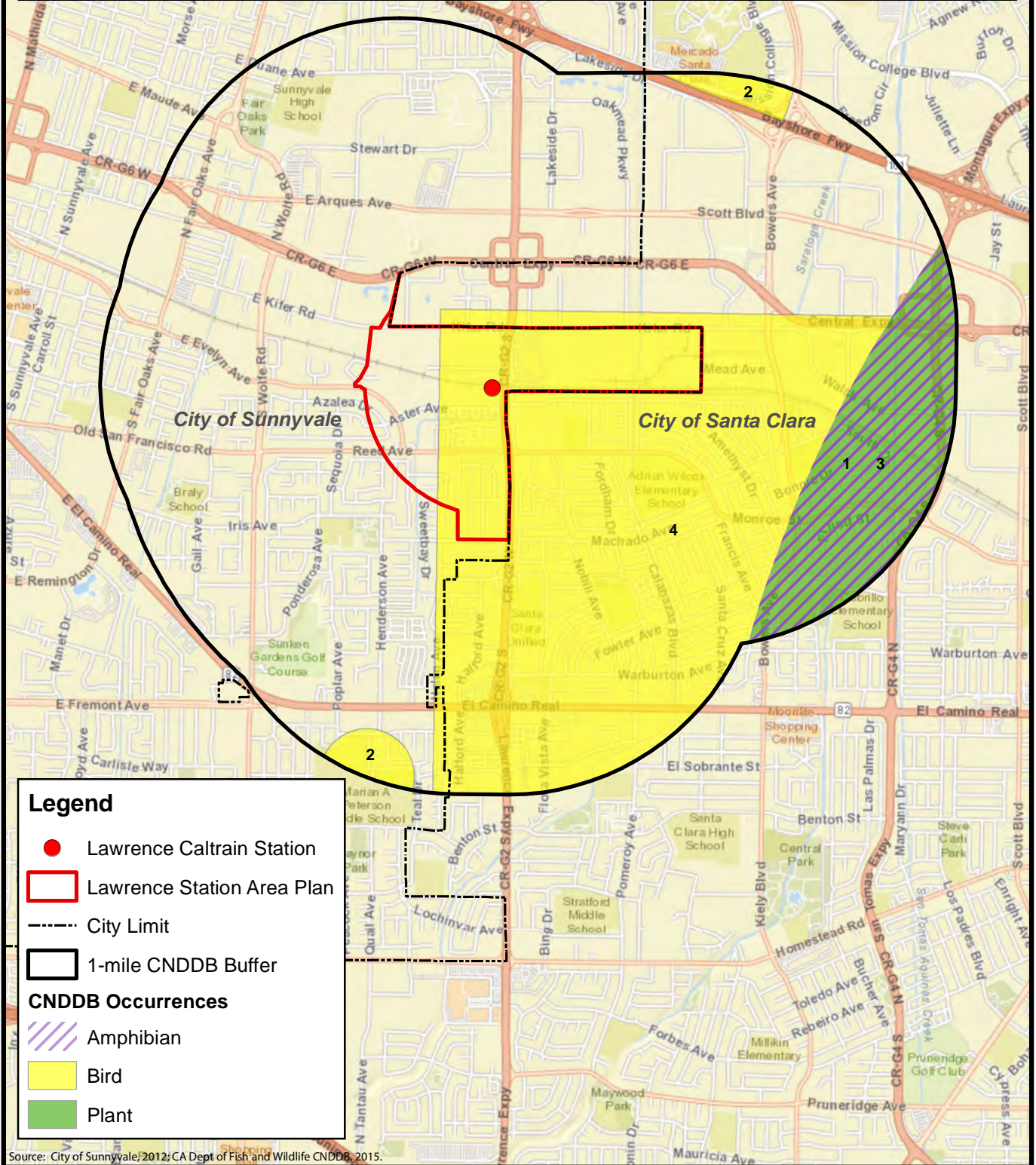
Special-Status Bats

The database queries identified four special-status bat species in the project vicinity: western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*). Habitat for bat species consists of foraging habitat, night-roosting cover, maternity roost sites, and winter hibernacula. These bat species may forage in a variety of habitats. In general, the California Department of Fish and Wildlife (CDFW) is most concerned about the loss of maternity roosting sites. Suitable roosting sites in these habitats include caves, rock crevices, cliffs, buildings, tree bark, and snags. Potential maternity and night-roosting sites occur in snags, under bark, and in human structures (i.e., bridges) in the plan area.

WILDLIFE MOVEMENT CORRIDORS

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented acres of undisturbed area. Maintaining the continuity of established wildlife corridors is important to sustain species with specific foraging requirements, preserve a species' distribution potential, and retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource. The plan area and surrounding lands consist of highly urbanized land uses, and the intensity of this cover type significantly precludes the movement of wildlife through the area.

Map ID	Scientific Name	Common Name	Federal Listing	State Listing	Rare Plant Rank
1	Ambystoma californiense	California tiger salamander	Threatened	Threatened	
2	Athene cunicularia	burrowing owl	None	None	
3	Chorizanthe robusta var. robusta	robust spineflower	Endangered	None	1B.1
4	Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	



Source: City of Sunnyvale; 2012; CA Dept of Fish and Wildlife CNDDB, 2015.

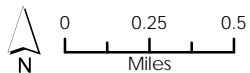


Figure 3.9-2
Previously Recorded Occurrences of Special-Status Species within 1 Mile of the Plan Area

HERITAGE/LANDMARK TREES

The streets in the existing residential areas and some of the industrial areas contain an abundance of mature planted street trees and ornamental plantings, including mature redwood trees along Sonora Court one block north of the station. The City's Heritage Resources Inventory lists several heritage and landmark tree locations. No identified heritage or landmark trees are located in the plan area (Sunnyvale 2015).

3.9.2 REGULATORY FRAMEWORK

This section summarizes laws and regulations that apply to species and habitat. It also identifies environmental review and consultation requirements, as well as permits and approvals that may be required from local, state, and federal agencies, depending on whether protected species or habitats are present and on the location and type of development.

FEDERAL

Endangered Species Act

The Endangered Species Act of 1973 (ESA), as amended, provides protective measures for federally listed threatened and endangered species, including their habitats, from unlawful take (16 United States Code [USC] Sections 1531–1544). The ESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Title 50, Part 222, of the Code of Federal Regulations (50 Code of Federal Regulations [CFR] Section 222) further defines "harm" to include "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including feeding, spawning, rearing, migrating, feeding, or sheltering."

Clean Water Act

The Clean Water Act (CWA) established regulations for pollutant discharges into waters of the United States, as well as the establishment of surface water quality standards.

Section 404

CWA Section 404 (33 USC Section 1344) established the program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Under this regulation, certain activities proposed within waters of the United States require the obtainment of a permit prior to initiation. These activities include but are not limited to placement of fill for the purposes of development and infrastructure development (e.g., highways and bridges).

Section 401

Under CWA Section 401 (33 USC Section 1341), federal agencies are not authorized to issue a permit and/or license for any activity that may result in discharges to waters of the United States, unless a state or tribe where the discharge originates either grants or waives CWA Section 401 certification. In California, the State Water Resources Control Board is the primary regulatory authority for CWA Section 401 requirements (additional details below).

3.9 BIOLOGICAL RESOURCES

Migratory Bird Treaty Act

Migratory birds are protected under the Migratory Bird Treaty Act of 1918 (16 USC Sections 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Section 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Section 21). The majority of birds found in the plan area would be protected under the MBTA.

STATE

California Endangered Species Act

Under the California Endangered Species Act (CESA), the California Department of Fish and Wildlife has the responsibility for maintaining a list of endangered and threatened species (Fish and Game Code [FGC] Section 2070). The CDFW also maintains a list of “candidate species,” which are species formally noticed as being under review for potential addition to the list of endangered or threatened species, and a list of “species of special concern,” which serve as a species “watch lists.” State-listed species are fully protected under the mandates of the CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Authorization from the CDFW would be in the form of an incidental take permit.

California Fish and Game Code

Streambed Alteration Agreement (FGC Sections 1600–1607)

Section 1602 of the California Fish and Game Code governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as waters of the State by the CDFW. Under FGC Section 1602, the CDFW must issue a discretionary Streambed Alteration Agreement to a project proponent prior to the initiation of construction activities on lands under CDFW jurisdiction. As a general rule, this requirement applies to any work undertaken in the 100-year floodplain of a stream or river containing fish or wildlife resources.

Birds of Prey

Under FGC Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto.

Fully Protected Species

California statutes also afford fully protected status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be taken, even with an incidental take permit.

Water Quality

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1966 (California Water Code Section 13000 et seq.; California Code of Regulations [CCR] Title 23, Chapter 3, Subchapter 15) is the primary state regulation addressing water quality. The requirements of the act are implemented at the state level by the State Water Resources Control Board and at the local level by the applicable Regional Water Quality Control Board (RWQCB). The RWQCB carries out planning, permitting, and enforcement activities related to water quality in California. The act includes waste discharge requirements and a permitting system for discharges to land or water. Certification is required by the RWQCB for activities that can affect water quality.

Clean Water Act, Section 401 Water Quality Certification

CWA Section 401 (33 USC Section 1341) requires that any applicant for a federal license or permit that may result in a pollutant discharge to waters of the United States obtain a certification that the discharge will comply with US Environmental Protection Agency (EPA) water quality standards. The state or tribal agency responsible for issuance of the Section 401 certification may also require compliance with additional effluent limitations and water quality standards set forth in state/tribal laws. In California, the RWQCB is the primary regulatory authority for CWA Section 401 requirements. The RWQCB requires that a project proponent obtain a CWA Section 401 water quality certification for CWA Section 404 permits issued by the US Army Corps of Engineers. The San Francisco Bay RWQCB is responsible for enforcing water quality criteria and protecting water resources in Sunnyvale.

REGIONAL

Santa Clara Valley Habitat Plan

The Santa Clara Valley Habitat Plan (SCVHP) serves as a comprehensive, multi-jurisdictional habitat conservation plan pursuant to Section (a)(1)(B) of the federal Endangered Species Act, as well as a natural communities conservation plan (NCCP) under the California NCCP Act of 2001. The overall biological goal of the SCVHP is to “protect and enhance ecological diversity and function within a large section of Santa Clara County, while allowing for currently planned development and growth.” The SCVHP was approved and adopted in 2013 by the County of Santa Clara, the Santa Clara Valley Water District, and the Santa Clara Valley Transportation Authority, as well as the Cities of Gilroy, Morgan Hill, and San Jose. Sunnyvale is not in the SCVHP planning area.

LOCAL

City of Sunnyvale General Plan

The City’s General Plan does not contain any policies directly applicable to the analysis of habitat and species impacts presented in this section.

3.9 BIOLOGICAL RESOURCES

City of Sunnyvale Municipal Code

Municipal Code Chapter 13.16, City Trees, pertains to preserving trees in the public right-of-way (city trees). All city trees with a diameter at breast height (dbh) of 4 inches or greater are protected. Further, Municipal Code Chapter 19.94, Tree Preservation, serves as the City's tree preservation ordinance. The purpose of the ordinance is to "regulate the protection, installation and removal and long term management of significantly sized trees on private property within the city and city owned golf courses and parks; encourage the proper protection and maintenance of significantly sized trees which are located on such property; establish a review and permit procedure to assure the correct planting, maintenance, protection and removal of significant trees on such property; and establish penalties for violation of its provisions." A significant size tree is defined as "a tree 38 inches or greater in circumference measured 4.5 feet above ground for single-trunk trees. For multi-trunk trees 'significant size' means a tree which has at least one trunk with a circumference 38 inches or greater measured 4.5 feet above ground level, or in which the measurements of the circumferences of each of the multi-trunks, when measured 4.5 feet above the ground level, added together equal an overall circumference 113 inches or greater."

Bird Safe Building Design Guidelines

In 2014, the City Council adopted the Bird Safe Building Design Guidelines. The intent of the guidelines is to reduce the risk of bird collisions in new construction. The guidelines focus on building design issues based on the proposed building's location and provide a set of tiered design requirements. A more stringent set of design requirements applies to sites within 300 feet of a body of water or adjacent to an open space or park area larger than 1 acre. Another set of requirements applies to other areas of the city considered to be lower risk for bird collisions. Both sets of requirements require developers to minimize reflective surfaces and glass walls, reduce nighttime lighting, discourage the placement of larger water features, and avoid landscape designs that emphasize tall landscaping adjacent to reflective surfaces.

3.9.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Several steps were taken to identify special-status species that could occur in the plan area and vicinity. First, project-related documentation was reviewed to collect site-specific data regarding habitat suitability for special-status species as well as to identify potentially jurisdictional waters. Additional information was obtained from a variety of outside data sources found in the reference list. Lastly, preliminary database searches were performed to identify special-status species with the potential to occur in the plan area. Site review of the plan area was also performed to verify conditions.

Database searches were performed on the following websites:

- US Fish and Wildlife Service's (USFWS) Information, Plan and Conservation (IPaC) System (2015a)
- USFWS's Critical Habitat Portal (2015b)
- CDFW's California Natural Diversity Database (CNDDDB) (2015a)
- California Native Plant Society's (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (2015)

A search of the USFWS's IPaC System and Critical Habitat Portal was performed to identify federally protected species and their habitats that may occur in or adjacent to the plan area. In addition, a query of the CNDDDB was conducted for the Mountain View, Cupertino, San Jose West, and Milpitas, California, US Geological Survey (USGS) 7.5-minute quadrangles (quads) and all adjacent quads (Redwood Point, Newark, Niles, La Costa Valley, Calaveras Reservoir, San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Big Basin, Mindego Hill, and Palo Alto) to identify known processed and unprocessed occurrences for special-status species. Lastly, the CNPS database was queried to identify special-status plant species with the potential to occur in the aforementioned quads. Raw data from the database queries can be found in **Appendix F**. The habitat preferences for each special-status species were reviewed and considered in the context of the plan area limits to determine which species and/or habitat could be affected.

Proposed LSAP Policies and Guidelines

The analysis in this section assumes implementation of the following policies and urban design guidelines (or relevant excerpts thereof) proposed in the LSAP that address biological resources.

Open Space and Recreation

OSP-6 Preserve and protect the existing mature street trees on Sonora Court (redwoods) and Kifer Road.

Urban Design

- STP-UDG1 Plant street trees on all streets.
- STP-UDG3 Use medium- to large-canopy trees on large streets.
- STP-UDG6 Protect existing street trees wherever possible throughout the plan area, particularly in the southern residential neighborhoods, along Kifer Road, and on Sonora Court.
- STP-UDG7 When tree removal is unavoidable, provide replacement trees.
- BH-UDG1 Restrict building heights as indicated in Figure 6.2 [in the LSAP].
- BH-UDG4 Vary building heights within blocks and parcels.
- BM-UDG5 Avoid highly reflective surfaces and materials that can cause heat or glare.
- BM-UDG7 Use glazing that is as clear and non-reflective as possible.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the application of the State CEQA Guidelines Appendix G thresholds of significance. A project is considered to have significant impacts if implementation of the project will:

- 1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

3.9 BIOLOGICAL RESOURCES

- 2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- 3) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means.
- 4) 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.
- 5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- 6) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.
- 7) Substantially reduce the number or restrict the range of an endangered, rare, or threatened plant or animal species or biotic community, thereby causing the species or community to drop below self-sustaining levels.

CEQA Guidelines Section 15380 further provides that a plant or wildlife species may be treated as “rare or endangered” even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

PROJECT IMPACTS AND MITIGATION MEASURES

Burrowing Owl (Standard of Significance 1)

Impact 3.9.1 Construction of projects developed under the LSAP in the Southern Residential subarea (Corn Palace property) could result in substantial adverse effects, either directly or through habitat modifications, on special-status burrowing owl, which would be considered a **potentially significant** impact.

There is one vacant, undeveloped location in the plan area—the eastern half of the Corn Palace property in the Southern Residential subarea north of Lily Avenue and west of Lawrence Expressway. The entire property was historically agricultural but is now fallow; the western part of the Corn Palace property was developed with residences in 2012. The vacant field could provide habitat for burrowing owl, though no evidence of the owls were identified during site review. Future development of the parcel for residential uses may result in the loss of burrowing owls through destruction of active nesting sites and/or incidental burial of adults, young, and eggs, should they become established on-site. Potential nest abandonment and mortality to individuals would be considered a **potentially significant** impact to protected species.

Mitigation Measures

MM 3.9.1 If clearing and construction activities will occur during the nesting period for burrowing owls (February 1–August 31) on the vacant portion of the Corn Palace property, a qualified biologist shall conduct focused surveys for burrowing owls on and adjacent to the project site. Surveys shall be conducted in accordance with the CDFW’s Staff Report on Burrowing Owl Mitigation,

published March 7, 2012. Surveys shall be repeated if project activities are suspended or delayed for more than 15 days during nesting season.

If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the project proponent will implement the avoidance, minimization, and mitigation methodologies outlined in the CDFW's Staff Report prior to initiating project-related activities that may impact burrowing owls.

Timing/Implementation: Prior to construction activities for the Corn Palace property

Enforcement/Monitoring: City of Sunnyvale Community Development Department Planning Division

Implementation of mitigation measure **MM 3.9.1** would reduce those impacts to a **less than significant** level by requiring preconstruction surveys and avoidance.

Special-Status Bats (Standard of Significance 1)

Impact 3.9.2 Construction of subsequent projects developed under the LSAP could result in substantial adverse effects, either directly or through habitat modifications, to special-status bats, which would be considered a **potentially significant** impact.

Bats, including western red bat, Townsend's big-eared bat, pallid bat, and western mastiff bat, are known to occur in the vicinity of the plan area. These species are California species of special concern due to recent population declines. Habitat for bat species consists of foraging habitat, night-roosting cover, maternity roost sites, and winter hibernacula. These bat species may forage in a variety of habitats. In general, the CDFW is most concerned about the loss of maternity roosting sites. Potential maternity and night-roosting sites occur in snags, under bark, and in human structures in the plan area. Bats are at their most vulnerable in buildings or other roost sites during the summer, when large numbers may be gathered together and young bats, unable to fly, may be present. Removal of maternity roost sites may cause direct mortality of numerous bats. Noise and dust from construction could indirectly impact bat species during construction. This is **potentially significant** impact.

Precautions must be taken to avoid the deliberate killing or injury of bats. The most common and effective method of avoiding these offenses is to carry out the work at an appropriate time of the year. The great majority of roosts are used only seasonally, so there is usually some period when bats are not present. Although there are differences between species, maternity sites are generally occupied between May and September and hibernation sites between October and March, depending on the weather. An adequate survey and good understanding of the seasonal activity patterns of the particular species involved will help in determining the optimum time to carry out the proposed work.

Mitigation Measures

MM 3.9.2 Prior to the removal of trees or the demolition of buildings, a bat survey shall be performed by a qualified biologist no more than 3 days prior to the start of construction activities. If bat roosts are identified, the City shall require that the bats be safely flushed from the sites where roosting habitat is planned to be

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removed. If maternity roosts are identified during the maternity roosting season (typically May to September), they must remain undisturbed until a qualified biologist has determined the young bats are no longer roosting. If roosting is found to occur on-site, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites removed. If no bat roosts are detected, no further action is required if the trees and buildings are removed prior to the next breeding season.

If a female or maternity colony of bats is found on the project site, and the project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after July 31 and before March 1).

If an active nursery roost is documented on-site and the project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after July 31 and before March 1 to prevent the formation of maternity colonies. Nonbreeding bats shall be safely evicted under the direction of a bat specialist.

Timing/Implementation: Prior to construction activities for subsequent projects

Enforcement/Monitoring: City of Sunnyvale Community Development Department Planning Division

Implementation of mitigation measure **MM 3.9.2** would reduce this impact to **less than significant**.

Nesting Raptors and Other Migratory Birds (Standard of Significance 1)

Impact 3.9.3 Construction of subsequent projects allowed under the LSAP could result in direct disturbance of nesting raptors and other migratory birds. This would be considered a **potentially significant** impact.

All native breeding birds (except game birds during the hunting season), regardless of their listing status, are protected under the Migratory Bird Treaty Act. The LSAP contains several guidelines intended to protect trees, but recognizes that some trees may need to be removed to accommodate new projects. If construction occurs during the nesting season and trees are removed or substantially pruned, this could result in direct impacts on nesting birds and raptors should they be present. In addition, noise and other human activity may result in nest abandonment if nesting birds are present within 200 feet (500 feet for raptors) of a work site. Due to the presence of suitable habitat for these species, implementation of future development activities may result in **potentially significant** impacts, should those species be present in areas proposed for disturbance.

Mitigation Measures

MM 3.9.3 All construction and clearing activities shall be conducted outside of the avian nesting season (January 15–August 31), when feasible. If clearing and/or construction activities occur during the nesting season, preconstruction surveys for nesting raptors, special-status resident birds, and other migratory birds protected by the Migratory Bird Treaty Act shall be conducted by a qualified biologist, up to 3 days before initiation of construction activities. The qualified biologist shall survey the construction zone and a 250-foot radius surrounding the construction zone to determine whether the activities taking place have the potential to disturb or otherwise harm nesting birds.

If an active nest is located within 100 feet (250 feet for raptors) of construction activities, the project applicant shall establish an exclusion zone (no ingress of personnel or equipment at a minimum radius of 100 feet or 250 feet, as appropriate, around the nest). Alternative exclusion zones may be established through consultation with the CDFW and the USFWS, as necessary. The City shall be notified if altered exclusion zones widths are authorized by these agencies prior to the initiation of work. The exclusion zones shall remain in force until all young have fledged.

Timing/Implementation: Prior to the initiation of construction activities

Enforcement/Monitoring: City of Sunnyvale Community Development Department Planning Division

Implementation of mitigation measure **MM 3.9.3** would reduce this impact to a **less than significant** level.

Bird Collisions with Buildings (Standard of Significance 4)

Impact 3.9.4 Subsequent projects developed under the LSAP could result in the construction of tall buildings, but would not pose an increased risk of bird collisions with buildings. **No impact** would occur.

Bird collisions with buildings are a potential hazard in an urban area where tall buildings are constructed. Prior to adopting Bird Safe Building Design Guidelines in 2014, the City reviewed available information in which it was speculated that daytime collisions occur most often when birds fail to recognize window glass as a barrier. Regardless of overall height, the ground floor and first few stories (estimated to be the first 60 feet) of buildings present the greatest hazards to most birds. Reflections of attractive ground-level features such as vegetation draw birds toward glass surfaces and may result in collisions. Transparent features—especially buildings where birds can see through two glass surfaces to vegetation on the other side—also attract birds and cause collisions. The increased use of glass surfaces to provide more natural light to building interiors has exacerbated the problem to such an extent that some scientists believe bird mortality from building collisions can affect the viability of bird populations.

The LSAP would allow the development of buildings that could be up to 85 feet high in the plan area north of the Caltrain tracks. The maximum height of the buildings that could be constructed would not exceed the 300-foot criterion in the City’s Bird Safe Building Design Guidelines. Subsequent development would be required to adhere to the specific guidelines in the Bird Safe Building Design Guidelines. The LSAP contains similar guidelines (Policies BH-UDG1, BH-UDG4, BH-

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UDG5, and BH-UDG7). Although the guidelines were developed primarily to address the visual environment, implementation of guidelines that encourage variations in building height to reduce the mass and use of non-reflective glass would also help reduce the potential for bird collisions.

No impact would occur.

Mitigation Measures

None required.

Riparian Habitat or Sensitive Natural Communities (Standard of Significance 2)

Impact 3.9.5 Subsequent projects developed under the LSAP could result in the loss of riparian vegetation and/or sensitive natural communities. Impacts would be **less than significant**.

Sensitive habitats include those that are of special concern to resource agencies and those that are protected under CEQA, Section 1600 of the Fish and Game Code, and Section 404 of the Clean Water Act. The two waterways in the plan area (El Camino Storm Drain Channel [ECSDC] and Calabazas Creek) are concrete lined and do not support riparian vegetation. All other areas in the plan area are completely developed or disturbed and no longer support natural communities. No riparian habitat or other sensitive natural communities occur in the plan area.

Development of projects under the LSAP would include construction activities and would generate vehicle trips, which could result in nitrogen oxides (NO_x) emissions, as described in Section 3.5, Air Quality. The deposition of airborne nitrogen compounds such as NO_x on certain types of soil can adversely affect the soil ecosystem (and overlying vegetation). Of particular concern in the Santa Clara Valley are soils derived from serpentinite (serpentine soils), which support certain native California plants. The plan area does not contain serpentine soils, but serpentine soils are approximately 8 miles southeast of the plan area, as mapped in the SCVHP. Appendix E of the habitat plan includes simulations of nitrogen deposition indicating that nearly one-third of the nitrogen deposition is derived from mobile sources within approximately 2 miles of the habitat areas, 16 percent comes from other sources within approximately 12 miles of the habitat areas, and 17 percent comes from the remainder of Santa Clara County (Santa Clara County Habitat Agency 2012). For development projects in the LSAP, construction emissions would generally be limited to the immediate vicinity of the individual project sites. Mobile source emissions associated with new residents and employees would also tend to be concentrated in the immediate vicinity of the plan area, which is not within 2 miles of the habitat areas.

Thus, impacts on sensitive natural communities, including locally important serpentine communities, would be **less than significant**.

Mitigation Measures

None required.

Federally Protected Wetlands (Standard of Significance 3)

Impact 3.9.6 Subsequent projects developed under the LSAP would not result in degradation of federally protected waters. This is a **less than significant** impact.

Calabazas Creek and the ECSDC in the plan area are federally protected waters (waters of the United States) in the plan area. No direct fill or loss of these waters is proposed as part of the LSAP; however, degradation of water quality in waters of the United States could occur as a result of future construction and development associated with the LSAP. Development or redevelopment projects allowed under the LSAP would include construction-related activities that could expose soil to erosion during storm events, causing degradation of water quality from construction site runoff. Runoff containing pollutants from urban uses may contribute to the degradation of downstream water quality. Please refer to Impact 3.8.1 in Section 3.8, Hydrology and Water Quality, for more information regarding water quality and how compliance with existing policies as well as proposed LSAP policies and guidelines would ensure impacts on waterways would be **less than significant**.

Mitigation Measures

None required.

Wildlife Movement (Standard of Significance 4)

Impact 3.9.7 Subsequent projects developed under the LSAP would not result in significant impacts on the movement of native resident or migratory fish or wildlife species or established migratory corridors. As such, impacts would be **less than significant**.

The CDFW's (2015d) Biogeographic Information & Observation System was reviewed to determine whether the plan area is located in an Essential Connectivity Area. The plan area does not overlap with an Essential Connectivity Area. In addition, the LSAP would not result in a significant change in land use intensity and therefore would not alter the movements of wildlife currently utilizing the plan area. The entire plan area and surrounding lands are either developed or disturbed and provide very limited wildlife movement opportunities. Calabazas Creek and the ECSDC may facilitate limited wildlife movement through the plan area; however, no direct impacts on these potential corridors are expected to occur as a result of LSAP implementation. As a result, **no impact** to the movements of any native resident or migratory wildlife corridors or the use of native wildlife nursery sites will occur as a result of the LSAP.

Mitigation Measures

None required.

Trees (Standard of Significance 5)

Impact 3.9.8 Construction of subsequent projects under the LSAP could result in the removal of trees, but implementation of Municipal Code requirements and LSAP policies and guidelines would ensure no net loss of trees. This impact would be **less than significant**.

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There are no heritage or landmark trees in the plan area. However, the LSAP recognizes the aesthetic value of the mature redwoods along Sonora Court and trees along Kifer Road. Implementation of LSAP Policy OSP-6 and Guideline STP-UDG6 would ensure the protection and enhancement of the trees throughout the plan area wherever possible. Municipal Code Chapters 13.16 and 19.94 dictate the limited circumstances under which protected trees may be removed and require implementation of protection measures for these trees during construction activities. If any protected trees are impacted by future development, the project applicant will be required to comply with Chapter 19.94. The LSAP would implement this requirement through guideline STP-UDG7, which requires that replacement trees be provided where tree removal is unavoidable. In addition, the LSAP has identified a goal to enhance the urban forest in the plan area in order to provide shade and shelter, add scale to pedestrian and vehicular streets, beautify the area, and provide wildlife habitat (LSAP Goal STP-G1). This would be accomplished through guidelines that require planting street trees on all streets, using medium- to large-canopy trees on large streets, and ensuring new tree plantings are appropriate for an urban environment. Impacts would be **less than significant**.

Mitigation Measures

None required.

Conservation Plans (Standard of Significance 6)

Impact 3.9.9 The LSAP would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. There would be **no impact**.

The plan area is not located in a habitat conservation plan area. Although Santa Clara County and several cities in the vicinity have adopted the Santa Clara Valley Habitat Plan, the City of Sunnyvale has not. As a result, no conflict with an adopted habitat conservation plan would occur, and **no impact** would result.

Mitigation Measures

None required.

Special-Status Species Populations (Standard of Significance 7)

Impact 3.9.10 Subsequent projects developed under the LSAP would not reduce the number or restrict the range of an endangered, rare, or threatened plant or animal species or biotic community, thereby causing the species or community to drop below self-sustaining levels. There would be **no impact**.

The proposed project is not anticipated to reduce sensitive species, habitats, and/or other biological resources below self-sustaining levels. No endangered, rare, or threatened species are expected to occur in the plan area. Further, the plan area does not support any natural communities. As such, there is **no impact**.

Mitigation Measures

None required.

3.9.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The plan area and the surrounding area of Santa Clara County as a whole are considered for the purpose of evaluating biological resources impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Biological Resources Impacts

Impact 3.9.11 Cumulative development, including the LSAP, could result in impacts on biological resources. The proposed project's contribution would be **less than cumulatively considerable**.

Future development in Sunnyvale and the surrounding area in Santa Clara County may result in degradation of wildlife habitat and protected waters through a variety of actions which, when combined with other habitat impacts occurring from development in surrounding areas, could result in significant cumulative impacts. Future development in surrounding areas would contribute to cumulative impacts on special-status species and habitats. Furthermore, increased development and disturbance created by human activities (e.g., fires, increased nighttime lighting, and reduced access to habitat and movement corridors) could result in direct mortality, habitat loss, and deterioration of habitat suitability.

The predominant biological community in the plan area is low-quality habitat consisting of urban land. The proposed project would not result in a substantial change to the current urban land use, and the only potential habitat conversion would be the single agricultural field (cropland community) if an application for residential development is submitted for that area by the Corn Palace. Implementation of mitigation measures **MM 3.9.1** through **MM 3.9.3** described above would reduce the proposed LSAP's impact and therefore result in a **less than cumulatively considerable** contribution to cumulative impacts by mitigating the project's contribution on impacts on special-status species.

Mitigation Measures

No additional mitigation required.

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REFERENCES

- CDFW (California Department of Fish and Wildlife). 2012. *Staff Report on Burrowing Owl Mitigation*.
- . 2015a. California Natural Diversity Database QuickView Tool in BIOS 5. Sacramento: CDFW Biogeographic Data Branch. <https://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>.
- . 2015b. *A Guide to Wildlife Habitats of California* (online edition). Sacramento: CDFW Biogeographic Data Branch. http://www.dfg.ca.gov/biogeodata/cwhr/wildlife_habitats.asp.
- . 2015c. *California Wildlife Habitat Relationships System Life History Accounts and Range Maps* (online edition). Sacramento: CDFW Biogeographic Data Branch. <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>.
- . 2015d. *Biogeographic Information & Observation System Habitat Connectivity Viewer*. Sacramento: CDFW Biogeographic Data Branch. <http://bios.dfg.ca.gov/>.
- CNPS (California Native Plant Society). 2015. *Inventory of Rare and Endangered Plants* (online edition, v8-01a). Sacramento: CNPS. <http://www.rareplants.cnps.org/>.
- Santa Clara Valley Habitat Agency. 2012. *Santa Clara Valley Habitat Plan*. <http://scv-habitatagency.org/>.
- Sunnyvale, City of. 2015. City of Sunnyvale Heritage Resources Inventory. Accessed July 21. <http://sunnyvale.ca.gov/Portals/0/Sunnyvale/CDD/Residential/Heritage%20Resources%20and%20Landmark%20Alteration%20%20Inventory-%20%20FINAL.pdf>.
- USACE (US Army Corps of Engineers). 2007. *Jurisdictional Determination Form Instructional Guidebook*. USACE and US Environmental Protection Agency.
- USFWS (US Fish and Wildlife Service). 2015a. Information, Plan, and Conservation System (IPaC). <http://ecos.fws.gov/ipac/>.
- . 2015b. Critical Habitat Portal. <http://ecos.fws.gov/crithab/>.

3.10 CULTURAL RESOURCES

3.10 CULTURAL RESOURCES

This section considers and evaluates the potential impacts of the proposed Lawrence Station Area Plan (LSAP) on cultural resources. Cultural resources include historic buildings and structures, historic districts, historic resource sites, prehistoric and historic archaeological sites, and other prehistoric and historic objects and artifacts.

The following definitions are common terms used to discuss the regulatory requirements and treatment of cultural resources:

- *Cultural resources* is the term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of importance to Native Americans.
- *Historic properties* is a term defined by the National Historic Preservation Act (NHPA) as any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion on, the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such property.
- *Historical resource* is a California Environmental Quality Act (CEQA) term that includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance and is eligible for listing or is listed in the California Register of Historical Resources (CRHR).

A summary of the impact conclusions for cultural resources is provided below.

Impact Number	Impact Topic	Impact Significance
3.10.1	Disturb Historic Resources	No impact
3.10.2	Disturb Archaeological Resources or Human Remains	Less than significant with mitigation
3.10.3	Cumulative Impacts on Cultural Resources	Less than cumulatively considerable

3.10.1 EXISTING SETTING

PREHISTORY AND ETHNOGRAPHY

The plan area is located near the southern shore of the San Francisco Bay. Archaeologists from the University of California, Berkeley, excavated sites at Ellis Landing, Emeryville, West Berkeley, Stege, Fernandez, Castro, Bayshore, Princeton, Greenbrae, Sausalito, San Rafael, and Point Reyes. These investigations supported the hypothesis that the San Francisco Bay Area was a distinct archaeological region with similar temporal changes in artifact assemblages and other cultural practices evident across the region. The region gives the impression that closely related cultures occupied the margins of the San Francisco Bay system for a considerable length of time.

The archaeological work in the San Francisco Bay Area generated a significant amount of data that was used to correlate archaeological cultures in the Delta with those in the Bay. The taxonomic system for Central California, including the San Francisco Bay region, are grouped into adaptive modes or patterns (i.e., specific economic and/or technological characteristics that are restricted in space, but do not imply a temporal sequence). There are five patterns (i.e., Windmill, Berkeley, Borax Lake, Augustine, and Houx) for the North Coast Ranges, the San Francisco Bay, and the lower Sacramento Valley, assigned to six periods: Paleo-Indian (10,000 to 6,000 BC); Lower, Middle, and Upper Archaic (6,000 BC to AD 500); and Upper and Lower Emergent (AD 500 to 1800).

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The Paleo-Indian Period began with the first entry of people into California. These people probably subsisted mainly on big game and minimally processed plant foods and had few or no trade networks. During the Lower Archaic, milling stones for plant processing were abundant and hunting was less important than obtaining plant foods. Artifacts were predominantly of local materials, suggesting that few if any extensive trade networks were established at this time.

During the Middle Archaic, the subsistence base began to expand and diversify with a developing acorn economy, as evidenced by the mortar and pestle, and the growing importance of hunting. Status and wealth distinctions were evidenced in the Upper Archaic archaeological record, and regional trade networks were well established at this time for the exchange of goods and ideas, such as obsidian and Kuksu ceremonial practices involving spirit impersonations.

Increasing social complexity continued during the Lower Emergent. Territorial boundaries were well established by this time with regularized intergroup exchanges involving more and varied goods, people, and ideas. Bow and arrow technology was also introduced. By the Upper Emergent, a monetary system based on the clamshell disk bead had been established. Native population reached its zenith during this time, as evidenced by high site densities and large village sites in the archaeological record.

Sunnyvale is situated in territory once occupied by Costanoan (also commonly referred to as Ohlone) language groups. Eight Ohlone languages were spoken in the area from the southern edge of the Carquinez Strait to portions of the Big Sur and Salinas rivers south of the Monterey Bay to approximately 50 miles inland from the coast.

Ohlone territories comprised one or more land-holding groups that anthropologists refer to as "tribelets." The tribelet, a nearly universal characteristic throughout native California, consists of a principle village occupied year-round and a series of smaller hamlets and resource-gathering and processing locations occupied intermittently or seasonally. Populations of tribelets ranged between 50 and 500 persons and were largely determined by the carrying capacity of a tribelet's territory.

The traditional Ohlone lifeway had been severely disrupted by 1810 due to introduced diseases, a declining birth rate, and the impact of the mission system. The Ohlone were transformed from hunters and gatherers into agricultural laborers who lived at the missions and worked with former neighboring groups such as the Esselen, Yokuts, and Miwok. The Indians from Mission Santa Clara were apparently involved in the hide and tallow trade that coursed up and down the Guadalupe River between 1820 and 1850. Later, because of the secularization of the missions by Mexico in 1834, most of the aboriginal population gradually moved to ranchos to work as manual laborers.

HISTORIC CONTEXT

During the Mexican Revolution of 1821, a portion of the land that is now Sunnyvale was given to Estrada and Inez Castro as part of a Mexican land grant. They formed Rancho Pastoria de las Borregas (Pasture of the Sheep Ranch). Missouri settler Martin Murphy Jr. purchased much of the rancho in 1850 and established a wheat farm, which was soon replaced by fruit orchards.

The development of Sunnyvale began in 1864, when the Central Railroad built a line from San Francisco to San Jose. Murphy donated right-of-way for the railroad through his property in exchange for a railroad stop at Murphy Station. Industry first came to Sunnyvale after the 1906 earthquake. The first industries included the Hendy Ironworks and the Libby cannery, located at the center of town, close to the railroad. Housing was also located downtown and was laid out in a traditional grid pattern, most efficient for the city's flat terrain. Simple, small bungalows and

revival -style homes were predominant. The downtown grew as a mix of uses in close proximity and walking distance of each other. When Sunnyvale was incorporated in 1912, it had 1,800 residents.

Transportation routes also played a significant role in the city's development. The earliest transportation facilities were the railroad and El Camino Real. The paving of El Camino Real in 1913 heralded the arrival of the automobile and a profound change in the pattern of development. The automobile allowed businesses and homes to spread out, rather than concentrate in the downtown or along transportation routes. By the end of World War II, Sunnyvale had made the change from an agricultural community to an industrial center, with its economy focused on defense and aerospace industries. Naval Air Station Sunnyvale was built (now Moffett Federal Airfield), and Lockheed Martin became the city's largest employer. By 1950, farms and fields were increasingly replaced with homes, factories, and offices as the population grew to 10,000.

This change set the stage for the boom decades of the 1950s and 1960s. Nearly 65 percent of the city's existing housing and 50 percent of the nonresidential buildings were constructed between 1950 and 1969. By 1970, Sunnyvale had a population of 96,000.

The last 30 years of the twentieth century saw Sunnyvale's economy experience yet another large shift, as high-technology companies launched the Silicon Valley era. The federal downsizing of defense development and manufacturing resulted in a loss of defense and aerospace jobs, which were quickly replaced with jobs designing and manufacturing circuits and computers. These in turn gave way to more high-value and knowledge-based jobs in computer programming, administration, and sophisticated research and design functions. The Mid-Peninsula and South Bay areas became known as Silicon Valley, the world center for high-technology innovation. The city attracted successful companies such as AMD, Network Appliance, Juniper Networks, and Yahoo. The population grew by 14 percent in the 1990s, rising to 131,800 by 2000. The high-tech slowdown in the early years of the new century brought rapid growth to a halt, with jobs declining rather dramatically between 2000 and 2005. But the economy has since rebounded, adapting to and developing new industries, jobs, and sources of revenue (Sunnyvale 2011).

KNOWN CULTURAL RESOURCES IN THE PLAN AREA

The City of Sunnyvale maintains a Heritage Resources Inventory, containing landmarks, trees, residential and commercial districts, and individual structures of local importance. There are two main types of protected structures in Sunnyvale: heritage resources and local landmarks. A local landmark is the highest level of protection given by the City. Heritage resources have a somewhat lower level of protection. The inventory identifies approximately 50 individual structures as heritage resources, several heritage tree locations, and 11 individual local landmarks. In addition, Sunnyvale contains two historical districts: the Taaffee-Frances Heritage Neighborhood (a residential district) and the Murphy Station Heritage Landmark District (a commercial district). None of the identified heritage resources, heritage trees, local landmarks, or historical districts is located within the plan area (Sunnyvale 2015).

A review of the results of a records search of the California Historical Resources Information System (CHRIS) prepared by the Northwest Information Center indicates there are no properties included in the State Office of Historic Preservation Historic Property Directory, which includes listings of the California Register of Historical Resources, California Historical Landmarks, California State Points of Historical Interest, and the National Register of Historic Places (CHRIS 2012).

3.10 CULTURAL RESOURCES

The City of Sunnyvale received a letter from the Native American Heritage Commission (NAHC) indicating that a sacred lands file records search did not identify the presence of Native American cultural resources in the plan area (NAHC 2013).

3.10.2 REGULATORY FRAMEWORK

FEDERAL

Federal regulations for cultural resources are primarily governed by Section 106 of the National Historic Preservation Act of 1966, which applies to actions taken by federal agencies. The goal of the Section 106 review process is to offer a measure of protection to sites that are determined eligible for listing on the National Register of Historic Places. The criteria for determining NRHP eligibility are found in Title 36 Code of Federal Regulations (CFR) Part 60. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and affords the federal Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The council's implementing regulations, "Protection of Historic Properties," are found in Title 36 CFR Part 800.

The NRHP is the official list of the nation's historic places worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect the country's historic and archeological resources. The NRHP is administered by the National Park Service under the Secretary of the Interior. Properties listed in the register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The NRHP includes all historic areas in the National Park System; National Historic Landmarks that have been designated by the Secretary of the Interior for their significance to all Americans; and properties significant to the nation, state, or community which have been nominated by state historic preservation offices, federal agencies, and tribal preservation offices and have been approved by the National Park Service.

To be considered eligible, a property must meet the National Register Criteria for Evaluation, found in Title 36 CFR Part 60.4. This involves examining the property's age, integrity, and significance as follows:

- **Age and Integrity.** Is the property old enough to be considered historic (generally at least 50 years old), and does it still look much the way it did in the past?
- **Significance.** Is the property associated with events, activities, or developments that were important in the past? With the lives of people who were important in the past? With significant architectural history, landscape history, or engineering achievements? Does it have the potential to yield information through archeological investigation about the past?

Archaeological site evaluation assesses the potential of each site to meet one or more of the criteria for NRHP eligibility based on visual surface and subsurface evidence (if available) at each site's location, information gathered during the literature and records searches, and the researcher's knowledge of and familiarity with the historic or prehistoric context associated with each site.

The American Indian Religious Freedom Act, Title 42 United States Code Section 1996, protects Native American religious practices, ethnic heritage sites, and land uses.

National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Today, fewer than 2,500 historic places bear this national distinction. National Historic Landmarks are places where nationally significant historical events occurred, that are associated with prominent Americans who represent those pivotal ideas that shaped the nation, that teach Americans about their ancient past, or that are premier examples of design or construction. While many historic places are important locally or at a state level, a lesser number have meaning for all Americans.

STATE

Under CEQA, public agencies must consider the effects of their actions on both historical resources and unique archaeological resources. Pursuant to Public Resources Code (PRC) Section 21084.1, a "project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on unique archaeological resources.

Historical resource is a term with a defined statutory meaning (PRC Section 21084.1 and State CEQA Guidelines Section 15064.5[a], [b]). The term embraces any resource listed in or determined to be eligible for listing in the California Register of Historical Resources. The CRHR is administered through the California Office of Historic Preservation (OHP) and includes resources listed in or formally determined eligible for listing in the National Register of Historic Places, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be historical resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC Section 5024.1 and California Code of Regulations, Title 14, Section 4850). Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process (PRC Section 5024.1[g]), lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts on historical resources (PRC Section 21084.1 and State CEQA Guidelines Section 15064.5[a] [3]). Following State CEQA Guidelines Section 21084.5(a) and (b), a historical resource is defined as any object, building, structure, site, area, place, record, or manuscript that:

- a) Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California; and
- b) Meets any of the following criteria:
 - 1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
 - 2) Is associated with the lives of persons important in our past;

3.10 CULTURAL RESOURCES

- 3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- 4) Has yielded, or may be likely to yield, information important in prehistory or history.

Archaeological resources may also qualify as historical resources, and PRC Section 5024 requires consultation with the Office of Historic Preservation when a project may impact historical resources located on state-owned land.

For historic structures, State CEQA Guidelines Section 15064.5(b)(3) indicates that a project which follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995) shall mitigate impacts to a level of less than significant. Potential eligibility also rests on the integrity of the resource. Integrity is defined as the retention of the resource's physical identity that existed during its period of significance. Integrity is determined through considering the setting, design, workmanship, materials, location, feeling, and association of the resource.

As noted above, CEQA also requires lead agencies to consider whether projects will impact unique archaeological resources. Public Resources Code Section 21083.2(g) states:

"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.*

Treatment options under PRC Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

Advice on procedures to identify cultural resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by the OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including but not limited to museums, historical commissions, associations, and societies, be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains.

Section 7050.5(b) of the California Health and Safety Code specifies protocol when human remains are discovered. The code states:

In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

State CEQA Guidelines Section 15064.5(e) requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the NAHC. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the State CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to Section 15064.5(f), these provisions should include an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be a historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place.

As of March 1, 2005, Senate Bill 18 (Government Code Sections 65352.3 and 65352.4) requires that, prior to the adoption or amendment of a general plan proposed on or after March 1, 2005, a city or county must consult with Native American tribes with respect to the possible preservation of or the mitigation of impacts on specified Native American places, features, and objects located within that jurisdiction. The City initiated the consultation process in 2013.

Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014) establishes a formal consultation process for California tribes and requires formal consultation with those tribes prior to determining the level of environmental document if a tribe has requested to be informed by the lead agency of proposed projects. AB 52 became law on January 1, 2015, but only applies to projects that have a notice of preparation or notice of negative declaration/mitigated negative declaration filed on or after July 1, 2015. The Notice of Preparation for the LSAP EIR was filed on August 9, 2013; therefore this project is not subject to the requirements of AB 52.

3.10 CULTURAL RESOURCES

LOCAL

City of Sunnyvale General Plan

The Community Character chapter of the City's General Plan establishes the criteria for identifying cultural resources in Sunnyvale. The City has approached the delineation of cultural resources by relating them to their heritage value. As stated in the Community Character chapter, the term *heritage* encompasses a broader concept than the term *historical*. A community's heritage includes not only its record of historical events and the inventory of its historical buildings, sites, and artifacts but also the cultural legacy of that history. Heritage resources are important because they document the cultural history of a particular place and serve to illustrate the relationship between the present and the past. Each heritage resource enriches the history of a place and adds to a complex pattern of growth and development over time. Changes to local landmarks must be reviewed and approved by the Heritage Commission and specific, stringent reviews must be conducted if a local landmark is to be changed in a way that would significantly alter its historic character.

The General Plan contains the following policies that are relevant to the analysis of cultural resources impacts:

Policy CC-5.1 Preserve existing landmarks and cultural resources and their environmental settings.

Policy CC-5.5 Archeological resources should be preserved whenever possible.

3.10.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following impact analysis is based on a review of the City of Sunnyvale's Heritage Resources Inventory as well as a CHRIS records search conducted at the Northwest Information Center.

Native American individuals/organizations identified in the NAHC (2013) response letter were contacted. To date, no responses have been received to the inquiry.

STANDARDS OF SIGNIFICANCE

Following Public Resources Code Sections 21083.2 and 21084.1, and Section 15064.5 and Appendix G of the State CEQA Guidelines, cultural resource impacts are considered to be significant if implementation of the proposed project would result in any of the following:

- 1) Cause a substantial adverse change in the significance of a historical resource as defined in PRC Section 21084.1 and CEQA Guidelines Section 15064.5, respectively.
- 2) Cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5.
- 3) Disturb any human remains, including those interred outside of formal cemeteries.

State CEQA Guidelines Section 15064.5 defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource is materially impaired.

CEQA Guidelines, Section 15064.5(b) (2) defines “materially impaired” for purposes of the definition of substantial adverse change as follows:

The significance of an historical resource is materially impaired when a project:

- (A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or*
- (B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or*
- (C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.*

CEQA requires alternative plans or mitigation measures to be considered if a project would result in an effect that may cause a substantial adverse change in the significance of a historical resource or would cause significant effects on a unique archaeological resource. Therefore, prior to assessing effects or developing mitigation measures, the significance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

- Identify potential historical resources and unique archaeological resources.
- Evaluate the eligibility of historical resources.
- Evaluate the effects of the project on eligible historical resources.

PROJECT IMPACTS AND MITIGATION MEASURES

Disturb Historic Resources (Standard of Significance 1)

Impact 3.10.1 There are no locally designated historic structures within the plan area. Further, compliance with resource protection policy provisions of the Sunnyvale General Plan and further project-level CEQA review of individual development projects would ensure potential impacts are avoided or mitigated. The LSAP would have **no impact**.

Sunnyvale has numerous buildings that may have historical value. However, none of the structures or sites identified in the City's Heritage Resources Inventory is located within or immediately adjacent to the plan area. Therefore, the proposed LSAP is not anticipated to have any impact on historic structures or sites. Therefore, the project would have **no impact** related to historic resources.

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Archaeological sites can also qualify as historical resources (California Code of Regulations Section 15064.5[c]). For purposes of this discussion, however, potential impacts on archaeological sites are discussed below under the Impact 3.10.2.

Mitigation Measure

None required.

Disturb Archaeological Resources or Human Remains (Standards of Significance 2 and 4)

Impact 3.10.2 Construction of subsequent development projects developed under the LSAP could indirectly result in the potential disturbance of undiscovered cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and unrecorded human remains. This impact would be **potentially significant**.

Cultural resources have been identified throughout Sunnyvale. While the proposed LSAP would not directly affect archaeological resources or human remains, implementation of the LSAP would allow new development, redevelopment, and infrastructure improvements that could involve subsurface disturbance for installation of foundations, utilities, or subterranean building features. These subsequent actions have the potential to impact undiscovered cultural resources and unrecorded human remains. As noted in the Regulatory Framework subsection above, Health and Safety Code Section 7050.5(b) specifies protocol when human remains are discovered. The actions required under Section 7050.5(b) would ensure a less than significant impact to human remains. However, potential impacts on archaeological resources would remain **potentially significant**, requiring mitigation.

Mitigation Measures

MM 3.10.2 All subsequent projects within the LSAP plan area shall be required to include information on the improvement plans that if, during the course of grading or construction cultural resources (i.e., prehistoric or historic sites) are discovered, work will stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures as part of a treatment plan in consultation with the City and all other appropriate agencies. The treatment plan shall include measures to document and protect the discovered resource. Consistent with CEQA Guidelines Section 15126.4 (b)(3), preservation in place will be the preferred method of mitigating impacts to the discovered resource. Pursuant to Government Code Section 6254.10, information on the discovered resource shall be confidential.

Timing/Implementation: Included in improvement plans for all subsequent projects

Enforcement/Monitoring: City of Sunnyvale Community Development Department Planning Division

Implementation of mitigation measure **MM 3.10.2** would mitigate potentially significant impacts on archaeological resources to a level that is **less than significant**.

3.10.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting associated with the proposed LSAP includes the plan area and the cities of Sunnyvale and Santa Clara as well as the surrounding areas in Santa Clara County. Impacts generally vary by site characteristics and site history. However, continued growth in the region could contribute to the potential loss of cultural resources. These resources include archaeological resources associated with Native American activities and historic resources associated with settlement, farming, and economic development.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Impacts on Cultural Resources

Impact 3.10.3 Cumulative development, including the LSAP, could result in cumulative impacts on cultural resources. This impact would be **less than cumulatively considerable**.

Implementation of the proposed LSAP, in combination with other development projects in the surrounding region, could result in a cumulative loss of previously undiscovered cultural resources in the region. However, it should be noted that each proposal for development within the plan area received by the City of Sunnyvale will undergo further environmental review of project-specific impacts prior to approval. In addition, continued compliance with Health and Safety Code Section 7050.5(b) and implementation of mitigation measure **MM 3.10.2** would ensure that if cultural resources or human remains are discovered during construction, impacts would be properly mitigated. Therefore, the proposed project's contribution to this potential impact would be **less than cumulatively considerable**.

Mitigation Measure

None required.

3.10 CULTURAL RESOURCES

REFERENCES

- CHRIS (California Historical Resources Information System). 2012. Record Search Results for the Proposed City of Sunnyvale Land Use and Transportation Element Update/Climate Action Plan Environmental Impact Report Planning Area.
- NAHC (Native American Heritage Commission). 2013. Letter RE: Lawrence Station Area EIR, Santa Clara County. September 17.
- Sunnyvale, City of. 2011. *Sunnyvale General Plan* (consolidated in 2011).
- . 2015. City of Sunnyvale Heritage Resources Inventory. Accessed July 21.
<http://sunnyvale.ca.gov/Portals/0/Sunnyvale/CDD/Residential/Heritage%20Resources%20and%20Landmark%20Alteration%20%20Inventory-%20%20FINAL.pdf>.

3.11 PUBLIC SERVICES AND UTILITIES

3.11 PUBLIC SERVICES AND UTILITIES

This section describes fire protection and emergency medical services, law enforcement, public schools, and parks and recreation facilities, water, wastewater, solid waste services, and energy. Each subsection includes a description of existing facilities and infrastructure, applicable service goals, and environmental impacts potentially resulting from implementation of the proposed Lawrence Station Area Plan (LSAP).

A summary of the impact conclusions related to public services and utilities is provided below.

Impact Number	Impact Topic	Impact Significance
3.11.1.1	Increased Demand for Fire Protection and Emergency Medical Services	Less than significant
3.11.1.2	Cumulative Fire Protection and Emergency Medical Services Impacts	Less than cumulatively considerable
3.11.2.1	Increased Demand for Law Enforcement Services	Less than significant
3.11.2.2	Cumulative Law Enforcement Impacts	Less than cumulatively considerable
3.11.3.1	Increased Demand for Public Schools	Less than significant
3.11.3.2	Cumulative Public Schools Impacts	Less than cumulatively considerable
3.11.4.1	Increased Demand for Parks and Recreation Facilities	Less than significant
3.11.4.2	Cumulative Parks and Recreation Demands	Less than cumulatively considerable
3.11.5.1	Increased Demand for Water Supply	Less than significant
3.11.5.2	Water Supply Infrastructure	Less than significant
3.11.5.3	Cumulative Water Supply Impacts	Less than cumulatively considerable
3.11.5.4	Cumulative Water Supply Infrastructure Impacts	Less than cumulative considerable
3.11.6.1	Exceedance of Wastewater Discharge Requirements	Less than significant
3.11.6.2	Wastewater Conveyance and Treatment	Less than significant
3.11.6.3	Cumulative Wastewater Service Impacts	Less than cumulatively considerable
3.11.7.1	Increased Solid Waste Disposal	Less than significant
3.11.7.3	Cumulative Solid Waste Impacts	Less than cumulatively considerable
3.11.8.1	Energy Consumption Impacts	Less than cumulatively considerable

3.11.1 FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

3.11.1.1 EXISTING SETTING

The Sunnyvale Department of Public Safety Fire Services Bureau (Fire Bureau) is an all-hazard/full-service department that provides emergency medical services, fire suppression, hazardous material incident mitigation, rescue operations, fire prevention/Investigations, and statewide mutual aid response. The Fire Bureau has mutual aid and/or auto aid agreements with the Santa Clara County Fire Department, San Jose Fire Department, Mountain View Fire Department, and Santa Clara (City) Fire Department. These agreements cover responses to freeway incidents and structure fire incidents in areas of common shared boundaries between jurisdictions. An often-cited measure of fire suppression capability is the rating assigned to a department by the

3.11 PUBLIC SERVICES AND UTILITIES

nationally recognized Insurance Services Office (ISO).¹ Sunnyvale has an ISO rating of 2, which is in the “superior” category (Sunnyvale 2011a).

The Fire Bureau has six stations (Sunnyvale 2011a). The closest Sunnyvale Fire Bureau stations are Station #2, located at N. Wolfe Road (approximately 0.5 mile west of the plan area at E. Arques Avenue) and Station #4, located at 966 South Wolfe Road, approximately 0.5 mile southwest of the plan area. The Santa Clara Department has a station just north of Kifer Road at 3011 Corvin Drive.

The Department of Public Safety participates in an emergency medical services (EMS) system that is integrated into the larger Santa Clara County Emergency Medical Services System. This system provides Basic Life Support (BLS) response by Department of Public Safety resources, followed by Advanced Life Support (ALS) response by the County of Santa Clara. The County of Santa Clara contracts with a vendor to provide a fee-for-service paramedic transport system for the entire county, with the exception of the City of Palo Alto, which maintains its own fire department-based paramedic transport service (Sunnyvale 2011a).

3.11.1.2 REGULATORY FRAMEWORK

STATE

California Fire Code

The 2013 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

California Health and Safety Code

Additional state fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which include regulations for building standards, fire protection and notification systems, fire protection devices such as extinguishers, smoke alarms, high-rise building and child-care facility standards, and fire suppression training.

¹The ISO is a subsidiary of a publicly traded company and acts as an advisory organization which provides information that insurance companies may use to establish premium costs. The rating is based on, among other things, fire alarm and communications systems, telephone and dispatching systems, fire equipment, staffing, training, and geographic distribution of fire stations. Using this information, the ISO assigns a classification rating from 1 to 10.

California Occupational Safety and Health Administration

In accordance with the California Code of Regulations, Title 8, Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Fighting Equipment, the California Occupational Safety and Health Administration (Cal/OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include but are not limited to guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

Fire Hazard Severity

The State of California has enacted statewide laws aimed at reducing wildfire hazards in wildland-urban interface areas. These regulations cover topics such as fire prevention, vegetation management, notification and penalties, fire hazard severity zones, defensible space, setbacks, and exemptions.

LOCAL

City of Sunnyvale Fire Code

Sunnyvale’s Fire Code, Section 16.52 of the City’s Municipal Code, prescribes regulations governing conditions hazardous to life and property from fire or explosion through adoption of the 2013 California Fire Code.

3.11.1.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following impact analysis is based on review of the LSAP relation to applicable standards and policies to determine if the project would trigger the need for new facilities that would trigger an impact on the physical environment.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G threshold of significance. A fire protection and emergency services impact is considered significant if implementation of the project would:

- 1) Create substantial adverse physical impacts associated with the provision of new or physically altered fire related facilities or services, the construction and/or provision of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency services.

The reader is referred to Section 3.3, Hazards and Human Health, regarding emergency access and wildland fire impacts.

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PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Fire Protection and Emergency Medical Services (Standard of Significance 1)

Impact 3.11.1.1 Subsequent projects developed under the LSAP could increase the demand for fire protection and emergency medical services. This is a **less than significant** impact.

Additional residents and retail, commercial, and office/research and development (R&D) uses would increase the need for fire protection services, including an increased need for additional inspectors, permit issuance, etc. The Fire Bureau does not maintain a staffing ratio goal based directly on population or employment; staffing levels are instead identified based on service demand and other factors. The LSAP recognizes that a variety of public facilities would be needed to serve the area as development proceeds. Some of these would be provided through mandatory fees and assessments consistent with existing City of Sunnyvale policy. It is currently not expected that the LSAP itself would necessitate the need to construct a fire station or emergency medical facility. There are two City of Sunnyvale Fire Department stations within approximately 0.5 mile west and southwest of the plan area boundary, and Santa Clara County has a fire station on Corvin Drive, just north of the plan area boundary along Kifer Road.

Sunnyvale General Plan Policy SN-3.1 directs that rapid and timely response to all emergencies be provided, and Policy SN-5.1 requires that equipment and facilities be provided and maintained to meet reasonable standards of safety, dependability, and compatibility with fire service operations. The LSAP does not contain any policies regarding the provision of fire protection services, but public uses such as a fire station or emergency medical facility would be a permitted use in all land use classifications, subject to review and City approval. This Draft EIR programmatically evaluates the construction impacts of such a potential facility in regard to air quality, noise, and water quality (see Sections 3.5, 3.6, and 3.8, respectively). As subsequent development projects are proposed in the plan area, the City would ensure that equipment and facilities (e.g., fire trucks and new or modified fire stations) are provided and maintained to meet reasonable standards of safety, dependability, and compatibility with fire service operations and that rapid emergency response times are met. Therefore, fire protection and emergency medical services impacts would be **less than significant**.

Mitigation Measures

None required.

3.11.1.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for fire protection and emergency medical services includes the service area boundaries of the Fire Bureau.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Fire Protection and Emergency Medical Services Impacts

Impact 3.11.1.2 Cumulative development, including the LSAP, would increase the demand for fire protection and emergency medical services. The proposed project's contribution to this impact is **less than cumulatively considerable**.

Potential future development in Sunnyvale would increase cumulative demand for fire protection and related services. Cumulative impacts associated with fire protection services that would occur under the LSAP would occur entirely within the Fire Bureau service area. Implementation of the proposed LSAP would require additional fire-related services and equipment to adequately serve the city under 2035 conditions. The proposed buildout could result in the need for additional Fire Bureau personnel who could require facilities; however, any subsequent development that would occur would be subject to developer fees which would provide resources to serve the projected needs of the Fire Bureau under buildout conditions in Sunnyvale. Additionally, the City will consider the environmental effects of new facilities if/when they are proposed over time. Future fire and/or medical facilities would be constructed in the existing urban area of the city and would not be expected to result in any substantial ground disturbance that could result in significant environmental impacts which could not be mitigated to less than significant levels as identified in this Draft EIR. Therefore, a **less than cumulatively considerable** impact would occur.

Mitigation Measures

None required.

3.11.2 LAW ENFORCEMENT

3.11.2.1 EXISTING SETTING

Police services are provided by the City of Sunnyvale Department of Public Safety Bureau of Police Services (Police Bureau). Five patrol squads cover the city 24 hours a day. The number of officers in each of the squads changes depending on the time of the day the shift covers. Services provided by the Police Bureau also include a traffic safety unit, a SWAT team, a crisis negotiations team, a canine unit, a desk officer, a police training officer, a crime scene investigator, a bicycle patrol, a gang enforcement team, a crisis intervention team, a mobile field force, and technical services (Sunnyvale 2011a).

3.11.2.2 REGULATORY FRAMEWORK

STATE

Emergency Response/Evacuation Plans

Government Code Section 8607(a) directs the Governor's Office of Emergency Services (OES) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction will handle emergency disasters. The program is intended to provide effective management of multi-agency and multijurisdictional emergencies in California. SEMS consists of five organizational levels, which are activated as necessary: (1) Field Response, (2) Local Government, (3) Operational Area, (4) Regional, and (5) State.

LOCAL

City of Sunnyvale Emergency Plan

The City's Emergency Plan addresses the planned response that will be coordinated from the Emergency Operations Center to emergency situations associated with natural disasters and technological incidents. The operational concepts reflected in this plan focus on potential large-scale emergencies that can generate unique situations requiring unusual response. Such

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emergencies pose major threats to life and property and can affect the well-being of large numbers of people. The intent of the plan is to save lives and protect property by developing operational capabilities that mitigate, prepare for, respond to, and recover from any emergency or disaster.

3.11.2.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following impact analysis is based on review of the LSAP relation to applicable standards and policies to determine if the project would trigger the need for new facilities that would trigger an impact on the physical environment.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G threshold of significance. A law enforcement services impact is considered significant if implementation of the proposed project would:

- 1) Create substantial adverse physical impacts associated with the provision of new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Law Enforcement Services (Standard of Significance 1)

Impact 3.11.2.1 Development of subsequent projects under the LSAP would result in increased demand for law enforcement services. This is a **less than significant** impact.

Additional residents and retail, commercial, and office/R&D uses would increase the need for law enforcement protection services. The LSAP recognizes that a variety of public facilities would be needed to serve the area as development proceeds. Some of these would be provided through mandatory fees and assessments consistent with existing City policy. Sunnyvale General Plan Policy SN-3.1 directs that rapid and timely response to all emergencies be provided, and Policy SN-5.1 requires that equipment and facilities are provided and maintained to meet reasonable standards for law enforcement. It is currently not expected that the LSAP itself would necessitate the need to construct a law enforcement facility.

The LSAP does not contain any policies regarding the provision of law enforcement services, but public uses such as a police station would be a permitted use in all land use designations, subject to review and City approval. This Draft EIR programmatically evaluates the construction impacts of such a potential facility in regard to air quality, noise, and water quality (see Sections 3.5, 3.6, and 3.8, respectively). As subsequent development projects are proposed, the City would ensure that equipment and facilities are provided and maintained to serve new projects. Therefore, law enforcement services impacts would be **less than significant**.

Mitigation Measures

None required.

3.11.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for law enforcement services includes the service area boundaries of the Police Bureau. The Police Bureau provides services within the Sunnyvale city limits. Therefore, the cumulative setting is limited to the city and does not extend to a regional level. The cumulative analysis includes all existing, planned, proposed, approved, and reasonably foreseeable development in the city.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Law Enforcement Impacts

Impact 3.11.2.2 Cumulative development, including the LSAP, would result in increased demand for law enforcement services. The proposed project's contribution to this impact is **less than cumulatively considerable**.

Cumulative impacts associated with police services would occur entirely within the Police Bureau's service area. Expected increases in demand for police services would thus be geographically limited and would not result in a considerable contribution to increased demand for these public services in Sunnyvale. Additionally, the City will consider the environmental effects of new facilities at a project level if or when they are proposed over time. The proposed project's contribution to a cumulative law enforcement impact is **less than cumulatively considerable**.

Mitigation Measures

None required.

3.11.3 PUBLIC SCHOOLS

3.11.3.1 EXISTING SETTING

PLAN AREA

The plan area is in the boundaries of three school districts: the Sunnyvale School District, the Santa Clara Unified School District, and the Fremont Union High School District.

The portion of the plan area generally between Reed Avenue on the south and Kifer Boulevard on the north, where most of the new high-density residential development could occur under the LSAP, is in the attendance boundary of Ellis Elementary School. Students from Ellis Elementary attend Sunnyvale Middle School, both of which are in the Sunnyvale School District. In 2014/15, the enrollment at Ellis Elementary School was 823 students, and 1,153 students attended Sunnyvale Middle School (CDE 2015).

Students in this area are in the attendance boundary of Fremont High School, one of several high schools in the Fremont Union High School District. In 2014/15, 1,965 students attended Fremont High School (CDE 2015). The enrollment capacity is 2,142 students, and a capacity deficit is projected by 2020 (Schoolhouse Services 2014). The Fremont Union High School District Measure K Bond program was designed to address future projected enrollment needs. The Measure K Bond

3.11 PUBLIC SERVICES AND UTILITIES

program includes the construction of additional classrooms and other facilities that would increase capacity and reduce the potential for overcrowding.

Locations in the plan area generally south of Reed Avenue (which is largely built out with residential uses, with the exception of the approximately 8-acre vacant Corn Palace property) are in the attendance boundaries for Ponderosa Elementary School, Marian A. Peterson Middle School, and Adrian Wilcox High School, all of which are in the Santa Clara Unified School District.

The Sunnyvale School District currently levies fees of \$2.08 per square foot for residential units, \$0.33 per square foot for new commercial development, and \$0.08 per square foot for commercial parking and storage (Sunnyvale School District 2015). The Fremont Union High School District collects fees of \$1.28 per square foot for residential units and \$0.21 per square foot for most commercial uses in Sunnyvale (Fremont Union High School District 2015).

3.11.3.2 REGULATORY FRAMEWORK

STATE

Leroy F. Greene School Facilities Act of 1998 (SB 50)

Senate Bill (SB) 50 (the Leroy Green School Facilities Act) was approved by voters in November 1998. SB 50 established a comprehensive program for funding school facilities based on 50 percent funding from the State of California and 50 percent funding from local districts, while limiting the obligation of developers to mitigate the impact of projects on school facilities. California Government Code 65995 et seq. establishes the statutory criteria for assessing construction fees. This section also states that the payment of school mitigation impact fees authorized by SB 50 is deemed to provide “full and complete mitigation of impacts” from the development of real property on school facilities.

The three levels of developer fees established by SB 50 are described below.

- 1) Level 1 fees are base statutory fees.
- 2) Level 2 fees allow the school district to impose developer fees above the statutory levels, up to 50 percent of certain costs under designated circumstances. The State would match the 50 percent funding if funds are available.
- 3) Level 3 fees apply if the State runs out of bond funds after 2006, allowing the school district to impose 100 percent of the cost of the school facility or mitigation minus any local dedicated school monies.

In order to levy the alternate (Level 2) fee and qualify for 50 percent matching funds from the State, a school district must prepare and adopt a School Facilities Needs Analysis, apply and be eligible for state funding, and satisfy specified criteria. The ability of a city or county to impose fees is limited to the statutory and potential additional charges allowed by the act.

3.11.3.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Impacts on schools were determined by applying student generation rates to the number of additional housing units that would be developed under the LSAP (2,323 units). The analysis assumes a student generation rate of 0.22 students per unit for elementary and middle schools in the Sunnyvale School District and 0.10 students per unit for the Fremont Union High School District.²

The analysis focuses on these districts because the locations in the plan area where nearly all of the high-density residential development could occur (Transit Core, East, West, and Peninsula subareas) are within the attendance boundaries of those two districts. Although portions of the plan area are in the Santa Clara Unified School District, those areas are largely built out with existing residential uses, and the LSAP does not propose any changes in those areas that would affect student enrollment. The approximately 8-acre Corn Palace property could be developed with up to 7 to 14 dwelling units per acre (112 units), which would not generate a substantial number of students in the Santa Clara Unified School District.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G threshold of significance. A public schools impact is considered significant if implementation of the proposed project would:

- 1) Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Public Schools (Standard of Significance 1)

Impact 3.11.3.1 The residential component of the LSAP could result in an increase in student enrollment in Sunnyvale schools. This is a **less than significant** impact.

Projected growth under the LSAP would increase student enrollment in the Sunnyvale, Santa Clara Unified, and Fremont Union High school districts. Buildout of the LSAP's 2,323 housing units would result in 511 elementary and middle school students attending Ellis Elementary School and/or Sunnyvale Middle School and 232 high school students attending Fremont High School. As a result, enrollment capacity could potentially be exceeded. However, exceeding school capacity is not considered a physical impact under CEQA. Subsequent projects developed under the LSAP would be required to pay applicable fees in accordance with SB 50.

The school districts would address the need for expansion of school facilities or development of new school facilities, and such development would be subject to the appropriate CEQA environmental review, which would identify any site-specific impacts and provide mitigation to reduce those impacts. The LSAP impacts would be **less than significant**.

² Student generation factors from the 915 DeGuigne Residential Project Draft EIR (Sunnyvale 2015a, p. 172).

3.11 PUBLIC SERVICES AND UTILITIES

Mitigation Measures

None required.

3.11.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for public school impacts is the attendance boundaries for the Sunnyvale School District, Santa Clara Unified School District, and Fremont Union High School District.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Public Schools Impacts

Impact 3.11.3.2 Cumulative development, including the LSAP, could require new or expanded school facilities to accommodate projected growth. The LSAP's contribution to this impact is **less than cumulatively considerable**.

About two-thirds of the K–8 students who live in Sunnyvale are in the attendance boundary of the Sunnyvale School District, the boundaries of which are entirely within Sunnyvale. The Cupertino Union School District boundaries are in six cities, including Cupertino and parts of San Jose, Sunnyvale, Saratoga, Santa Clara, and Los Altos. The district has three K–5 schools and one 6–8 school in Sunnyvale. The Santa Clara Unified School District has schools in Santa Clara, the Alviso neighborhood of San Jose, and Los Altos and three schools in Sunnyvale, which include elementary, middle, and high schools. Sunnyvale is entirely within the boundaries of the Fremont Union High School District, which provides high schools for the Sunnyvale and Cupertino districts in Cupertino, most of Sunnyvale, and parts of San Jose, Los Altos, Saratoga, and Santa Clara.

Cumulative development would result in an additional demand for schools. The actual number of students who would attend a particular school would depend on the location of a future development project relative to the school attendance boundaries. The number of students enrolled would increase incrementally (i.e., neither the Land Use and Transportation Element (LUTE) nor the LSAP would result in a demand for capacity to accommodate these students all at once). LSAP's 2,323 housing units would result in 511 elementary and middle school students attending Ellis Elementary School and/or Sunnyvale Middle School and 232 high school students attending Fremont High School. The enrollment capacity of Fremont High School is 2,142 students, and a capacity deficit is projected by 2020. The Fremont Union High School District Measure K Bond program was designed to address future projected enrollment needs. The Measure K Bond program includes the construction of additional classrooms and other facilities that would increase capacity and reduce the potential for overcrowding.

Future projects in Sunnyvale would be required to pay applicable fees in accordance with SB 50. The school districts would address the need for expansion of school facilities or development of new school facilities, and such development would be subject to the appropriate CEQA environmental review, which would identify any site-specific impacts and provide mitigation to reduce those impacts. The LSAP's impact on school facilities would be **less than cumulatively considerable**.

Mitigation Measures

None required.

3.11.4 PARKS AND COMMUNITY SERVICES

3.11.4.1 EXISTING SETTING

About 745 acres, over 7 percent of the area within Sunnyvale’s incorporated city limits, is devoted to park and recreation facilities owned or maintained by the City for public use, including 20 neighborhood parks (223 acres) and 9 special use facilities (355 acres). The City operates 38 tennis courts, 2 golf courses, and 4 swimming pools, including the Fremont Pool constructed in cooperation with the Fremont Union High School District. The City operates 143 acres of playfields, of which 111 acres are at schools and accessible to the public through joint-use agreements with three school districts. The community can now use nearly 40 baseball and soccer fields on school grounds after school hours. The City recently completed the 1.5-mile Calabazas Creek Trail, a pedestrian and bicycle trail between US Highway 101 and State Route 237. The trail allows residents to connect to the San Francisco Bay Trail, 3.45 miles of which are in Sunnyvale (Sunnyvale 2011a). Because the city is largely built out, there is little additional undeveloped or vacant land that could be used to increase the acreage of public park and recreation facilities beyond 745 acres.

The National Recreation and Park Association (NRPA) developed standards and guidelines in 1990, which recommended 4–6 acres of open space per 1,000 residents. The NRPA has since acknowledged the difficulty in setting standards that would be applicable to all communities, given each community’s unique characteristics. The 1990 NRPA standard of 4–6 acres per 1,000 residents is, however, still widely used. At approximately 5.1 acres per 1,000 residents (based on a 2014 population of 147,055), Sunnyvale falls within that guideline (Sunnyvale 2011a).

There are no public parks or recreational facilities in the plan area. The closest public facilities in Sunnyvale are Ponderosa Park and Fair Oaks Park.

3.11.4.2 REGULATORY FRAMEWORK

STATE

Quimby Act

The Quimby Act (California Government Code Section 66477) is a state law, applied at the local level, that specifies the parkland dedication requirements for new residential development. The Quimby Act allows local jurisdictions to require developers of new residential subdivisions to dedicate up to 3 acres of park area per 1,000 persons or, if the amount of existing neighborhood and community park area exceeds that limit, the jurisdiction can require that existing ratio, not to exceed 5 acres of land per 1,000 residents or to pay in-lieu fees for park or recreational purposes. Although the Quimby Act requires the dedication of new parkland, it does not address the development, operation, or maintenance of new park facilities. Therefore, the Quimby Act provides open space needed to develop park and recreational facilities, but does not ensure the development of the land or the provision of a park. The City of Sunnyvale has adopted Park Dedication Fees for park facilities based on 5 acres per 1,000 residents in order to acquire and improve parkland consistent with the Quimby Act.

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LOCAL

City of Sunnyvale General Plan

The City's General Plan sets forth the goal of providing and maintaining adequate and balanced open space and recreation facilities for the community (Goal LT-8). The City does not currently have a minimum park ratio standard, but the General Plan references the NRPA's recommendation of between 4 and 6 acres of parkland per 1,000 residents (Sunnyvale 2011a).

City of Sunnyvale Municipal Code

Chapter 18.10, Parks and Open Space Dedication, of the City's Municipal Code establishes, as a condition of approval of any final subdivision map or parcel map, that the subdivider must dedicate land, pay a fee in lieu thereof, or both, at the City's option, for park or recreational purposes. As of July 1, 2014, the land requirement is 5.0 acres per 1,000 residents. Specific acreage requirements based on residential unit density in a subdivision vary according to the type of development.

3.11.4.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Evaluation of potential park and recreation service impacts was based on review of the Sunnyvale General Plan and the development assumptions outlined in the LSAP.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A parks and recreation impact is significant if implementation of the proposed LSAP would:

- 1) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- 2) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Parks and Recreation Facilities (Standards of Significance 1 and 2)

Impact 3.11.4.1 Subsequent projects developed under the LSAP could increase the use of existing parks and recreation facilities in Sunnyvale and result in demand for new facilities. This is considered to be a **less than significant** impact.

The additional population associated with the LSAP (5,622) would generate a demand for approximately 28 acres of park and recreation facilities. The LSAP has identified measures that could be used to meet the need generated by future development projects and proposes an open space framework illustrating key elements of a parks and open space system for the plan area at a conceptual level (**Figure 2.0-4**; see Section 2.0, Project Description). Under the LSAP, approximately 32.5 to 39.0 acres of new open spaces and plazas open to the public throughout

the plan area could be established. Per the City's Municipal Code, subsequent projects would also be required to dedicate land, pay a fee in lieu thereof, or both, for park or recreational purposes at a ratio of 5 acres per 1,000 residents.

Typical environmental effects regarding improvements to and use of parks and recreational facilities may involve issues with noise (during construction and with use of playfields and playgrounds), air quality (during the construction of the facility), biological resources (depending on location), historic/cultural resources (depending on location), public services and utilities (demand for police and fire protection, electric, water, and wastewater service), and traffic on a local neighborhood level. The environmental effects of construction and operation of such facilities in the plan area have been considered in the technical analyses of this Draft EIR as part of overall development of projects anticipated under the LSAP.

Impacts on existing facilities and the development of new facilities within the LSAP plan area would be **less than significant**.

Mitigation Measures

None required.

3.11.4.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for parks and recreation consists of the City of Sunnyvale's Parks Department service area boundary. Development in the city that currently places demand on Sunnyvale's parks and recreation facilities, or is expected to place demand on them in the future, could contribute to cumulative impacts.

Cumulative Parks and Recreation Demands

Impact 3.11.4.2 Cumulative development, including the LSAP, would increase the use of existing parks and recreation facilities and could increase the demand for additional facilities. The LSAP's contribution to this impact is **less than cumulatively considerable**.

With the proposed LUTE, which includes the population associated with the proposed Lawrence Station Area Plan (LSAP's contribution to the parkland demand would be approximately 28 acres), the city-wide demand for parkland would be approximately 698 acres in year 2035. This demand would not occur immediately, but would occur over time as subsequent projects are developed. As required under the City's Municipal Code Chapter 18.10, subsequent projects would be required to dedicate land, pay a fee in lieu thereof, or both, for park or recreational purposes at a ratio of 5 acres per 1,000 residents.

Under cumulative conditions, there would be sufficient existing park and recreation facilities to accommodate the LSAP population increase in addition to other cumulative development under the current General Plan and the draft LUTE because projects would be required to comply with Quimby Act and the City's park land provision requirements. The LSAP would also provide some facilities such as plazas and open space that would be available to the public and could offset some of the increased demand attributable to the LSAP. The LSAP's contribution would be **less than cumulatively considerable**.

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Mitigation Measures

None required.

3.11.5 WATER SUPPLY AND SERVICE

A water supply assessment (WSA) was prepared that addressed in the proposed draft LUTE update, Peery Park Specific Plan and the LSAP in accordance with state water planning law (Sunnyvale 2015b). The WSA is included as **Appendix G** to this Draft EIR. Unless otherwise noted, the information about existing and planned supplies, historic and future demand, and supply reliability presented in this section is taken from the WSA.

3.11.5.1 EXISTING SETTING

WATER SUPPLY

Sunnyvale has three sources of potable water supply: purchased surface water from the San Francisco Public Utilities Commission (SFPUC), purchased treated surface water from the Santa Clara Valley Water District (SCVWD), and groundwater. Recycled water produced at the City's Water Pollution Control Plant (WPCP) makes up the remaining part of the water portfolio.

SFPUC Water Supply

The City receives imported water from the City and County of San Francisco's Regional Water System (RWS), operated by the SFPUC. This supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo counties. The local watershed facilities are operated to capture local runoff. The amount of imported water available to the SFPUC's retail and wholesale customers is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. The SFPUC depends on reservoir storage to ensure ongoing reliability of its water supplies.

The City of Sunnyvale has an Individual Supply Guarantee (ISG) of 12.58 million gallons per day (mgd) (or approximately 14,100 acre-feet per year [AFY]) from the SFPUC. Although the SFPUC's Water Supply Agreement and accompanying Water Supply Contract expire in 2034, the ISG (which quantifies the SFPUC's obligation to supply water to its individual wholesale customers) survives their expiration and continues indefinitely. The Sunnyvale contract also includes a minimum purchase amount of 8.93 mgd (10,003 AFY), which the City of Sunnyvale agrees to buy, regardless of whether sales drop below this level.

The SFPUC adopted a water supply element, the Interim Supply Limitation, to limit sales from the RWS watersheds to an average of 265 mgd annually through 2018. Interim Supply Allocations refer to each individual wholesale customer's share of the Interim Supply Limitation. Sunnyvale's Interim Supply Allocation is 9.44 mgd.

SFPUC deliveries to the City of Sunnyvale reached a maximum of 12,675 AFY in 2008. The 2014 deliveries were 8,454 AFY, and the 2015 deliveries are estimated to be 8,586 AFY (based on actual usage through July 2015).

SFPUC Water Supply Reliability

The wholesale customers and the City of San Francisco adopted a Water Shortage Allocation Plan in 2009 to allocate water from the regional water system to retail and wholesale customers during system-wide shortages. In order to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC has implemented its Water System Improvement Program, approved October 31, 2008.

In September 2009, the Bay Area Water Supply and Conservation Agency (BAWSCA) completed the Water Conservation Implementation Plan. BAWSCA's water management objective is to ensure that a reliable, high-quality supply of water is available where and when people in the BAWSCA service area need it. Several member agencies have elected to participate in the BAWSCA regional water conservation programs, and BAWSCA continues to work with individual member agencies to incorporate the savings identified in the Water Conservation Implementation Plan into their future water supply portfolios.

SCVWD Water Supply

The SCVWD's water supply includes a variety of sources consisting of imported and local surface water and groundwater, and the agency manages water supplies according to its Comprehensive Water Resources Management Plan.

The SCVWD supplies the City of Sunnyvale with treated surface water through an entitlement of imported Central Valley Project (CVP) water and the State Water Project (SWP), as well as surface water from local reservoirs. The current contractual agreement between the City and the SCVWD became effective in 1976 with a 75-year term ending in 2051.

The SCVWD has a contract for 100,000 AFY from the State Water Project, and nearly all of this supply is used for municipal and industrial (M&I) needs. The CVP contract amount is 152,500 AFY. However, the actual amount of water delivered is typically significantly less than these contractual amounts and depends on hydrology, conveyance limitations, and environmental regulations. Local runoff is captured in local reservoirs for recharge into the groundwater basin or treatment at one of the SCVWD's three water treatment plants. Water stored in local reservoirs provides up to 25 percent of Santa Clara County's water supply. Reservoir operations are coordinated with imported Bay-Delta water received from the SWP and the CVP.

The quantity of water available to Sunnyvale is based on a requested 3-year delivery schedule submitted by the City and approved by the SCVWD. The request for each year in the 3-year delivery schedule may not be less than 95 percent of the maximum amount requested in the 3-year period. SCVWD deliveries to the City reached a maximum of 13,577 AFY in 1999. The 2014 deliveries were 8,491 AFY, and the 2015 deliveries are estimated to be 7,237 AFY (based on actual usage through July 2015).

Groundwater

The SCVWD manages two groundwater subbasins in Santa Clara County: the Santa Clara Subbasin and the Llagas Subbasin. The groundwater subbasins in Santa Clara County are not adjudicated and have not been identified or projected to be in overdraft by the California Department of Water Resources (DWR).

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Local groundwater supplies up to half of the county's water supply during normal years. The SCVWD's Groundwater Management Plan ensures that local groundwater resources are sustained and protected. In April of each year, when the quantity of imported water available to the SCVWD by contract and the local water yield can be estimated somewhat accurately, the water district estimates the carryover storage. Based on the calculated carryover capacity and anticipated customer demand, the SCVWD reviews and modifies its groundwater management strategy in order to maintain adequate water in the basin.

The SCVWD has an active conjunctive water management program to optimize the use of groundwater and surface water and to prevent groundwater overdraft and land subsidence. The SCVWD augments natural groundwater recharge with a managed recharge program to offset groundwater pumping, sustain storage reserves, and minimize the risk of land subsidence. Through these recharge activities, the SCVWD works to keep groundwater basins "full" to protect against drought. Storing surplus water in the groundwater basins enables part of the supply to be carried over from wet years to dry years.

Water Supply Management During Current Drought Conditions

On February 25, 2014, the SCVWD board approved a resolution setting a countywide water use reduction target equal to 20 percent of 2013 water use through December 31, 2014, and recommended that retail water agencies, local municipalities, and the County of Santa Clara implement mandatory measures as needed to achieve the 20 percent water use reduction target. In early 2015, the statewide drought condition was still in the severe to exceptional stage. Local surface water and groundwater supplies were well below average and imported water allocations for 2015 were very low (25 percent or less). In consideration of the continued severity of the drought and worsening water supply projections, increased water use reductions beyond the previous call for 20 percent were determined to be necessary to preserve groundwater storage. On March 24, 2015, the board called for 30 percent water use reductions and recommended that retail water agencies, municipalities, and the County implement mandatory measures as needed to accomplish that target, including a two day a week outdoor irrigation schedule.

Factors Affecting Overall SFPUC and SCVWD Water Supply

Several factors have the potential to negatively impact reliability, including hydrologic variability, climate change, environmental effects, infrastructure failure, and regulatory actions as well as institutional, political, and other uncertainties. Hydrologic uncertainties influence the projections of both local and imported water supplies and the anticipated reliability of those supplies.

Global Climate Change

Initial climate change modeling completed by the SFPUC indicates that about 7 percent of runoff currently draining into the Hetch Hetchy Reservoir will shift from the spring and summer seasons to the fall and winter seasons in the Hetch Hetchy basin by 2025. The SFPUC views the assessment of the effects of climate change as an ongoing project requiring regular updating to reflect improvements in climate science, atmospheric/ocean modeling, and human response to the threat of greenhouse gas emissions. The SFPUC has stated that based on this preliminary analysis, the potential impacts of climate change are not expected to affect the water supply available from the San Francisco RWS or the overall operation of the RWS through 2030.

Supply analyses performed by the SCVWD are based on the assumption of historical patterns of precipitation. The development of SCVWD projects and programs to meet future needs takes hydrologic variability and climate change into account. Under any climate change scenario, the SCVWD may need to consider additional treatment options to respond to water quality impacts associated with increased salinity in the Delta. The SCVWD may also need to consider additional storage to take advantage of more wet-season water, additional supplies to replace reduced water supply from existing sources, and additional water transfers (depending on water market impacts).

Delta Pumping Restrictions

Decreased snowpack and projected earlier spring melts will reduce the amount of water available to meet peak demands in late spring and summer. These changes could decrease imported water and possibly local water supplies, while increasing salinity in the Delta, adversely impacting water quality and Bay-Delta ecosystems. Based on the SWP Delivery Reliability Report 2009 and associated CALSIM II modeling results, projected imported supplies under climate change conditions from the Delta for average, normal year, dry year, and multiple dry years, are reduced by 3 percent on average and 4 percent over the multiple dry year period compared to the analysis performed without climate change.

City of Sunnyvale Water Supply

SFPUC and SCVWD Supplies

As noted above, the City of Sunnyvale has an Individual Supply Guarantee of approximately 14,100 acre-feet per year from the SFPUC. The Sunnyvale contract also includes a minimum purchase amount of 10,003 AFY, which Sunnyvale agrees to buy, regardless of whether sales drop below this level. The quantity of water available to Sunnyvale from the SCVWD is based on a requested 3-year delivery schedule submitted by the City and approved by the SCVWD. The request for each year in the 3-year delivery schedule may not be less than 95 percent of the maximum amount requested in the 3-year period. District deliveries to the City reached a maximum of 13,577 AFY in 1999.

Groundwater

Sunnyvale owns, operates, and maintains six groundwater wells. The wells are used to help supplement the imported water supplies during peak demands in the summer months and in emergency situations. The allowable withdrawal of groundwater by the City depends on a number of factors, including withdrawals by other water agencies, the quantity of water recharged, and carry-over storage from the previous year. Although the City has historically relied on groundwater to meet between 4 and 11 percent of its total demand (approximately 1,000–2,700 AFY), the City wells have the capacity to produce approximately 8,000 AFY. Currently, the City projects producing approximately 1,000 AFY from the groundwater basin during the 20-year period 2015 to 2035.

Recycled Water

The City developed a wastewater reclamation program in 1991 when it first identified short-term goals of recycling wastewater of 20 to 30 percent of high-quality effluent from the Sunnyvale Water Pollution Control Plant. The City's long-term goal is to reuse 100 percent of all wastewater (15 mgd) generated from the WPCP to reduce all flows to the San Francisco Bay. This goal, if attained, would involve the export of water to a location or agency outside the city limits. The City

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built a storage tank in 2000 to allow more recycled water to be stored in order to keep up with demand on the system once the area is built out. In September 2013, the City Council approved the Recycled Water Feasibility Study that identifies possible extensions of the recycled water system. Possible extensions to serve the south end of Sunnyvale along Wolfe Road are currently under way. Possible extensions to serve the south end of the city and also Cupertino and Los Altos may be evaluated in the future.

The City has completed Phases I and II of the 2000 Recycled Water Master Plan, which now serves Baylands Park, the Lockheed Martin Area, the Sunnyvale Municipal Golf Course, and other parks and industrial areas in the northern part of the city. In recent years, however, the City has not been producing recycled water because of requirements related to discharge to the bay, as well as operational limitations. The City is currently undertaking a project at the WPCP that will allow the City to regularly produce recycled water again in 2016. As indicated in the City's 2010 Urban Water Management Plan (UWMP), the City projects a demand for 1,525 AFY in 2020, 1,650 AFY in 2025, and 1,775 AFY in 2030 and 2035. The City anticipates it will be able to produce 2,298 AFY by 2030.

A summary of the City's historical and available water supply is provided in **Table 3.11.5-1**.

**TABLE 3.11.5-1
CITY OF SUNNYVALE HISTORICAL AND ACTUAL WATER SUPPLY**

Supply Source	Historical		Actual			Contractual/Operational Limits	
	Minimum	Maximum	2010	2014	2015 ¹	Minimum	Maximum
SFPUC	8,454	12,675	8,982	8,454	8,881	10,003	14,100
SCVWD	8,176	13,577	9,331	8,491	6,592	9,180	13,577
Groundwater	123	3,786	1,629	2,064	136	0	8,000
Recycled Water	0	1,928	1,523	0	729	0	2,298
Total	16,753	31,966	21,465	19,008	16,338	10,003	39,975

Source: Sunnyvale 2015b, Table 4-13 (see DEIR **Appendix G**)

1. Updated since completion of the WSA.

Drought Conditions and Supply Reliability

Severe to exceptional drought conditions continue throughout California (-92 percent), even though much of the state has received close to average rainfall to date, including Santa Clara County. The US Drought Monitor (August 11, 2015) reported that most of Santa Clara County continues to be in "extreme" drought severity.

In the event of a decrease of local supplies, the City would respond by pursuing demand reduction programs in accordance with the severity of the supply shortage. Any supply deficit would be compensated for by increased conservation levels and restrictions in consumption.

An analysis of the supplies historically available during times of shortage is reflected in Table 5-6 in the WSA (included in **Appendix G** of this Draft EIR). This analysis does not account for population and system growth, and reflects the amount of supply available to meet the system's demands during designated years. Based on the SCVWD August 2015 Drought Monthly Status Report, the City reduced its water use by 26 percent as compared to 2013 through the month of July and used a total 9,313 acre-feet of water between January and July 2015. An analysis of the current supply reliability is reflected in Table 5-7 in the WSA (included in DEIR **Appendix G**).

Water Shortage Contingency Planning

The City of Sunnyvale has developed a water shortage contingency plan that includes mandatory and voluntary water use restrictions, rate block adjustment, and approaches for enforcement associated with each stage of anticipated reduction. The contingency plan defines four levels of supply reductions corresponding to the percentage of shortage. The reader is referred to Section 5.3 in the WSA (see **Appendix G**) for additional information about the specific prohibitions and consumption reduction.

On May 12, 2015, the City of Sunnyvale City Council adopted Resolution No. 693-15, declaring a continued water emergency, increasing the water reduction target to 30 percent, re-implementing Stage 1 water use prohibitions, imposing additional drought restrictions, and amending Resolution 650-14 to add administrative fines for violations.

WATER SUPPLY INFRASTRUCTURE

The City of Sunnyvale owns, operates, and maintains a water distribution system that provides retail potable and non-potable water service to a majority of the residents and businesses within the city limits (California Water Service Company provides retail potable water service to pocket areas in the city).

The City's potable water distribution system is a closed network consisting of three different pressure zones. The conveyance system extends over 300 miles, with pipe diameters ranging from 4 to 36 inches. There are ten potable water storage reservoirs at five different locations throughout the city with a total storage capacity of 27.5 million gallons. The City has one recycled water reservoir with a storage capacity of two million gallons. The City also has distribution system interties to the cities of Cupertino, Mountain View, and Santa Clara and to the California Water Service Company through service connections located within city boundaries that are reserved for use in case of an emergency (Sunnyvale 2015b). Over 80 percent of the distribution and trunk lines in the city were installed in the 1960s and are nearing the end of their estimated 50-year service life, so rehabilitation and/or replacement is needed to minimize the need for emergency repairs.

Plan Area Infrastructure

Many of the distribution lines to and within the plan area are 8 to 10 inches in diameter and pressures are between approximately 75 pounds per square inch (psi) and 90 psi. As in the city as a whole, these lines are mostly located within public street rights-of-way. Areas characterized by commercial uses with interconnected parking areas and no internal public streets have very little public water distribution infrastructure. Currently, a storage tank and pump station are located north of the Caltrain tracks. A new recycled water main line, referred to as Kifer East, is planned for construction along Kifer Road, from the existing main in Wolfe Road across the plan area (Sunnyvale 2015c, p. 5.4).

WATER DEMAND

Historic and Current Demand

Water use in Sunnyvale generally increased during the period from 1993 to 2001 and steadily decreased since 2002 in response to drought-related conservation measures and economic factors and based on contractual limitations previously negotiated. Sunnyvale converted its traditional sewer treatment plant in the mid-1990s to allow for the production of recycled water

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and began using recycled water in 1999, supplementing the overall water supply (Sunnyvale 2011).

Past and current water use in the city summarized by classification of the water delivered to all customers is listed in **Table 3.11.5-2**. The 2015 water use listed in **Table 3.11.5-2** reflects projections in the 2010 UWMP. Anticipated demand for 2015, based on trending of actual use measured through July 2015, is also presented.

**TABLE 3.11.5-2
PAST AND CURRENT WATER DEMAND BY CUSTOMER TYPE**

Customer Type	2005	2010	2015	
Single-Family Residential	8,264	7,023	5,129	
Multi-Family Residential	6,047	8,309	5,046	
Commercial	9,035	4,261	3,583	
Irrigation	642	970	1,640	
Other (Fire flow)	946	911	244	
Total Potable	24,934	21,474	15,642	

Source: Sunnyvale 2015b, Tables 4-2 and 4-6 (see DEIR **Appendix G**)

1. Updated data since completion of the WSA.

The decrease in demand from 2005 to 2015 can be attributed to the economic downturn as well as to demand conservation due to the extended drought in California. Current water use trends indicate the actual 2015 water use will be approximately 4,600 AFY less (approximately 22 percent lower) than the 2010 UWMP projections for 2015.

Other water uses and losses that are not accounted for in the past and current demands associated with user demand. Water loss in the City's distribution system can occur from various causes such as leaks, breaks, malfunctioning valves, and the difference between the actual and measured quantities from water meter inaccuracies. Other losses come from legitimate uses such as water/sewer main and hydrant flushing, tests of fire suppression systems, and street cleaning.

PROJECTED SUPPLY AND DEMAND

The City approved its 2010 Urban Water Management Plan (UWMP) in 2011, which projected supply and demand for the UWMP's 20-year planning horizon through 2030 (see **Table 3.11.5-3**). These projections, as presented in the 2010 UWMP, reflect normal year conditions.

**TABLE 3.11.5-3
2010 UWMP WATER SUPPLY PROJECTIONS FOR NORMAL YEAR (AFY)**

Supply Source	Projections			
	2015	2020	2025	2030
SFPUC	10,003	10,003	10,003	10,003
SCVWD	9,570	9,999	11,023	12,728
Groundwater	1,000	1,000	1,000	1,000
Recycled Water	1,400	1,525	1,765	1,775
Total	21,973	22,527	23,791	25,506

Source: Sunnyvale 2015b, Table 4-14 (see DEIR **Appendix G**)

Current and projected potable water demands through 2030 are summarized in **Table 3.11.5-4**, based on the 2010 UWMP. The City's maximum allowable water demand for 2015 and 2020 are 24,916 AFY and 25,901 AFY, respectively.³ As indicated by the data, the demands in 2015 and 2020 are below those maximum allowable demands.

**TABLE 3.11.5-4
CURRENT AND PROJECTED POTABLE WATER DEMAND BY CUSTOMER TYPE AND SUPPLY SOURCE (AFY)**

	2015 ¹	2015	2020	2025	2030
Demand by Customer Type					
Single-Family Residential	5,129	6,555	6,393	6,341	6,378
Multi-Family Residential	5,046	7,755	7,563	7,502	7,545
Commercial	3,583	4,507	5,334	6,485	8,100
Irrigation	1,640	905	883	876	881
Other (fire flow)	244	850	829	823	827
Total Potable Demand	15,642	20,572	21,002	22,026	23,731
Demand by Supply Source					
SFPUC	8,883	10,003	10,003	10,003	10,003
SCVWD	6,497	9,570	9,999	11,023	12,728
Groundwater	134	1,000	1,000	1,000	1,000
Total Supply to Meet Demand	15,965	20,573	21,002	22,026	23,731

Source: Sunnyvale 2015b, Tables 4-6 and 4-7 (see DEIR **Appendix G**)

1. Updated since completion of the WSA.

3.11.5.2 REGULATORY FRAMEWORK

FEDERAL

Safe Drinking Water Act

Congress originally passed the Safe Drinking Water Act in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and groundwater wells. The act applies to every public water system in the United States but does not regulate private wells that serve fewer than 25 individuals.

The act authorizes the US Environmental Protection Agency (EPA) to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. Originally, the act focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments changed the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach is intended to ensure the quality of drinking water by protecting it from source to tap.

³ Based on the City's 2015 and 2020 SBx7-7 goal of 157 gallons per capita per day.

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STATE

California Water Plan

The California Water Plan is the state's blueprint for integrated water management and sustainability. The California Department of Water Resources (DWR) updates the Water Plan approximately every five years. California Water Plan provides a statewide strategic plan for water management to the year 2050. The California Water Plan provides the framework and resource management strategies promoting two major initiatives: integrated regional water management that enables regions to implement strategies appropriate for their own needs and helps them become more self-sufficient, and improved statewide water management systems that provide for upgrades to large physical facilities, such as the State Water Project, and statewide management programs essential to the California economy.

Urban Water Management Planning Act

In 1983, the California legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610–10656). The act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The act describes the contents of Urban Water Management Plans as well as how urban water suppliers should adopt and implement the plans. It is the intention of the act to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied (DWR 2012c). The City of Sunnyvale adopted its 2010 Urban Water Management Plan in 2011.

Senate Bill 610

SB 610 (Water Code Section 10910(c)(2)) makes changes to the Urban Water Management Planning Act to require additional information in Urban Water Management Plans if groundwater is identified as a source available to the supplier. Required information includes a copy of any groundwater management plan adopted by the supplier, a copy of the adjudication order or decree for adjudicated basins, and if nonadjudicated, whether the basin has been identified as being overdrafted or projected to be overdrafted in the most current DWR publication on that basin. If the basin is in overdraft, the plan must include current efforts to eliminate any long-term overdraft. A key provision in SB 610 requires that any project subject to CEQA supplied with water from a public water system be provided a specified water supply assessment, except as specified in the law. Water supply assessments are required under SB 610 for projects that include 500 units of residential development (would demand an amount of water equivalent to, or greater than, the amount of water required by a project with 500 dwelling units) or a project that would increase the number of the public water system's existing service connections by 10 percent.

Assembly Bill 901

Assembly Bill (AB) 901 requires Urban Water Management Plans to include information relating to the quality of existing sources of water available to an urban water supplier over given time periods and the manner in which water quality affects water management strategies and supply.

Assembly Bill 1420

Effective January 1, 2009, AB 1420 amended the Urban Water Management Planning Act to require that water management grants or loans made to urban water suppliers and awarded or administered by the DWR, the State Water Resources Control Board, or the California Bay-Delta Authority or its successor agency be conditioned on implementation of the water demand management measures.

Senate Bill x7-7 (Chapter 4, Statutes of 2009)

SB x7-7, the Water Conservation Act of 2009, requires the state to achieve a 20 percent reduction in urban per capita water use by December 31, 2020. The responsibility for this conservation falls to local water agencies, which must increase water use efficiency through promotion of water conservation standards that are consistent with the California Urban Water Conservation Council's best management practices.⁴ Each urban retail water supplier was also required to develop urban water use targets and an interim urban water use target by July 1, 2011, based on the alternative methods set out in the 2009 act. The agencies must meet those targets by the 2020 deadline. The act also requires each agency to monitor its progress toward its targets, achieving a 10 percent reduction by 2015. These requirements and the City of Sunnyvale's specific compliance plan are outlined in the City's 2010 UWMP. The City's calculated per capita water use target is 157 gallons per day per capita.

LOCAL

City of Sunnyvale General Plan

The Environmental Management – Water Supply subchapter of the General Plan contains the following policies that are relevant to the analysis of water supply impacts of the LSAP:

- EM-1.2 Maximize recycled water use for all approved purposes both within and in areas adjacent to the City, where feasible.

- EM-2.1 Lower overall water demand through the effective use of water conservation programs in the residential, commercial, industrial, and landscaping arenas.

City of Sunnyvale Green Building Standards

On April 24, 2012, the City Council revised the green building standards for new construction, additions, and remodels of buildings. Incentives are offered for projects that exceed the minimum green building standards and are offered to encourage project applicants and developers to provide additional green building features. Mixed-use projects are required to meet the appropriate Build It Green standard for the residential portion and Leadership in Energy and Environmental Design (LEED) for the nonresidential portion. These measures include efficient irrigation systems, insulation of hot water pipes, and water-efficient fixtures.

⁴The California Urban Water Conservation Council was created in 1991 by numerous urban water agencies, public interest organizations, and private entities throughout California to assist in increasing water conservation in the state. The council's goal is to integrate best management practices into the planning and management of California's water resources.

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City of Sunnyvale Climate Action Plan

The Climate Action Plan (CAP), adopted in 2014, contains the following measures and action items for reducing water consumption, which would apply to development under the LSAP:

- Measure WC-2 Reduce indoor and outdoor potable water use in residences, businesses, and industry.
- Action WC-2.1 Require new development to reduce potable indoor water consumption by 30% (Tier 1 CalGreen) and outdoor landscaping water use by 40%.
- Action WC-2.3 Require new open space and street trees to be drought-tolerant.
- Action WC-2.4 Implement the City's Urban Water Management Plan to facilitate a 20% reduction in per capita water use by 2020.

In addition, under Action Item WC-2.2, development standards would be revised to ensure the use of graywater, recycled water, and rainwater catchment systems is allowed in all zoning districts. The CAP also includes action items that would help promote the use of recycled water by improving the quality of recycled water (WC-1.1), use of "purple pipe" infrastructure in new construction or major renovation (WC-1.2, and WC-1.3), and create flexible provisions that would encourage residents and businesses to collect rainwater for irrigation purposes (WC-1.4).

3.11.5.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Evaluation of potential water supply impacts was based on the water supply assessment (WSA) prepared in accordance with SB 610. The WSA is included in **Appendix G**.

The capacity of the City's water distribution infrastructure was evaluated during development of the LSAP, and the results of that evaluation were incorporated into the impact analysis.

Proposed LSAP Policies

The analysis in this section assumes implementation of the relevant policies proposed in the LSAP.

- U-P7 Minimize the use of irrigation-dependent landscape improvements for public streets, rights-of-way, and open space.
- U-P8 In areas where large irrigation demand is anticipated, construct improvements such that they can be efficiently switched to recycled water when it is available.
- U-P9 Establish a program to encourage the use of recycled water for landscape improvements on private development projects.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A water service impact is considered significant if implementation of the project would:

- 1) Result in the need for new entitlements or a substantial expansion or alteration to local or regional water supplies that would result in a physical impact to the environment.
- 2) Result in the need for new systems or a substantial expansion or alteration to the local or regional water treatment or distribution facilities that would result in a physical impact to the environment.

Water quality impacts are discussed in Section 3.8, Hydrology and Water Quality, of this Draft EIR.

IMPACTS AND MITIGATION MEASURES

Increased Demand for Water Supply (Standard of Significance 1)

Impact 3.11.5.1 Subsequent development under the proposed LSAP would increase the demand for water, but new water supply entitlements or expansion of local or regional water supplies would not be required. This is a **less than significant** impact.

Development of future development projects under the LSAP would result in 2,323 new residential units and up to an additional 1.2 million square feet of commercial and office uses in the plan area. This would result in a potable water demand of approximately 814 acre-feet per year.⁵ The LSAP includes policies intended to maximize the use of recycled water when it becomes available. Further, because the plan proposes high-density residential development, the associated potable water demand would be less than would occur under traditional lower-density development. For example, the City's Water Utility Master Plan assumes a water duty factor of 310–375 gallons per day per unit, approximately twice that of high-density residential (170 gallons per day per unit).

Table 3.11.5-5 presents the total demand when the LSAP's demand is added to existing and projected citywide demand identified in the 2010 UWMP. As a conservative approach, the total LSAP demand is assumed to begin immediately. However, it is likely the demand would increase incrementally over time. For the 20-year planning period for the 2010 UWMP, the City's existing supplies would be sufficient to meet the demands of the LSAP under normal year conditions. Impacts would be **less than significant**.

In the event of a decrease in local supplies that would be available to serve the LSAP demands as well as citywide demand, the City would respond by pursuing demand reduction programs in accordance with the severity of the supply shortage. Any supply deficit would be compensated for by increased conservation levels and restrictions in consumption. Additional information on dry year supply and demand citywide is presented in Impact 3.11.5.3, below.

⁵ Demand calculated based on water duty factors listed in Table 3-2 in the WSA (**Appendix G**).
2,323 high-density residential units x 170 gallons per day (gpd) = 394,910 gpd (442.6 AFY) +
1,225,600 square feet office and commercial x 270 gpd/1,000 sf = 330,912 gpd (370.9 AFY)

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TABLE 3.11.5-5
LSAP WATER DEMAND AND SUPPLY COMPARISON UNDER 2010 UWMP (AFY)

	2015	2020	2025	2030	2035
LSAP Demand	814	814	814	814	814
Existing and Projected Demand per 2010 UWMP	20,573	21,002	22,026	23,731	23,731
Total Potable Demand	21,387	21,816	22,840	24,545	24,545
<i>Normal Year Supply per 2010 UWMP</i>	<i>21,973</i>	<i>22,527</i>	<i>23,791</i>	<i>25,606</i>	<i>25,606</i>

Mitigation Measures

None required.

Water Supply Infrastructure (Standard of Significance 2)

Impact 3.11.5.2 Future development under the proposed LSAP would require extensions of water distribution infrastructure. This is considered a **less than significant** impact.

Subsequent projects would increase water demand, and water would need to be delivered to new development. In the area north of the Caltrain tracks, where new land use designations and zoning changes are proposed to support higher-intensity mixed-use development, in particular, there is little public water distribution infrastructure. As new projects are developed, new distribution mains would be needed to serve domestic water needs.

It is anticipated that new distribution mains would be located in The Loop roadway and would be 10 to 12 inches in diameter. Distribution mains would also be located in local streets and would be 8 to 10 inches in diameter. Hydraulic analysis would be required based on final land plans, building types, water demand estimates, fire flow requirements, and phasing.

The environmental impacts associated with water supply infrastructure improvements needed to serve new development have been programmatically considered in the technical analysis provided in this Draft EIR. As noted in Impact 3.11.5.1, the LSAP would not result in the need for water supply sources and major infrastructure that could result in physical impacts to the environment outside the plan area. Impacts would be **less than significant**.

Mitigation Measures

None required.

3.11.5.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The City is proposing to update the Land Use and Transportation Element (LUTE) of the General Plan, which assumes a 2035 planning horizon. A Draft EIR is being prepared for the draft LUTE and will incorporate the findings of the water supply assessment prepared for the draft LUTE. Although the draft LUTE has not yet been approved, the development assumptions associated with 2035, and the implications on water supply and demand, are appropriate for use in this cumulative analysis because the LUTE's growth assumptions account for additional mixed-use

residential/commercial growth in key transit-oriented areas and in transformed village centers, and the LSAP and the Peery Park Specific Plan are components of that projected growth.

The cumulative context for water supply is the planning area and assumptions of the City's 2010 Urban Water Management Plan, as updated by the WSA prepared for the draft LUTE (**Appendix G** of this Draft EIR). The WSA provides estimates of demand and supply identified in the 2010 UWMP, which corresponds to the existing General Plan, and estimates of supply and demand through 2035 if development were to occur as planned in the draft LUTE. The cumulative water supply impact of growth under the draft LUTE through 2035 relative to growth assumed under the existing General Plan is the net difference in demand between the existing General Plan (and the associated assumptions in the 2010 UWMP) and the draft LUTE. The analysis of supply and demand in the WSA reflects this net change in demand.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Water Supply Impacts

Impact 3.11.5.3 Cumulative development, including the LSAP, would increase the demand for water supplies. The LSAP's contribution to cumulative water supply impacts would be **less than cumulatively considerable**.

Cumulative development in Sunnyvale, including in the LSAP plan area, would result in approximately 5,500 additional housing units and an additional 4.3 million square feet of industrial/office/commercial space, which would result in a net additional water demand of 2,274 acre-feet per year. For the LSAP plan area, the net additional demand is 677 AFY, or approximately 30 percent of the net increase in citywide demand under projected 2035 conditions.

The estimated water demand cumulative development, including the LSAP, through the 2035 planning horizon (assumed year of buildout of the city) is summarized in **Table 3.11.5-6**.⁶ The demand is assumed to increase linearly over the 20-year planning horizon, with ultimate buildout in 2035. **Table 3.11.5-6** also identifies potable demand over the same period without the LUTE (i.e., growth anticipated under the adopted General Plan) and the combined total.

**TABLE 3.11.5-6
ESTIMATED WATER DEMAND (2015 THROUGH 2035) ADOPTED GENERAL PLAN PLUS LUTE**

	2015 ¹	2015	2020	2025	2030	2035 ²
Draft LUTE Demand	0	0	568	1,137	1,705	2,274
Potable Demand (adopted General Plan)	15,965	20,573	21,002	22,026	23,731	26,129
Total Potable Demand	15,695	20,573	21,570	23,163	25,436	28,926
Recycled Demand	0	1,400	1,525	1,650	1,775	1,775
Total Adjusted Demand	15,965	21,973	23,095	24,813	27,211	30,701

Source: Sunnyvale 2015b, Table 4-9

1. Projection based on trending of actual usage measured through July 2015.

2. Year 2035 is the year assumed for buildout of Sunnyvale under the City's adopted General Plan and proposed draft LUTE.

⁶ The specific demand associated with each growth area is shown in Table 3-1 in the WSA (**Appendix G** of this Draft EIR).

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Future water demands would be met through continued use of SFPUC, SCVWD, groundwater, and recycled water supplies described in the Existing Setting subsection. The sources and availability of water to meet demand under normal and single dry and under multiple dry years are summarized in **Tables 3.11.5-7a** and **3.11.5-7b**, respectively.

**TABLE 3.11.5-7A
SUPPLY AND DEMAND COMPARISON – NORMAL AND SINGLE DRY YEAR (AFY)**

Source	Supply and Demand Comparison							
	Normal Year				Single Dry Year			
	2020	2025	2030	2035	2020	2025	2030	2035
SFPUC	14,100	14,100	14,100	14,100	10,003	10,003	10,003	10,003
SCVWD	13,577	13,577	13,577	13,577	4,793	5,957	7,630	10,248
Groundwater	8,000	8,000	8,000	8,000	1,000	1,000	1,000	1,000
Recycled Water	1,525	1,650	2,298	2,298	1,525	1,650	1,775	1,775
Supply Totals	37,702	37,327	37,975	37,975	17,321	18,610	20,408	23,026
Demand Totals	23,095	24,813	27,211	30,701	17,231	18,610	20,408	23,026
Difference	+ 14,107	+ 12,541	+ 10,764	+ 7,274	0	0	0	0

Source: Sunnyvale 2015b, Tables 5-8 and 5-9

Table 3.11.5-7a identifies total water sources available to the City in comparison to demand under normal year conditions. The City does not expect to make complete use of each of these water sources. For example, between 2010 and 2014, the City's groundwater pumping ranged between 1,629 and 2,064 AFY. Groundwater production is not expected to increase beyond 1,000 acre-feet per year except in multiple dry year conditions per the 2010 UWMP. Under multiple dry year conditions, the cumulative demand, including that of the LSAP, would decrease in response to drought conservation measures. Therefore, less water would be needed to meet demand. The City would be able to address the projected demands without rationing. This multiple dry year analysis also does not factor increased recycled water production of 2,298 AFY that would come online by 2030. For each of the 3-year increments, the 3-year dry period analysis indicates that there will be sufficient supply to meet demands through increased imported water supply from the SCVWD and implementation of drought conservation programs through 2035 to meet LSAP demands in addition to future growth in the city through 2035. Because the LSAP's demand can be accommodated in existing supplies through 2035, the Lawrence Station Area Plan would not individually or cumulatively contribute to a need for new or expanded entitlements. The LSAP's contribution would be **less than cumulatively considerable**.

Mitigation Measures

None required.

**TABLE 3.11.5-7B
SUPPLY AND DEMAND COMPARISON – MULTIPLE DRY YEARS (AFY)**

Supply and Demand Comparison – Multiple Dry Years															
Source	Multiple Dry Year (2016)			Multiple Dry Year (2020)			Multiple Dry Year (2025)			Multiple Dry Year (2030)			Multiple Dry Year (2035)		
	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 1 (2025)	Year 2 (2026)	Year 3 (2027)	Year 1 (2030)	Year 2 (2032)	Year 3 (2032)	Year 1 (2035)	Year 2 (2036)	Year 3 (2037)
SFPUC	9,818	9,818	9,818	10,003	9,818	9,818	10,003	9,818	9,818	10,003	9,818	9,818	10,003	9,818	9,818
SCVWD	4,597	4,714	4,831	7,629	8,186	6,579	8,941	9,520	7,789	10,820	11,456	9,577	11,296	11,940	10,020
Groundwater	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Recycled	1,400	1,425	1,450	1,525	1,550	1,575	1,650	1,675	1,700	1,775	1,775	1,775	1,775	1,775	1,775
Supply Totals	15,965	16,107	16,249	19,307	19,704	18,122	20,744	21,163	19,457	22,748	23,199	21,320	23,224	23,683	21,763
Demand Totals	15,965	16,107	16,249	19,307	19,704	18,122	20,744	21,163	19,457	22,748	23,199	21,320	23,224	23,683	21,763
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Sunnyvale 2015b, Tables 5-10 through 5-14

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Cumulative Water Supply Infrastructure Impacts

Impact 3.11.5.4 Cumulative development, including the LSAP, would require improvements to existing water distribution infrastructure. This is considered a **less than significant** impact.

Cumulative development would not result in the need for new or additional water supplies, and as such, major improvements to convey water would not be necessary. Sunnyvale is mostly built out, and cumulative development would not be in areas without water transmission infrastructure already in place. This infrastructure may, however, have to be reconfigured and/or upsized in certain areas to accommodate redeveloped land uses. Over 80 percent of the distribution and trunk lines in the city were installed in the 1960s and are nearing the end of their estimated 50-year service life, so rehabilitation and/or replacement is needed to minimize the need for emergency repairs.

The water hydraulic model will be updated as necessary, and water infrastructure improvements will be identified and a financing mechanism developed as part of the model update based on future projects prior to any project-specific CEQA analysis. The site-specific environmental impacts associated with water supply infrastructure improvements needed to serve new development would be determined through project-level CEQA analysis at such time as they are proposed for development and their design and alignment are known.

As noted in Impact 3.11.5.1, above, the LSAP does not result in the need for any new water supply sources and major infrastructure that could result in physical impacts to the environment. Therefore, the LSAP's contribution to cumulative water supply infrastructure improvements would be **less than cumulatively considerable**.

Mitigation Measures

None required.

3.11.6 WASTEWATER SERVICE

3.11.6.1 EXISTING SETTING

CITY OF SUNNYVALE WASTEWATER FACILITIES

The City owns and operates the Donald M. Sommers Water Pollution Control Plant (WPCP) located at 1444 Borregas Avenue, Sunnyvale. The WPCP provides treatment of wastewater from residential, commercial, and industrial sources from Sunnyvale, the Rancho Rinconada portion of Cupertino, and Moffett Federal Airfield. Treated wastewater is discharged to the southern San Francisco Bay via the Guadalupe Slough. Five major trunk networks terminate at the WPCP, referred to as the Lawrence, Borregas, Lockheed, Moffett, and Cannery trunks (Sunnyvale 2011a).

Water Pollution Control Plant

The WPCP uses advanced secondary treatment consisting of the following processes: primary treatment (sedimentation); secondary treatment (biological oxidation); and advanced-secondary treatment (filtration and disinfection). These processes provide treatment to a level that meets or exceeds National Pollutant Discharge Elimination System (NPDES) discharge requirements. The amount and quality of this effluent is regulated by the San Francisco Bay Regional Water Quality Control Board under Order No. R2-2014-0035 (NPDES permit CA0037621).

The permitted average dry weather flow (ADWF) design capacity of the WPCP is 29.5 mgd. Peak wet weather design capacity is 40 mgd. Approximately 10 percent of the WPCP flow is treated to a higher level to meet the requirements for disinfected tertiary recycled water as specified in Title 22 of the California Code of Regulations and then delivered to customers for non-potable uses, primarily irrigation. The City operates a separate distribution network of pipelines in the northern portion of the city solely for the distribution of recycled water (Sunnyvale 2011a)

The amount of influent wastewater handled by the WPCP varies with the time of day and with the seasonal changes in demand. In 2015, the ADWF was approximately 11.4 mgd. The WPCP is currently operating at approximately 50 percent of its capacity, as projections made in 1983 prior to upgrades to the plant in 1984 anticipated higher levels of industrial land uses and wastewater flows than have been realized.

The City anticipates a steady level of 15 mgd for plant influent over the next 25 years as a conservative estimate; however, a 10-year trend (2006-2015) indicates that wastewater flows continue to decline despite population increases and a net influx of daytime workforce. In addition, changes in water conservation efforts in response to Governor Brown's Executive Order enacted April 1, 2015, will also likely impact wastewater flows to the WPCP. Flows are not expected to increase to levels that would approach the plant's capacity in the foreseeable future (Sunnyvale 2011a, 2011b). The City estimates there would be 17.44 mgd of wastewater flows in 2035 under existing General Plan buildout conditions (Sunnyvale 2011a, 2011b).⁷

The City is currently undergoing a master planning effort to rebuild the WPCP over the next 20 years through the development of a Master Plan. The plan will upgrade existing outdated equipment and aging infrastructure, and address the WPCP's current and future challenges to providing treatment of the City's wastewater while complying with all applicable federal, state and local regulations. As a result of the rebuild, the influent flow design capacity is projected to decrease to 19.5 mgd for average dry weather flows, while retaining a design capacity of 40 mgd for peak wet weather flows.

Future Water Pollution Control Plant Improvements

Portions of the WPCP were first constructed in 1954 and are now over 50 years old. An asset condition assessment conducted in 2005 identified several critical plant structures as at risk and in need of rehabilitation. In 2007, a Capital Project Strategic Infrastructure Plan was put in place to set future direction of plant process enhancements and physical improvements. Following completion of this effort, Strategic Infrastructure Plan implementation is expected to continue for 10 to 15 years for construction of new and/or rehabilitated plant facilities (Sunnyvale 2011a).

Wastewater Conveyance Infrastructure

The City's sanitary sewer collection system consists of 283 miles of gravity sewers, sewer lift (pump) stations, and over 2 miles of sewer force mains. The sewer mains range in size from 6 to 42 inches in diameter. Sunnyvale's wastewater collection system has the capacity to convey all sewage and industrial wastes generated when the city is fully developed in accordance with the land use projections (approximately 55.7 mgd). Based on growth projections in 2001, it is not anticipated that flows will exceed the capacity of the overall collection system. Groundwater and rainwater

⁷ Per Table 4-6 in the 2010 UWMP, the projected flows for 2025, 2030, and 2035 are 19,548 acre-feet per year, which is equivalent to 17.44 mgd.

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infiltration into the sewer line through bad joints or broken pipes and inflow from direct connections of storm drains or downspouts, or illegal cross-connections, can affect capacity, however. Specific locations in the collection system may require additional capacity in the future (Sunnyvale 2011a).

Wastewater Pretreatment Program

Industrial and commercial facilities are regulated through discharge permits, best management practices (BMPs), and routine inspection and monitoring. Discharge permits contain specific requirements and limits for the concentration of pollutants in wastewater discharges. On average, the pretreatment program has 46 active industrial wastewater discharge permits issued to significant industrial users. Additionally, hundreds of commercial facilities are regulated through the application of BMPs tailored to specific activities commonly found in commercial businesses. When implemented, the BMPs reduce or eliminate the introduction of pollutants into the sanitary sewer. By regulating the disposal of industrial wastewater into the sanitary sewer, the pretreatment program seeks to prevent the introduction of pollutants that could interfere with the operation of the WPCP, cause damage to the sewer system, compromise public health or worker safety, or pass through the WPCP to the San Francisco Bay (Sunnyvale 2011a).

PLAN AREA WASTEWATER COLLECTION FACILITIES

Baseline wastewater generation for the plan area is estimated to amount to approximately 0.35 mgd.⁸ Most wastewater from the plan area is conveyed to the WPCP through a trunk main (Lawrence 2 sewer area) that flows from south to north in Lawrence Expressway. That trunk main is fed by a series of smaller public mains and private laterals. The conveyance facilities consist of gravity pipelines made predominantly of vitrified clay, but mains are also constructed of various other materials including polyvinyl chloride, high density polyethylene, reinforced concrete, ductile iron, and cast iron.

The northeast quadrant of the plan area is characterized by commercial uses with interconnected parking areas with no internal public streets. As such, there is very little public wastewater collection infrastructure in this area.

3.11.6.2 REGULATORY FRAMEWORK

FEDERAL

Clean Water Act

General Pretreatment Regulations

The Clean Water Act (CWA) and its implementing regulations set forth in Title 40 of the Code of Federal Regulations (CFR) establish discharges to a publicly owned treatment works (POTW). POTWs collect wastewater from homes, commercial buildings, and industrial facilities and transport it via a collection system to the treatment plant. The General Pretreatment Regulations establish responsibilities of federal, state, and local government, industry, and the public to implement pretreatment standards to protect municipal wastewater treatment plants from

⁸ Baseline wastewater flows estimated based on current population and a factor of 110 gallons per day per capita (gpd/c) used for estimating flows to the WPCP (Brown and Caldwell 2009). $3,204 \times 110 \text{ gpd/c} = 352,440 \text{ gpd}/1,000,000 = 0.35 \text{ mgd}$.

damage that may occur when hazardous, toxic, or other wastes are discharged into a sewer system and to protect the quality of sludge generated by these plants. Discharges to a POTW are regulated primarily by the POTW itself, rather than the state or the EPA.

STATE

State Water Resources Control Board

Recycled Water Policy

To establish uniform requirements for the use of recycled water, the State Water Resources Control Board (SWRCB) adopted a statewide Recycled Water Policy on February 3, 2009. The policy's purpose is to increase the use of recycled water from municipal wastewater sources that meets the definition in Water Code Section 13050(n) in a manner that implements state and federal water quality laws. The policy describes permitting criteria intended to streamline the permitting of the vast majority of recycled water projects. The intent of this streamlined permit process is to expedite the implementation of recycled water projects in a manner that implements state and federal water quality laws while allowing the Regional Water Quality Control Boards (RWQCBs) to focus on projects that require substantial regulatory review due to unique site-specific conditions.

Statewide General Permit for Landscape Irrigation Uses of Recycled Water

The SWRCB also developed a statewide general permit for landscape irrigation uses of recycled water. The intent of the law is to develop a uniform interpretation of state standards to ensure the safe, reliable use of recycled water for landscape irrigation uses, consistent with state and federal water quality law, and for which the California Department of Public Health has established uniform statewide standards. The law is also intended to reduce costs to producers and users of recycled water by streamlining the permitting process for using recycled water for landscape irrigation.

Department of Public Health

The California Department of Public Health (formerly the Department of Health Services) is responsible for establishing criteria to protect public health in association with recycled water use. The criteria issued by this department are found in the California Code of Regulations, Title 22, Division 4, Chapter 3, entitled Water Recycling Criteria. Commonly referred to as Title 22 Criteria, the criteria contain treatment and effluent quality requirements that vary based on the proposed type of water reuse. Title 22 sets bacteriological water quality standards on the basis of the expected degree of public contact with recycled water. For water reuse applications with a high potential for the public to come into contact with the reclaimed water, Title 22 requires disinfected tertiary treatment. For applications with a lower potential for public contact, Title 22 requires three levels of secondary treatment, basically differing by the amount of disinfectant required.

Title 22 also specifies the reliability and redundancy for each recycled water treatment and use operation. Treatment plant design must allow for efficiency and convenience in operation and maintenance and provide the highest possible degree of treatment under varying circumstances. For recycled water piping, the department has requirements for preventing backflow of recycled water into the public water system and for avoiding cross-connection between the recycled and potable water systems.

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The Department of Public Health does not have enforcement authority for the Title 22 criteria; instead, the RWQCBs enforce the criteria through enforcement of their permits containing the applicable criteria.

LOCAL

City of Sunnyvale Municipal Code

Title 12, Water and Sewers, of the Sunnyvale Municipal Code regulates wastewater in the city. Specifically, Chapter 12.40 establishes requirements for wastewater capacity allocation, including initial allocations and baseline limits, monitoring of wastewater flows, need for wastewater capacity evaluations, and declarations of restrictions.

City of Sunnyvale Climate Action Plan

The Climate Action Plan, adopted in 2014, contains the following measures and action items for reducing water demand which would help reduce the demand for wastewater conveyance and treatment. These policies would apply to development under the LSAP.

- Measure WC-2 Reduce indoor and outdoor potable water use in residences, businesses, and industry.
- Action WC-2.1 Require new development to reduce potable indoor water consumption by 30% (Tier 1 CALGreen) and outdoor landscaping water use by 40%.

3.11.6.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Evaluation of potential impacts on wastewater facilities and services was based on wastewater generation information presented in Appendix E in the LSAP, which identifies existing wastewater flows for existing land uses and estimates of wastewater flows under the LSAP estimated likely development scenario. Background information on the City's wastewater collection and treatment system was obtained from the General Plan (City of Sunnyvale 2011a) and the 2010 Urban Water Management Plan (City of Sunnyvale 2011b).

STANDARDS OF SIGNIFICANCE

The following standards are based on State CEQA Guidelines Appendix G. A significant impact to wastewater service would occur if implementation of the project would:

- 1) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- 2) Require or result in the construction of new wastewater treatment facilities or expansion or existing facilities, the construction of which could cause significant environmental effects.
- 3) Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

PROJECT IMPACTS AND MITIGATION MEASURES

Exceedance of Waste Discharge Requirements (Standard of Significance 1)

Impact 3.11.6.1 Subsequent projects developed under the LSAP would increase wastewater generation in the city. However, projected wastewater flows would remain within the capacity of Sunnyvale's wastewater collection and treatment system and would not exceed applicable wastewater treatment requirements of the RWQCB. This impact is **less than significant**.

Existing land uses within the LSAP plan area boundary are estimated to generate approximately 0.35 mgd of wastewater flows. The increased population associated with the LSAP (5,622) would result in an additional approximately 0.62 mgd of wastewater flows.⁹ Current flows treated by the WPCP are approximately 11.4 mgd. The addition of LSAP flows to existing flows would be approximately 12 mgd, which would be within the current 29.5 mgd permitted ADWF design flow capacity of the WPCP and would also be within the reduced 19.5-mgd ADWF design flow capacity assumed under the Master Plan. Further, compliance with water conservation efforts (e.g., General Plan Policy EM-2.1 and CAP Measure WC-2) would help reduce indoor water use and the amount of wastewater requiring treatment.

Although there would be an increase in wastewater flows to the WPCP, the constituents in the wastewater flows to the plant would remain similar to existing conditions (i.e., residential, retail, office/R&D). No increase in industrial or commercial land uses or other types of land uses typically associated with hazardous pollutant discharges to the sewer system are proposed, consistent with General Plan Goal EM-5, which seeks to ensure the quantity and composition of wastewater generated in the city does not exceed the capabilities of the WPCP.

Therefore, implementation of the LSAP would not exceed the plant's existing permit requirements. In addition, the volume and quality of wastewater can be treated by the existing treatment processes of the WPCP, as directed by General Plan Policy EM-5.2. Impacts would be **less than significant**.

Mitigation Measures

None required.

Wastewater Conveyance and Treatment (Standards of Significance 2 and 3)

Impact 3.11.6.2 Subsequent projects developed under the LSAP would increase wastewater flows and require the use of infrastructure and treatment facilities to accommodate anticipated demands. This impact is **less than significant**.

New growth and development projected to occur with implementation of the proposed LSAP would increase overall wastewater flows. The proposed LSAP's demand for wastewater treatment could be accommodated within the WPCP's existing design flow capacity, as indicated in Impact

⁹ Baseline wastewater flows estimated based on projected population and a factor of 110 gallons per day per capita (gpd/c) used for estimating flows to the WPCP (Brown and Caldwell 2009). $5,622 \times 110 \text{ gpd/c} = 618,420 \text{ gpd}/1,000,000 = 0.62 \text{ mgd}$.

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3.11.6.1, above. The LSAP would not require improvements to the Water Pollution Control Plant that would result in significant environmental effects.

LSAP Goal U-G2 requires that each development area be provided with a public sewer main capable of conveying flows to the WPCP. As indicated in the LSAP, in order to accommodate the anticipated increase in wastewater generation, upgrades may be required of local and trunk conveyance lines as well as the trunk line that conveys flows to the treatment plant. As plans progress for the plan area and the concentration of particular densities in specific locations are better understood, an areawide study on the requirements of the trunk mains should be considered so that potential required improvements and associated costs can be better understood and funding strategies can be established. The wastewater hydraulic model will be completed as part of the Wastewater Collection System Master Plan (currently under development) by projecting the 2035 wastewater demand for the population allowed under the proposed LUTE. Wastewater infrastructure improvements will be identified and a financing mechanism will be developed as part of the model update based on the LUTE prior to any project-specific CEQA analysis. In addition, implementation of LSAP Policy U-P12 would result in preparation of a regional sewer system master plan identifying an overall plan and incremental public improvements that will be required for plan area buildout based on capacity or rehabilitation to reduce inflow and infiltration.

Any site-specific environmental impacts associated with the wastewater infrastructure improvements needed to serve new development would be determined through project-level CEQA analysis at such time as they are proposed for development and their design and alignment are known. However, the potential physical environmental impacts that could be associated with the construction of these facilities have been programmatically identified and disclosed in this Draft EIR as part of the LSAP overall development. Any potential upgrades of wastewater infrastructure in developed areas of Sunnyvale are addressed programmatically by existing City water quality control measures, construction traffic control requirements, and construction-related air quality mitigation measures **MM 3.5.3a** and **3.5.2b** in this DEIR. Therefore, impacts associated with wastewater conveyance and treatment facilities would be **less than significant**.

Mitigation Measures

None required.

3.11.6.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for wastewater services is the City's wastewater collection system and WPCP.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Wastewater Service Impacts

Impact 3.11.6.3 Cumulative development, including the LSAP, would contribute to the cumulative demand for wastewater service. The project's contribution would be **less than cumulatively considerable**.

The City's 2010 Urban Water Management Plan projects that flows would increase to approximately 17.44 mgd under current General Plan buildout assumptions, projected to 2035 (Sunnyvale 2011b), which is within the Water Pollution Control Plant's permitted and design flow capacity. The LSAP's contribution to these flows would be 0.62 mgd (approximately 3.5 percent) for a total demand of approximately 18 mgd, which is within the plant's current 29.5-mgd ADWF capacity and future 19.5-mgd ADWF capacity. The LSAP's contribution to treatment demand would be **less than cumulatively considerable**.

The net increase in flows with implementation of the LUTE (Horizon 2035) would be approximately 1.47 mgd,¹⁰ for a projected total flow in 2035 of approximately 18.9 mgd. Although the projected flows would be greater than estimated for the current General Plan, the future cumulative flows, including the Lawrence Station Area Plan, would be within the current 29.5 mgd ADWF design flow and future reduced 19.5-mgd ADWF flow under the Master Plan. There would be sufficient capacity in 2035 to accommodate cumulative flows anticipated under the LUTE, including the area plan's contribution.

Flows are not expected to exceed the capacity of the overall collection system, although specific locations in the collection system may require additional capacity in the future (Sunnyvale 2011a). The wastewater hydraulic model will be completed as part of the Wastewater Master Plan. Wastewater infrastructure improvements will be identified and a financing mechanism will be developed as part of the model update prior to any project-specific CEQA analysis. Any site-specific environmental impacts associated with the wastewater infrastructure improvements needed to serve cumulative development would be determined through project-level CEQA analysis at such time as they are proposed for development and their design and alignment are known. As noted under Impact 3.11.6.2, this Draft EIR programmatically evaluates construction impacts associated with potential wastewater improvements in the LSAP plan area.

Mitigation Measures

None required.

3.11.7 SOLID WASTE SERVICE

3.11.7.1 EXISTING SETTING

The City contracts with Specialty Solid Waste and Recycling to provide solid waste collection services to the residents and businesses in the city. Collected waste is transported to the Sunnyvale Materials Recovery and Transfer Station (SMaRT Station), where it is sorted to remove recyclable materials from mixed waste and prepare them and source-separated recyclables for shipment to markets. The SMaRT Station is currently (2015-2021) operated by Bay Counties Waste Services and also serves the cities of Mountain View and Palo Alto. The SMaRT Station is permitted to receive 1,500 tons of solid waste (including source-separated materials) per day.. The station currently processes approximately 1,000 tons per day and 260,000 tons annually. Recyclable materials and compostable organics are diverted by the materials recovery facility, and the unrecycled portion of the waste stream is transferred to the Kirby Canyon Landfill, located in San Jose. Source-separated yard trimmings are also prepared for shipment to composting markets. State of California statistics indicate that, in 2011, Sunnyvale residents diverted 66 percent of solid waste

¹⁰ Net increase in LUTE flows (Horizon 2035) compared to current General Plan (2035) calculated as follows: 13,401 net increase in population with LUTE x 110 gallons per day per capita (Brown and Caldwell 2009)/1,000,000 = 1.47 mgd

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generated within the city. During the 2013-2014 service year, the SMaRT Station successfully diverted 89,345 tons of solid waste from Kirby Canyon.¹¹ The unused capacity of the station is available, at an appropriate price, to public or private collection of solid waste within the city and operation of the SMaRT Station.

The City of Sunnyvale has an agreement for solid waste disposal with Waste Management of California that currently directs the City's waste to the Kirby Canyon landfill. If, in the future, Waste Management of California closed the Kirby Canyon Landfill, Waste Management would be required to provide Sunnyvale disposal capacity at an alternative disposal site. This agreement is valid through 2031. Kirby Canyon Landfill has a remaining capacity of 57,271,507 cubic yards.¹² In 2014, the City disposed of approximately 96,400 tons of solid waste, of which approximately 85,600 tons were transported to the Kirby Canyon Landfill. In addition to the Kirby Canyon Landfill, approximately 6,000 tons were disposed of at the Monterey Peninsula Landfill, with the remainder transported to other disposal sites around the state.

Table 3.11.7-1 summarizes the permitted daily capacity, estimated remaining capacity, and estimated closure dates for a selection of disposal facilities in the region.

**TABLE 3.11.7-1
SOLID WASTE DISPOSAL FACILITIES**

Facility	Permitted Daily Throughput (tons/day)	Permitted Capacity (CY)	Estimated Remaining Capacity (CY)*	Estimated Closure Date
SMaRT Station	1,500	N/A	N/A	N/A
Kirby Canyon Landfill	2,600	36,400,000	57,271,507	2022
Monterey Peninsula Landfill	3,500	49,700,000	48,560,000	2107
Guadalupe Sanitary Landfill	1,300	28,600,000	11,055,000	2048
Newby Island Sanitary Landfill	4,000	57,500,000	21,200,000	2041
Zanker Material Processing Facility (Landfill)	350	640,000	640,000	2025

Source: CalRecycle 2015

CY=cubic yards; N/A = not applicable

* Remaining capacity estimates and closure dates as reported by CalRecycle and correspond to current solid waste facility permits, which are periodically reviewed and modified/renewed in accordance with state regulations.

¹¹ SMaRT Station Annual Report 2013-2014, <http://sunnyvale.ca.gov/Portals/0/Sunnyvale/ESD/Recycling/SMaRTStation/FIN-SMaRTAnReport13-14.pdf>, accessed on January 8, 2016.

¹² CalRecycle, <http://www.calrecycle.ca.gov/SWFacilities/Directory/43-AN-0008/Detail/>, accessed January 8, 2016.

3.11.7.2 REGULATORY FRAMEWORK

STATE

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 (AB 939) requires each California city and county to reduce the volume of waste it disposes by 50 percent by the year 2000 and continue to remain at 50 percent or higher for each subsequent year through source reduction, recycling, and composting. As of 2011, Sunnyvale’s diversion rate was 66 percent.

SB 1016

SB 1016 updated the local jurisdiction diversion requirements in 2006 and the state now uses a per capita factor for actual disposal as a measurement to evaluate program effectiveness in meeting AB 939 requirements. AB 939 generally requires each California city and county to adopt and implement a Source Reduction and Recycling Element that describes in detail how the jurisdiction plans to meet AB 939’s waste diversion goals. In 1990, Sunnyvale was the first city in California to adopt its Source Reduction and Recycling Element in compliance with AB 939. Sunnyvale has a per capita disposal target of 5.0 pounds per day per resident and 8.3 pounds per day per employee. The disposal rate in the city is 3.4 pounds per person per day for residents and 5.8 pounds per person per day for employment (CalRecycle 2015b).¹³ Disposal of 3.4 pounds per person per day equates to a 2011 diversion rate of 66%.

AB 341

In 2011, Assembly Bill 341 (AB341) established a state policy goal that no less than 75 percent of solid waste generated be source reduced, recycled, or composted by 2020, and required CalRecycle to provide a report to the Legislature that recommends strategies to achieve the policy goal by January 1, 2014. AB341 builds on the existing AB 939 requirement that every jurisdiction divert at least 50 percent of its waste. The bill also mandates that local jurisdictions implement commercial recycling by July 1, 2012. AB341 requires any business (including schools and government facilities) that generates 4 cubic yards or more of waste per week, and multifamily buildings with 5 or more units to arrange for recycling services. A recycling service may include mixed waste processing that yields diversion results comparable to source separation.

AB 1826

The City is now working to comply with Assembly Bill 1826 (AB 1826), chaptered on September 28, 2014, which requires that businesses separate and arrange for composting the food waste and compostable organics that they generate. The City operates a pilot food waste collection program that is transitioning into a regular collection service for this material. In brief, AB 1826 requires that businesses generating organic waste arrange for recycling services for that waste. A business must take this action if it generates: 8 cubic yards or more per week of organic waste on April 1, 2016; 4 cubic yards or more of organic waste on January 1, 2017; and 4 cubic yards or

¹³ The per capita disposal values reflect 2011 data, which are the latest values reviewed and approved by CalRecycle. Per capita data for 2014 are available, but these have not been reviewed or accepted by CalRecycle; therefore, the 2011 data is considered the appropriate value for use in this Draft EIR.

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more of commercial solid waste per week on January 1, 2019. The bill also requires jurisdictions to provide an organic waste recycling program for businesses.).¹⁴

Green Building Standards Code

Effective January 1, 2011, newly constructed buildings are required to develop a waste management plan and divert at least 50 percent of the construction materials generated during project construction (California Green Building Standards Code [CALGreen] Sections 4.408 and 5.408).

The City of Sunnyvale's Building Division requires applicants to obtain a demolition permit for removal of entire buildings and structures prior to the start of any demolition activities. As part of the demolition permitting process, applicants are required to follow a list of general requirements based on the California Green Building Code and the Sunnyvale Municipal Code. A portion of the requirements includes consideration of deconstructing (i.e., building dismantling) and/or salvage of reusable building materials to minimize the amount of demolition materials disposed of at landfills.

LOCAL

City of Sunnyvale General Plan

The Environmental Management – Solid Waste subchapter of the General Plan contains the following policies that are relevant to the LSAP's impacts on solid waste facilities.

- EM-14.1 Reduce generation of solid waste by providing source reduction programs and promoting reduction behavior.

- EM-14.2 Maximize diversion of solid waste from disposal by use of demand management techniques, providing and promoting recycling programs and encouraging private sector recycling.

Zero Waste Strategic Plan

In 2008, the City adopted a Zero Waste Policy in an effort to preserve the natural environment by encouraging waste reduction. The Zero Waste Policy led to the adoption of a Zero Waste Strategic Plan in 2013. The Zero Waste Strategic Plan sets quantifiable goals that emphasize waste reduction, encourage sustainable consumerism, and conserve natural resources. The plan guides waste management policy decisions to increase diversion to 70 percent by the year 2015, 75 percent by 2020, and 90 percent by 2030. The initial primary focus of this plan is on diverting organics (especially food waste) from disposal. It also emphasizes source controls (i.e. bans) on problematic materials such as single-use plastic bags and expanded polystyrene foam food containers. The plan discusses enhanced use of the SMaRT Station and the possible application of new "conversion" technologies, including dry anaerobic digestion, to the Sunnyvale waste stream, either on their own or in cooperation with nearby cities. In addition, the City's Climate Action Plan Measure LW-2 (Recycling and Composting) requires an Increase in the amount of waste recycled

¹⁴ The per capita disposal values reflect 2011 data, which are the latest values reviewed and approved by CalRecycle. Per capita data for 2014 are available, but these have not been reviewed or accepted by CalRecycle; therefore, the 2011 data is considered the appropriate value for use in this Draft EIR.

and composted by 1 percent per year according to the City's Zero Waste Strategic Plan, and Action LW-2.1 requires multi-family homes to participate in the City's Multi-family Recycling Program.

City of Sunnyvale Municipal Code

Title 8, Health and Sanitation, contains ordinances that apply to solid waste management in the city of Sunnyvale. Chapter 8.16, Solid Waste Management and Recycling, sets forth terms and conditions for residential and commercial solid waste and recycling services throughout the City of Sunnyvale. Under Section 8.16.040 all solid waste produced or accumulated on all premises shall be disposed of or removed at least once a week. Section 8.16.090 requires the City to provide collection and disposal of solid waste and recyclable materials. Section 19.38.030 establishes direction for ensuring adequate and accessible recycling and solid waste facilities to serve residential, commercial and industrial sites.

3.11.7.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Information on landfill disposal data, capacity, and disposal rates were obtained from CalRecycle databases. The analysis assumes the following per capita rates: 3.4 pounds per person per day for residents and 5.8 pounds per person per day for employment uses, and a conversion rate of 0.22 tons of uncompacted solid waste per cubic yard.¹⁵ These factors were applied to the population and employment assumptions presented in Table 3.0-1 in Section, 3.0, Assumptions.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G. A solid waste impact is considered significant if the proposed project would:

- 1) Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- 2) Fail to comply with federal, state, and local statutes and regulations related to solid waste.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Solid Waste Disposal (Standard of Significance 1)

Impact 3.11.7.1 Subsequent projects developed under the LSAP would generate increased amounts of solid waste that would need to be disposed of in landfills or recycled. This would be a **less than significant** impact.

Occupancy and use of projects associated with the LSAP would generate approximately 9.6 tons per day of solid waste per day associated with residential uses and 10 tons per day associated

¹⁵ Conversion factor from CalRecycle (2015c).

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with employees.¹⁶ The combined total (approximately 19.6 tons per day) would represent approximately 2 percent of the current SMaRT Station throughput (or 1.3% of maximum permitted throughput) and less than 1 percent of the permitted daily throughput for the Kirby Canyon Landfill. On an annual basis, the LSAP would generate approximately 7,154 tons (approximately 32,500 cubic yards¹⁷) of solid waste that would be disposed of at the Kirby Canyon Landfill or at the Monterey Peninsula Landfill once the Kirby Canyon Landfill is closed in 2022. This represents approximately 0.5 percent of the landfill's remaining capacity, which would have a minimal effect on capacity (or 0.07 percent of the Monterey Peninsula Landfill). Although the Kirby Canyon Landfill's current plan shows it closing within the next seven years, it is anticipated that the plan will be modified (one or more times) to extend that date well into the future. If Kirby Canyon was to actually close prior to 2031, the City's contract with Waste Management, Inc. would require Waste Management to provide the City with disposal capacity at an alternate disposal facility. For example, there is available combined remaining capacity at three local landfills that currently have a remaining life over 10 years of 32.8 million tons. This includes the Waste Management-owned Guadalupe Landfill, which has 11,055,000 tons of remaining capacity.

Specialty Solid Waste and Recycling is contracted to provide collection service in Sunnyvale and is required to acquire additional equipment and/or employees as needed to accommodate growth. Landfill capacity, either at Kirby Canyon Landfill or an alternate site provided by Waste Management is expected to be available through at least 2031 under the terms of the current disposal agreement. Any additional City costs related to collection, transfer or disposal as a result of increased tonnage collected or a change in disposal site will be incorporated into refuse collection rates charged to customers. Any future landfill expansion options would be subject to their own CEQA compliance obligations.

In 2014, approximately 85,600 tons (389,000 cubic yards) of solid waste from Sunnyvale were disposed at the Kirby Canyon Landfill (329 tons per day). The addition of the LSAP would increase the daily throughput to approximately 359 tons per day, which is well below the daily permitted allowance for the SMaRT, the Monterey Peninsula Landfill, and the Kirby Canyon Landfill.

The Kirby Canyon Landfill has capacity to accommodate waste generated by projects that could be developed under the LSAP in addition to existing demand. Impacts would be **less than significant**.

In addition, the City continues to strive for additional reductions in solid waste. The City has historically met and exceeded its goals for waste diversion, as defined in the City's Sustainable City Plan, achieving a diversion rate of 66 percent in 2011. The City has developed its new Zero Waste Strategic Plan, intended to identify the new policies, programs, and infrastructure that will enable the City to reach its Zero Waste goals of 75% diversion by 2020 and 90 percent diversion by 2030. So long as implementation of the LSAP provides the facilities and services necessary to meet the Zero Waste goals, waste generation from the proposed LSAP will be reduced consistent with the Zero Waste Strategic Plan goals. Given the existing sufficient capacity of solid waste facilities combined with the City's efforts to reduce waste generation, this impact would be **less than significant**.

¹⁶ Calculated as follows: 5,622 population x 3.4 pounds per day per person/2,000 pounds/ton = 9.6 tons per day; 3,459 employees x 5.8 pounds per day per person/2,000 pounds/ton = 10 tons per day

¹⁷ Calculated as follows: 7,154 tons/0.22 tons per cubic yard = 32,518 cubic yards

Mitigation Measures

None required.

Compliance with Solid Waste Regulations (Standard of Significance 2)

Impact 3.11.7.2 Implementation of the LSAP would not result in conflicts with any federal, state, or local solid waste regulations. This impact would be considered **less than significant**.

State law requires that 50 percent of solid waste be diverted from landfills. As discussed in the Existing Setting subsection above, Sunnyvale had a waste diversion rate of 66 percent as of 2011, and under current methods for tracking progress with AB 939, the per capita disposal rates are less than the targets. Therefore, the City is in compliance with state law. Additionally, the City of Sunnyvale has committed to the waste reduction programs, plans, and policies discussed above, and such requirements would apply to new development in the LSAP. Construction of subsequent projects under the LSAP that would result in demolition or renovation of existing structures would generate solid waste, and the City requires the recycling and reuse of materials to reduce landfill disposal. Therefore, the LSAP would not conflict with a federal, state, or local statute or regulation related to solid waste disposal. This impact would be **less than significant**.

Mitigation Measures

None required.

3.11.7.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for solid waste is Sunnyvale and jurisdictions that use regional landfill facilities.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Solid Waste Impacts

Impact 3.11.7.3 Cumulative development, including in the LSAP plan area, would increase the amount of solid waste requiring disposal. The LSAP's contribution would be **less than cumulatively considerable**.

Additional growth in surrounding communities, such as Mountain View, Santa Clara, and Cupertino, would also generate solid waste. New development estimated to occur under the proposed draft LUTE update and the LSAP would increase the generation of solid waste in Sunnyvale. By 2035, approximately 412,979 pounds (206.49 tons) of solid waste would be generated per day in Sunnyvale (including the contribution from the LSAP). This amount of waste represents approximately 12.6 percent of the permitted daily throughput of the Kirby Canyon Landfill or 5.9 percent of the throughput at the Monterey Peninsula Landfill. Therefore, regional landfill facilities would be able to serve the growth expected to occur under the proposed draft LUTE update as well as under the LSAP.

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Therefore, implementation of the proposed LSAP would not make a significant cumulative contribution to impacts on solid waste management. This impact is considered to be **less than cumulatively considerable**.

Mitigation Measures

None required.

3.11.8 ELECTRICITY/NATURAL GAS AND ENERGY

3.11.8.1 EXISTING SETTING

ELECTRICITY/NATURAL GAS SERVICES

The Pacific Gas and Electric Company (PG&E) provides electrical and natural gas services to Sunnyvale through State-regulated public utility contracts. Electricity and natural gas service is available to locations where housing units could be developed.

The City's ongoing development review process includes a review and comment opportunity for privately owned utility companies, including PG&E, to allow informed input from each utility company on all development proposals. The input facilitates a detailed review of all projects by service purveyors to assess the potential demands for utility services on a project-by-project basis.

PG&E's ability to provide its services concurrently with each project is evaluated during the development review process. The utility company is bound by contract to update the systems to meet any additional demand. PG&E's Electric and Gas Rules 15 and 16 provide guidelines for the extension of distribution lines necessary to furnish permanent services to customers. PG&E also outlines responsibilities for installation and extension allowances, as well as financial contributions by project applicants.

ENERGY

Energy usage is typically quantified using the British thermal unit (BTU). As a point of reference, the approximate amounts of energy contained in common energy sources are as shown in **Table 3.11.8-1**.

**TABLE 3.11.8-1
BRITISH THERMAL UNIT EQUIVALENTS FOR COMMON ENERGY SOURCES**

Energy Source	BTUs
Gasoline	120,388–124,340 per gallon
Diesel Fuel	138,490 per gallon
Natural Gas (compressed gas)	22,453 per pound
Electricity	3,414 per kilowatt-hour

Source: USDOE 2014

Total energy usage in California was 7,641 trillion BTUs in 2012, which equates to an average of 201 million BTUs per capita. Of California's total energy usage, the breakdown by sector is 38.5 percent transportation, 22.8 percent industrial, 19.3 percent commercial, and 19.2 percent residential. Electricity and natural gas in California are generally consumed by stationary users such as

residences and commercial and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use (EIA 2015). In 2014, taxable gasoline sales (including aviation gasoline) in California accounted for 14,702,632,422 gallons of gasoline (BOE 2015).

Santa Clara County’s electricity and natural gas consumption from 2006 to 2013 is shown in **Table 3.11.8-2** and **3.11.8-3**, respectively. As indicated, the demand has remained relatively constant, with no substantial increase, even as the population has increased.

**TABLE 3.11.8-2
SANTA CLARA COUNTY ELECTRICITY CONSUMPTION (IN MILLIONS OF KWH) 2006–2013**

Year	Residential	Nonresidential	Total
2007	3,898	12,555	16,453
2008	3,953	12,767	16,721
2009	3,970	12,582	16,552
2010	3,924	12,326	16,251
2011	3,923	12,636	16,560
2012	3,884	12,611	16,496
2013	3,907	12,705	16,613
2014	3,830	12,840	16,670

Source: ECDMS 2015

**TABLE 3.11.8-3
SANTA CLARA COUNTY NATURAL GAS CONSUMPTION (IN MILLIONS OF THERMS) 2006–2013**

Year	Residential	Nonresidential	Total
2007	263	210	473
2008	268	199	468
2009	264	189	453
2010	260	186	446
2011	271	194	465
2012	257	192	450
2013	265	199	465
2014	213	188	402

Source: ECDMS 2015

Sunnyvale’s electricity consumption in 2014 for residential uses was approximately 268 million kilowatt-hours (kWh) and approximately 1,330 million kWh for non-residential uses, for a combined total of approximately 1,598 million kWh (just under 10 percent of the countywide total for 2013). Residential natural gas consumption in 2014 was approximately 17 million therms, and non-residential usage was approximately 22 million therms, for a combined total of 39 million therms (also just under 10 percent of the countywide total for 2013) (Sunnyvale 2016).

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3.11.8.2 REGULATORY FRAMEWORK

STATE

California Building Energy Efficiency Standards

In general, the California Building Energy Efficiency Standards require the design of building shells and building components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The California Energy Commission adopted changes to the 2013 Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 6 (also known as the California Energy Code) and associated administrative regulations in Part 1 (collectively referred to here as the standards). The amended standards took effect in the summer of 2014. The Building Energy Efficiency Standards are 25 percent more efficient than previous standards for residential construction and 30 percent better for nonresidential construction. The standards offer builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses. Energy-efficient buildings require less electricity, and increased energy efficiency reduces fossil fuel consumption.

California Green Building Standards

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2013 and went into effect July 1, 2014.

California Environmental Quality Act Guidelines

CEQA Guidelines Appendix F, Energy Conservation, requires consideration of project impacts on energy and focuses particularly on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (Public Resources Code Section 21100[b][3]). The potentially significant energy implications of a project must be considered in an EIR to the extent relevant and applicable to the project.

LOCAL

City of Sunnyvale Climate Action Plan

The City's Climate Action Plan (CAP) contains several action items that address energy use.

Action Item EC-1.3 Use of energy-efficient lighting technologies for parking lot lighting.

Action Item EC-2.2 Requirement of energy-efficient orientation of buildings (a building's orientation coupled with landscape material considerations shall be designed for maximum energy efficiency).

- Action Item EC-5.1 Installation of interior real-time energy monitors.
- Action Item EC-6.2 Require new multi-family buildings and re-roofing projects to install “cool roofs” consistent with the current California Green Building Code (CALGreen) standards for commercial and industrial buildings.
- Action Item EP-2.1 Pre-wiring for solar water heating and solar electricity.
- Action Item OR-1.2 Installation of electrical outlets on the exterior of building at an accessible location to charge electric-powered lawn and garden equipment.
- Action Item OVT-1.1 Designation of preferred parking stalls for electric, hybrid, and other alternative-fuel vehicles in all public and private parking lots consistent with the California Green Building Code.
- Action Item OVT-1.3 Require sufficient electrical service in the garages/parking facilities of new residential development to support electric vehicle charging.

3.11.8.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The impact analysis focuses on the three sources of energy that are relevant to subsequent projects which could be developed under the LSAP: electricity, natural gas, and transportation fuel for vehicle trips associated with new development.

The analysis of electricity/natural gas usage is based on California Emissions Estimator Model (CalEEMod) air quality and greenhouse gas emissions modeling, which quantifies energy use for occupancy with and without mitigation. The results of CalEEMod modeling are included in **Appendix H** of this Draft EIR. Modeling was based primarily on the default settings in the computer program for Santa Clara County. The amount of fuel use was estimated using the California Air Resources Board’s EMFAC2011 computer program, which also provides assumptions for typical daily fuel usage in Santa Clara County.

Proposed LSAP Policies

The analysis in this section assumes implementation of the relevant policies proposed in the LSAP.

Circulation

- CF-G1 Create a complete, multi-modal transportation network the supports a mixed-use neighborhood throughout the Plan area.

Street Planting

- STP-UDG1 Plant street trees on all streets

Lighting

- L-UDG4 Utilize energy-efficient lighting, such as light-emitting diode (LED) bulbs.

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STANDARDS OF SIGNIFICANCE

According to Appendix F of the CEQA Guidelines, significant long-term operational or direct energy impacts would occur if the project would:

- 1) Cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance, or preempt future energy development or future energy conservation.
- 2) Place a substantial demand on regional energy supply or require significant additional capacity, the construction of which could result in environmental impacts or significantly increase peak and base period electricity demand.

IMPACTS AND MITIGATION MEASURES

Energy Consumption Impacts (Standards of Significance 1 and 2)

Impact 3.11.8.1 Development of subsequent projects under the LSAP would result in increased energy demand under project and cumulative conditions. This impact is considered **less than cumulatively considerable**.

Energy Consumption

Energy consumption associated with residential and employment uses envisioned by the LSAP is summarized in **Table 3.11.8-4**. This usage would constitute approximately 0.1 percent of the typical annual energy consumption of residential and nonresidential square footage in the county as reported by the California Energy Consumption Data Management System (ECDMS 2015). (151,618,856,946 BTUs for project/97,101,784,000,000 BTUs for all residential and nonresidential uses in Santa Clara County = 0.1 percent.)

**TABLE 3.11.8-4
ENERGY CONSUMPTION FROM LSAP BUILDOUT**

Source	Kilowatt-Hours Annually (electricity)	kBTU Annually (natural gas)	BTU Equivalent Annually (all energy combined)
LSAP Buildout	32,815,739	39,585,924	151,618,856,946

Source: CalEEMod 2013.2.2

Subsequent projects would be required to comply with Title 24 Building Energy Efficiency Standards, which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the Title 24 standards significantly reduces energy usage. Subsequent projects in the plan area would also be required to comply with the provisions of the Sunnyvale Climate Action Plan, which are listed in the Regulatory Framework subsection, above.

Further, the electricity provider in Santa Clara County, PG&E, is subject to California's Renewables Portfolio Standard (RPS). The RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020, and 50 percent of total procurement by 2030. Renewable energy is generally defined as energy that comes from resources that are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat. The increase in reliance of such energy resources further ensures projects will not result in the waste of the finite energy resources.

The exact timing and extent of construction of subsequent development projects in the LSAP is unknown. However, it is acknowledged that construction activities would involve the temporary use of energy in the form of fuel for construction equipment and vehicles as well as electricity. However, it would be speculative to quantify construction energy use.

Vehicle Trips Fuel Consumption

According to the traffic analysis prepared for the project by Hexagon Transportation Consultants (2015), the proposed project would increase total daily vehicle miles traveled (VMT) beyond current conditions. These additional daily traffic trips in Santa Clara County would result in the consumption of 3,142 gallons of automotive fuel daily (see **Appendix H**). Per EMFAC2014, overall automotive gasoline consumption in Santa Clara County is projected to decline by approximately 32 percent between 2015 and 2035, from 2,214,420 gallons of gasoline consumed daily in 2015 to 1,507,094 gallons of gasoline consumed daily in 2035. The addition of 3,142 gallons of automotive fuel consumed daily would not inhibit the rate of this projected decline.

The LSAP includes strategies to establish a transit-supportive environment by improving connections between the station and adjacent destinations, densifying and intensifying land uses at key locations in the plan area, and enhancing the physical design of the urban environment. The proposed LSAP would provide moderate- to high-density housing in locations within convenient walking distance of employment centers, shopping centers, and transit routes, including the Caltrain commuter rail line. As such, the LSAP would result in improved access to local and regional transit services, as well as the promotion of alternative means of transportation through increased access to pedestrian and bicycle facilities. The diversity of transportation options would reduce dependence on a single mode of transportation and would provide feasible long-term alternatives in response to fuel shortages and other unforeseen challenges.

Implementation of the LSAP would result in an improvement in VMT per capita as compared to citywide VMT under the existing General Plan and the proposed draft Land Use and Transportation Element update (see **Table 3.4-1** in Section 3.4, Transportation and Circulation). This is consistent with the intent of the LSAP to improve the use of alternative modes of transportation and reduce vehicle use and associated VMT. It is also within the VMT per capita set forth in the City's Climate Action Plan (11.62 miles).

For the reasons described above, the LSAP would not cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance, nor would it preempt future energy development or future energy conservation. Impacts would **be less than cumulatively considerable**.

Energy Infrastructure

PG&E currently provides electrical and natural gas services to Sunnyvale and would continue to provide these services to future development resulting from projects developed in the LSAP plan area. PG&E is required by the California Public Utilities Commission to update the existing systems to meet any additional demand. PG&E builds new infrastructure on an as-needed basis. Any electrical and natural gas distribution lines, substations, transmission lines, delivery facilities, and easements required to serve buildout of the Lawrence Station Area Plan would be subject to CEQA review by PG&E. However, it is expected that much of the distribution infrastructure would be collocated with other utilities underground within roadway rights-of-way in order to minimize the extent of environmental effects. Potential environmental effects for the construction of transmission lines include but are not limited to air quality (during construction), biological resources (depending on location), cultural resources (depending on location), hazardous

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materials, land use, noise and vibration (during construction), traffic, visual resources, and health hazards. Potential environmental effects of obtaining more power through the development of power plants include but are not limited to air quality, biological resources, cultural resources (depending on location), hazardous materials, land use, noise and vibration, traffic, visual resources, waste management, water and soil resources, and health hazards. Because the specific facilities, if any, that would be required cannot be identified with any certainty, such impacts would be speculative and do not require evaluation in this Draft EIR.

Mitigation Measures

None required.

REFERENCES

- BOE (California Board of Equalization). 2015. *Net Taxable Gasoline Sales*. http://www.boe.ca.gov/sptaxprog/reports/mvf_10_year_report.pdf.
- Brown and Caldwell. 2009. "Influent Flows and Loads." *Sunnyvale Strategic Infrastructure Plan for the WPCP*.
- California Climate Action Registry. 2009. California Climate Action Registry General Reporting Protocol Version 3.1.
- CalRecycle (California Department of Resources Recycling and Recovery). 2015a. Jurisdiction Diversion Rate Percentage Trend (1995–2006) – Sunnyvale. <http://www.calrecycle.ca.gov/LGCentral/Reports/Jurisdiction/ReviewReports.aspx>.
- . 2015b. Jurisdiction Diversion/Disposal Rate Summary (2007–Current). <http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx>.
- . 2015c. PacITConversion Table 1 – Material Type Equivalency Factors. <http://www.calrecycle.ca.gov/FacIT/Conversion1.pdf>.
- CDE (California Department of Education). 2015. Enrollment by Grade for 2014–15: District and School Enrollment by Grade. <http://dq.cde.ca.gov/dataquest/>.
- ECDMS (California Energy Consumption Data Management System). 2015. Website: Electricity and Natural Gas Consumption by County. <http://www.ecdms.energy.ca.gov/>.
- EIA (US Energy Information Administration). 2015. *California State Profile and Energy Estimates*. Updated April 16, 2015. Accessed April 29. <http://www.eia.gov/state/data.cfm?sid=CA#ConsumptionExpenditures>.
- Fremont Union High School District. 2015. "Development Impact Fees 2014–2015." http://fuhsd.ca.schoolloop.com/impact_fees.
- Hexagon Transportation Consultants, Inc. 2015. *Lawrence Station Area-Wide Transportation Plan and Near-Term Traffic Impact Analysis*.
- Schoolhouse Services. 2014. *School Enrollment and Fiscal Impact Analysis, General Plan Amendment Alternatives*, prepared for City of Cupertino.
- SCUSD (Santa Clara Unified School District). 2015. Santa Clara Unified School District Street Directory. <http://www.santaclarausd.org/files/filesystem/2014-15%20street%20directory.pdf>.
- Sunnyvale, City of. 2011a. *Sunnyvale General Plan* (consolidated in 2011).
- . 2011b. *2010 Urban Water Management Plan*.
- . 2015a. *915 DeGuigne Residential Project Draft EIR*.

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———. 2015b. *Water Supply Assessment for Sunnyvale General Plan – Draft Land Use and Transportation Element*.

———. 2015c. *Lawrence Station Area Plan*.

———. 2016. *Sunnyvale Climate Action Plan Biennial Progress Report – 2016*.

Sunnyvale School District. 2015. Developer Impact Fee Compliance. <http://www.sesd.org>.

USDOE (US Department of Energy, Alternative Fuels Data Center). 2014. *Alternative Fuels Data Center – Fuel Properties Comparison*.
http://www.afdc.energy.gov/fuels/fuel_comparison_chart.pdf.

3.12 VISUAL RESOURCES AND AESTHETICS

3.12 VISUAL RESOURCES AND AESTHETICS

This section describes the existing visual character and resources of the Lawrence Station Area Plan (LSAP) plan area and evaluates the potential impacts associated with the plan's implementation. Potential visual impacts are studied in a regional context, as are localized impacts within a half-mile radius of the Lawrence Caltrain Station. Key issues addressed in this section include changes in visual character and urban lighting and glare.

A summary of the impact conclusions of visual resources and aesthetics is provided below.

Impact Number	Impact Topic	Impact Significance
3.12.1	Visual Character or Quality	Less than significant
3.12.2	Light and Glare	Less than significant
3.12.3	Shade/Shadow	Less than significant
3.12.4	Cumulative Impacts on Visual Resources and Aesthetics	Less than cumulatively considerable

3.12.1 EXISTING SETTING

REGIONAL CONTEXT

The Santa Clara Valley diverse natural settings and landscapes are unique in the San Francisco Bay Area. The San Francisco Bay to the north, the Coast Ranges to the west and south, and the Diablo Range to the east define the valley. The San Francisco Bay and the mountain ranges provide scenic views of lush evergreen forests, oak woodlands, bay lands, wetlands, and other natural features. The valley floor features a wide variety of urban settings, including high-technology employment centers, residential neighborhoods, and downtown settings, both large and small. Open space areas are scattered throughout the valley, including active and passive parks, golf courses, natural rivers, and stream corridors.

Sunnyvale is in an area commonly referred to as the South Bay or Silicon Valley, which consists of urban development. Sunnyvale is surrounded by the cities of Mountain View and Los Altos to the west, Cupertino to the south, and Santa Clara to the east and north. The San Francisco Bay is to the north. The most visible landmarks in Sunnyvale are the Moffett Federal Airfield dirigible hangars. These hangars are often difficult to see from within Sunnyvale but are highly visible throughout the Bay Area and orient air travelers flying into the region. Other landmarks in Sunnyvale include vertical landmarks such as the Libby Water Tower, historic landmarks such as the Murphy Avenue Commercial District, and horizontal landmarks such as the cherry orchards on Mathilda Avenue near El Camino Real.

PLAN AREA

Visual Character

The plan area adjoins the Sunnyvale-Santa Clara city boundary and is surrounded by urban development. Existing development in the plan area is a mix of residential, commercial, industrial, and civic uses. The plan area contains a variety of neighborhoods, districts, and places that differ in scale and visual character and development. The character and scale of development in the plan area and in the adjoining cities is noticeably different on each side of the Caltrain tracks. South of the tracks, development is typical of suburban neighborhoods developed as large tracts after World War II. These neighborhoods have single-family detached dwellings and multi-family buildings of three stories or less along attractive tree-lined streets. In the southernmost part of the plan area,

3.12 VISUAL RESOURCES AND AESTHETICS

which is entirely residential, older neighborhoods are primarily single-story structures, while newer development (e.g., west of the Corn Palace property) is largely two-story. North of the tracks, land uses are primarily industrial and commercial with low-scale, large-footprint buildings, and parking lots.

The plan area contains few distinguishing natural physical characteristics and is generally flat, with elevation relief provided only by the overpass of Lawrence Expressway at the Caltrain tracks. Calabazas Creek, which flows south-to-north to the San Francisco Bay, flows in a concrete channel through the eastern part of the plan area. The creek has little to no vegetation within its approximately 65-foot right-of-way. The El Camino Storm Drain Channel flows through the residential neighborhoods south of the station and along the south edge of the railway before draining into Calabazas Creek. This channel, although mostly concrete, has stretches of grass and earthen banks along its 40- to 45-foot right-of-way.

The plan area has no public parks and little natural vegetation to provide visual relief from the developed urban features. However, the streets and gardens of the existing residential areas and some of the industrial areas contain an abundance of mature planted street trees and ornamental plantings, including mature redwood trees along Sonora Court one block north of the Caltrain station.

Views within the Plan Area

Within the plan area, the existing residential multi-story apartment complexes on the south side of the Caltrain tracks that face north (e.g., along Aster Avenue) have views of the Calstone/Peninsula Building Materials operations, the Caltrain tracks, industrial development to the north, and other multi-story housing, and from some locations, the elevated portion of Lawrence Expressway. Low-rise, single-family residences generally have views of existing residential development. The single-family residences are farther away from the Caltrain tracks and industrial development, and the views across the plan area to the north from those locations are generally obscured by residences and trees. Views from existing industrial development north of the Caltrain tracks consist of large, low-scale buildings and parking lots, the Caltrain tracks, the elevated portion of Lawrence Expressway, and residential development to the south.

Views into the Plan Area from Off-Site Locations

Direct views into the plan area from off-site locations north of the plan area consist of views from existing industrial, office/research and development (R&D), and retail uses, and the views consist of large, low-scale buildings and parking lots. Multi-story apartments east of Lawrence Expressway and south of the Caltrain tracks have direct views of the industrial development in the plan area. Single-family residential development on the east and directly facing Lawrence Expressway have views of existing residences, except at the southernmost part, where views are of the Corn Palace agricultural property and a new residential development to the west. Views from single-family residences in the vicinity of E. Evelyn Avenue and Reed Avenue and toward the proposed Transit Core subarea are obscured because of distance and by other residences (single-story and multi-story) and tall trees.

Scenic Vistas

Scenic vistas generally encompass a wide area with long-range views to the middle and background of surrounding elements in the landscape. Scenic vistas are typically visible from elevated vantages such as hilltops, across flat landscapes such as open agricultural lands, and roadways with cleared rights-of-way on hilly and flat terrain that run through or near a project

location. Scenic vistas have a directional range (e.g., 360-degree view in all directions, while others may be limited in one direction in a manner that reduces the line-of-sight angle and amount of vista that is visible for a narrower view). Viewsheds provide expansive views of a highly valued landscape for the benefit of the general public. The plan area does not have any designated scenic vistas. No vantage points within the plan area or when viewed from outside the plan area would be considered scenic vistas or a unique visual resource.

Scenic Highways

According to the California Scenic Highway Mapping System (Caltrans 2013), there are no eligible or officially designated state or county scenic highways in or adjacent to the plan area. Interstate 280 (the Junipero Serra Freeway) is an eligible state scenic highway but is not officially designated. The freeway is over 5 miles south of the plan area and does not provide views of the plan area.

Light and Glare

Nighttime lighting and glare in the plan area mostly occur in and around the more densely developed areas of retail and along major roadways, although residential, office, and industrial areas also produce limited amounts of nighttime lighting. Existing sources of ambient nighttime lighting generally include neon and fluorescent signs in developed areas; exterior lighting installed along buildings for safety, architectural accent, or to illuminate nighttime operations; light in buildings that spills out of windows; landscape and wayfinding signage lighting; street and parking lot lighting; vehicle headlights; and roadway lighting. The artificial lighting from urbanized sources in and around the plan area currently exists in sufficient quantity to cause lighting of the nighttime sky and reduction of visibility of stars and other astronomical features (referred to as skyglow). Nighttime illumination also is an existing source of spillover lighting (artificial lighting that spills over onto adjacent properties).

Glare in the plan area is generally created by reflection of sunlight and artificial light off existing windows and building surfaces. During daylight hours, the amount of glare depends on the intensity and direction of sunlight, and it is more acute at sunrise and sunset due to the lower angle of the sun. Existing sources of glare in the plan area include reflective glass windows in buildings, polished or metallic surfaces, vehicle windshields, and pavement.

3.12.2 REGULATORY FRAMEWORK

STATE

Nighttime Sky – Title 24 Outdoor Lighting Standards

The California Energy Commission (CEC) regulates the energy efficiency of outdoor lighting for residential and nonresidential development. The standards, put in place in 2005, have helped to improve the quality of outdoor lighting and help to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone. The classification is based on population figures of the 2000 Census. Areas can be designated as LZ1 (dark), LZ2 (rural), or LZ3 (urban). Sunnyvale is classified LZ3.

3.12 VISUAL RESOURCES AND AESTHETICS

LOCAL

City of Sunnyvale General Plan

The Land Use and Transportation and Community Character chapters of the General Plan contain the following policies that are relevant to the analysis of visual resources and aesthetics:

Land Use and Transportation

- Policy LT-2.1c Require appropriate buffers, edges and transition areas between dissimilar neighborhoods and land uses.
- Policy LT-2.2b Encourage development of diversified building forms and intensities.
- Policy LT-4.2b Utilize adopted City design guidelines to achieve architecture and scale for renovation and new development in Sunnyvale's neighborhoods.
- Policy LT-4.3a Review development proposals for compatibility within neighborhoods.

Community Character

- 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 identity of special districts and residential neighborhoods to create more variety in the physical environment.
- Policy CC-2.1 Maintain and provide attractive landscaping in the public right-of-way to identify the different types of roadways and districts, make motorists 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.
- Policy CC-4.2 Maintain beautiful and comfortable outdoor public places which provide a shared sense of ownership and belonging for Sunnyvale residents, business owners, and visitors.

In addition, the Housing Element includes the following policy:

- 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.

City of Sunnyvale Zoning Code

Title 19, Zoning, of the City's Municipal Code includes development standards and regulations that are intended to enhance the visual quality of new development through building height limits, building density, building design and landscaping standards, architectural features, setback requirements, sign regulations, usable open space requirements, and public artwork in private developments.

The Planning Commission makes recommendations to the City Council for large development projects, and the City Council makes final decisions on most large projects and issues affecting the city. The development review process ensures that the architecture and urban design of new developments would protect Sunnyvale's visual environment. Other boards and commissions with oversight and authority in regulating architectural and visual design issues include the Arts Commission, Bicycle and Pedestrian Advisory Commission, Heritage Preservation Commission, and Parks and Recreation Commission.

Maximum allowable building heights are established in Zoning Code Table 19.32.020 for the existing zoning in the plan area. North of the Caltrain tracks, in the area currently zoned Industrial and Service (MS) and General Industrial (M3) (proposed Transit Core, West, and East subareas), the maximum building height is 75 feet. In the proposed Peninsula subarea (zoned M3), the current maximum building height is also 75 feet.

City of Sunnyvale Design Guidelines

The City established Citywide Design Guidelines in 1992, updated in 2013, and has subsequently established other design guideline documents in order to provide a sufficient level of development guidance for future projects in various areas of Sunnyvale. The design guidelines are intended to supplement (not replace) the building standards in the City's Zoning Code. The design guidelines establish only the minimum acceptable design standards. Future, individual projects in the plan area would be required to comply with the relevant Citywide Design Guidelines and other applicable design guidelines as a condition of project approval. The following is a list of established design guidelines in Sunnyvale that could apply to future development projects in the plan area:

- Citywide Design Guidelines
- Industrial Design Guidelines
- Single-Family Home Design Techniques
- High Density Residential Guidelines
- Toolkit for Mixed Use

3.12 VISUAL RESOURCES AND AESTHETICS

3.12.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following impact analysis is based on field review of the plan area, review of topographic conditions and aerial photographs, and review of the proposed LSAP.

Proposed LSAP Policies and Guidelines

The analysis in this section assumes implementation of the relevant policies and urban design guidelines proposed in the LSAP. The policies and guidelines listed below are not all-inclusive but are intended to highlight overall design considerations that address potential visual resources and aesthetics impacts at a programmatic level.

In addition to these plan area-wide guidelines, the LSAP proposes building design guidelines for each subarea, which address specific building types such as residential and mixed use/retail and streetscapes.

Land Use

LU-P1 Buffer/transition new development located adjacent to existing residential neighborhoods through site planning, land use and design strategies.

Open Space and Recreation

OSP-6 Preserve and protect the existing mature street trees on Sonora Court (redwoods) and Kifer Road.

Site Planning

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

Building Design

BH-UDG1 Restrict building heights as indicated in Figure 6.2 [in the LSAP].¹

BH-UDG2 Place taller buildings or building elements at corner intersections to achieve greater visibility, scale relationships, and architectural massing and interest.

BH-UDG4 Vary building heights within blocks and parcels in order to provide visual interest and variety and to avoid a blocky, uniform appearance.

BH-UDG8 Ensure new development does not shade existing development and open space. Conform to guidelines of the City of Sunnyvale Shade Ordinance.

¹ Reproduced as Figure 3.12-4 and referenced in Impact 3.12.1 in this section.

- BMA-UDG1 Reduce the apparent bulk of large buildings by breaking larger walls and volumes into smaller masses.
- BMA-UDG2 Articulate building façades, walls and massing to reduce the impacts of shade and wind on important open spaces, pedestrian corridors and retail streets.
- BO-UDG3 Use clear, non-reflective glazing on all windows at street level.
- BO-UDG10 Include features that add depth, shadow and architectural interest, such as balconies, recesses, cornices, bay windows, and step-backs at upper floors, consistent with the building's style and scaled for pedestrians.

Building Materials

- BM-UDG1 Use high-quality, durable architectural materials and finishes that provide a sense of permanence.
- BM-UDG5 Avoid highly reflective surfaces and materials that can cause heat or glare for pedestrians.
- BM-UDG7 Use glazing that is as clear and non-reflective as possible in order to provide transparency and visibility while meeting energy and daylighting performance requirements.

Lighting

- L-UDG1 As part of the Streetscape Master Plan, prepare a Lighting Master Plan for the plan area. Include a lighting standard specific to the plan area in order to create a unique district within the City.
- L-UDG2 Consider Dark Sky goals and requirements in the preparation of the Lighting Master Plan and selection of luminaries during project design.
- L-UDG9 In situations where light fixtures with a visible light source are desired, provide shielding or directionality to avoid glare into adjacent buildings.

Streetscape

- STP-UDG1 Plant street trees on all streets.

Parking

- PK-UDG9 Landscape perimeter setback areas around parking lots with a mix of trees, shrubs, and ground cover.
- PK-UDG17 Create visual interest and reduce the mass of parking structures through the use of: variation in the dimension and proportion of openings of the façade; decorative screens, railings, and trellis elements of durable, high-quality materials; materials and designs that are similar to surrounding buildings on site; and awnings, arcades, trellises, or porticos along street-facing façades and pedestrian connections.

The Circulation Framework of the LSAP also addresses visual resources.

3.12 VISUAL RESOURCES AND AESTHETICS

CF-P14 Ensure the existing mature street trees along Kifer Road and Sonora Court will not be adversely impacted by street improvement projects. Incorporate the mature trees into the landscape improvements of the street.

STANDARDS OF SIGNIFICANCE

An aesthetic or visual resource impact is considered significant if implementation of the proposed project would result in any of the following:

- 1) Have a substantial adverse effect on a scenic vista.
- 2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- 3) Substantially degrade the existing visual character or quality of the site and its surroundings.
- 4) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

This section also considers the effect of shade/shadow because projects allowed by the LSAP could result in the development of buildings that could be up to 85 feet high in an area characterized by low-rise structures. A shade/shadow impact is considered significant if implementation of the proposed project would:

- 5) Create new shadow in a manner that detracts from the usability of public outdoor areas or open space areas.

Impacts Not Evaluated in Detail

As described in the Existing Setting subsection above, there are no scenic vistas within the plan area, and the plan area is not located in the vicinity of any officially designated state or county scenic highway. Therefore, standards of significance 1 and 2 are not evaluated further.

PROJECT IMPACTS AND MITIGATION MEASURES

Visual Character or Quality (Standard of Significance 3)

Impact 3.12.1 Subsequent projects developed under the LSAP would not substantially degrade the visual character or quality of the plan area or its surroundings. This impact would be **less than significant**.

The LSAP would provide opportunities for new development and redevelopment, including higher densities, mixed use, and new urban living elements in areas generally occupied by industrial, office/R&D, and other nonresidential uses. The Transit Core, West, East, and Peninsula subareas, which adjoin the Caltrain tracks on the north and south, could experience the greatest amount of land use changes. The changes would alter the visual characteristics of those subareas compared to existing conditions. No changes in land uses are proposed for existing single-family and multi-family residential locations in the plan area (e.g., Lawrence/Reed/Willow and Southern Residential subareas), but the vacant Corn Palace property could be converted to residential uses. The land use changes in the Transit Core, West, East, and Peninsula subareas could be visible from residential uses, depending on the viewers' locations relative to the areas where the higher-intensity land uses could be developed around the Lawrence Caltrain Station. Conversion of the Corn Palace property from an open agricultural field would also result in a change in the visual environment.

Guided by the policies and guidelines in the LSAP, new development would be planned to make the LSAP plan area unique in the city by enhancing the quality and character of the existing neighborhoods and by creating a pedestrian-scale environment with visually interesting attributes in redeveloped areas (see **Figure 3.12-1**). While greater density and land use diversity is envisioned in the redevelopment areas, the LSAP establishes policies and guidelines for block size and patterns that would allow the creation of public spaces and pleasant urban forms. In addition, buffer zones, setbacks, building heights, sun, shade and wind patterns, landscape and open space, and other physical design elements would be an essential ingredient of the design and review process for each individual private development project. The LSAP policies and guidelines have been developed to ensure consistency with the relevant General Plan policies listed above.

The Transit Core and West and East subareas could consist of vertical development up to 85 feet in height with varying building footprints (see **Figure 3.12-2**). The buildings could be substantially taller and would be more visible than the existing low-rise, large-footprint structures that currently occupy the area. The appearance of the height and mass of the buildings and structures would be minimized through areawide design guidelines in the Lawrence Station Area Plan such as BH-UDG4, BMA-UDG1, BMA-UDG1, BO-UDG10, and PK-UDG17. These guidelines, along with other areawide and subarea-specific guidelines, encourage the greatest concentration of taller buildings in the vicinity of the Lawrence Station (Transit Core subarea), where the elevated portion of the station creates an existing vertical element. Variations in building height within blocks and parcels in the subarea and limits on the footprint of the tallest portion of a building on a lot, along with modulation and articulation of building massing to reduce apparent scale to provide visual interest and variety, would avoid a blocky uniform appearance. These measures would ensure that development in the Transit Core and adjoining West and East subareas would not be visually intrusive and would be consistent with surrounding urban form and context, both when viewed from within the plan area or when viewed from outside the plan area. The LSAP also contains guidelines to ensure appropriate open space and landscaping is included to provide visual interest and overall beautification of the subareas. Although the visual appearance of the Transit Core and West and East subareas would change, they would retain Sunnyvale's established urban visual character.

The Peninsula subarea could also experience a substantial amount of change, from an existing industrial-appearing property with several low-rise buildings scattered throughout an outdoor materials storage yard to multi-story residential uses. The subarea is directly adjacent to existing low-scale residential uses on the south and west, and the change in character from industrial to residential with open space and a small amount of supporting retail would be more visually compatible with adjoining residential uses compared to current conditions. Under the LSAP, buildings in the Peninsula subarea could be up to 35 to 55 feet tall (see **Figure 3.12-2**), which is allowed under current zoning for that area. However, at this height, the buildings may be visible from nearby residences and new residences north of the Caltrain tracks in the Transit Core and West subareas. As under current conditions, tall trees that line Aster Avenue in the subarea's western portion would continue to provide a visual buffer between existing residential uses and new higher-density, potentially taller structures. The LSAP's goal for the Peninsula subarea is to ensure new development is compatible with the existing surrounding neighborhood. For example, subarea guideline PS-UDG2 directs that the tallest buildings and highest densities be situated along the Caltrain tracks, transitioning to lower-scale buildings to the south and west, where they adjoin or face nearby apartments and townhouses. Public open space would be required to be directly visible from Aster Avenue.

There is one location in the plan area where development allowed under the LSAP could result in the conversion of an agricultural use to single-family detached residences. Such development could occur in the Southern Residential subarea on the Corn Palace property, which is bordered

3.12 VISUAL RESOURCES AND AESTHETICS

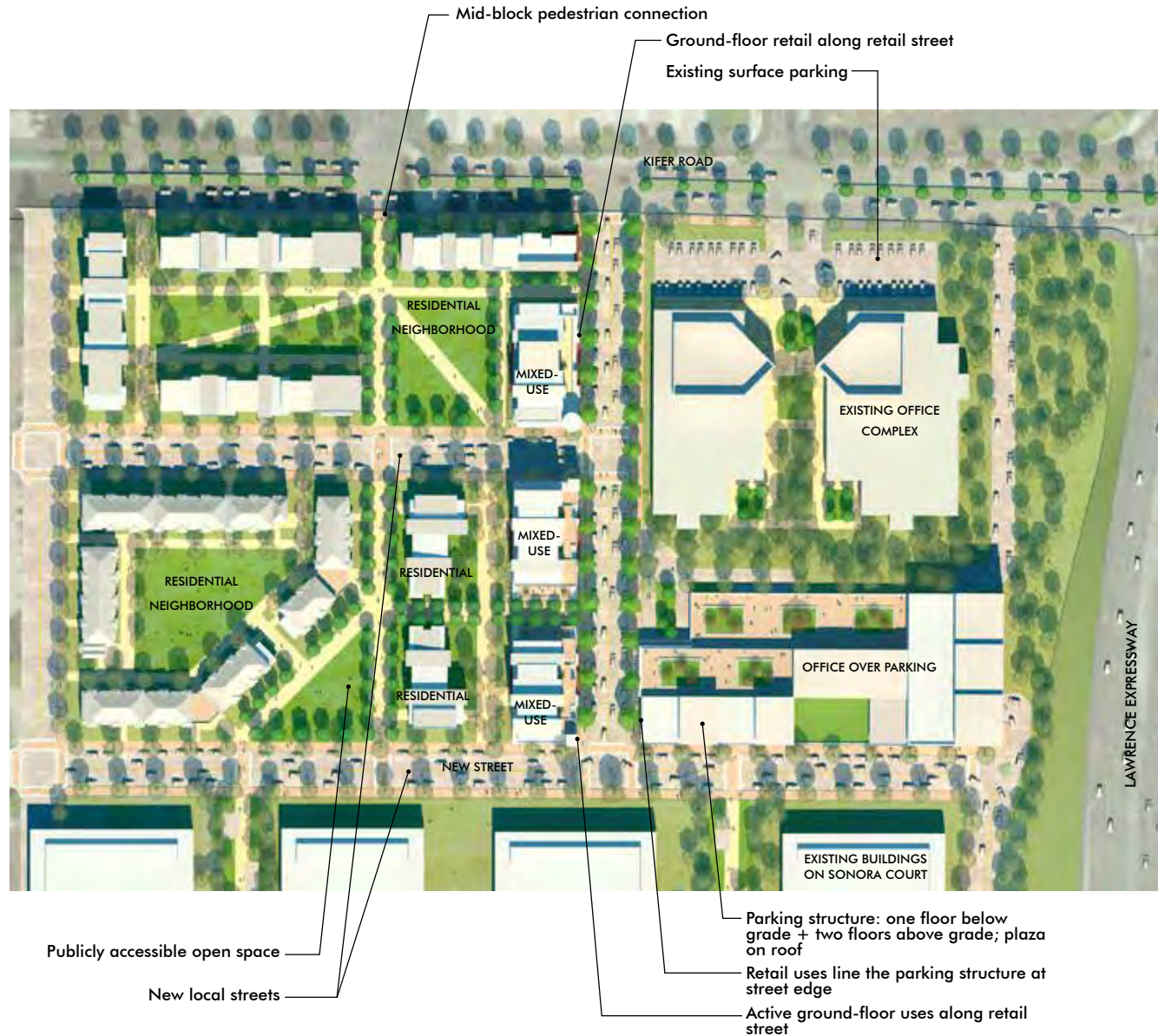
by single-family, one-story older homes to the north and newer two-story homes to the west in Sunnyvale and older one-story, single-family homes on the south (in Cupertino). The LSAP does not propose any changes in the density of residential units or to applicable City design standards. The heights would continue to be limited to less than 30 feet (two stories or less), as allowed under current zoning. Any residential development proposal would be reviewed by the City and conditioned as necessary to ensure it protects and enhances the character and quality of the existing residential neighborhoods with an emphasis of pedestrian and bicycle enhancements and the provision of a new neighborhood-serving local park or open space. Although the change from an agricultural use to residential development would be noticeable, particularly when viewed from adjoining streets, it would be visually consistent with the site's urban surroundings.

Unique existing physical features that contribute to the visual character of the plan area, such as the Calabazas Creek channel and the redwood trees on Sonora Court, would be protected and enhanced, thereby contributing to the unique character and fabric of this particular neighborhood. Under LSAP subarea guideline TC-UDG3, for example, Sonora Court would be designed as a special street with a strong open space/landscaped character incorporating the mature redwood trees. The LSAP recognizes Calabazas Creek as a form-giving feature in the context of the adjoining Calabazas Creek and Office/R&D East subareas. The LSAP contains subarea guidelines (e.g., CCS-UDG4 and CCS-UDG5) to ensure the City's future vision for the creek as an attractive linear park by establishing building setbacks and heights along the creek.

Compliance with existing Sunnyvale General Plan policies, zoning regulations, standard development conditions, Citywide Design Guidelines, and the proposed LSAP policies and guidelines would minimize potential effects on the visual environment that could be subjectively perceived as adverse or negative. Each private development project application would be reviewed by the City to ensure consistency and compliance with the siting and design concepts set forth in the policies, the zoning regulations, and the LSAP. Therefore, implementation of the LSAP would not substantially degrade the visual character or quality of the plan area or its surroundings. The impact would be **less than significant**.

Mitigation Measures

None required.

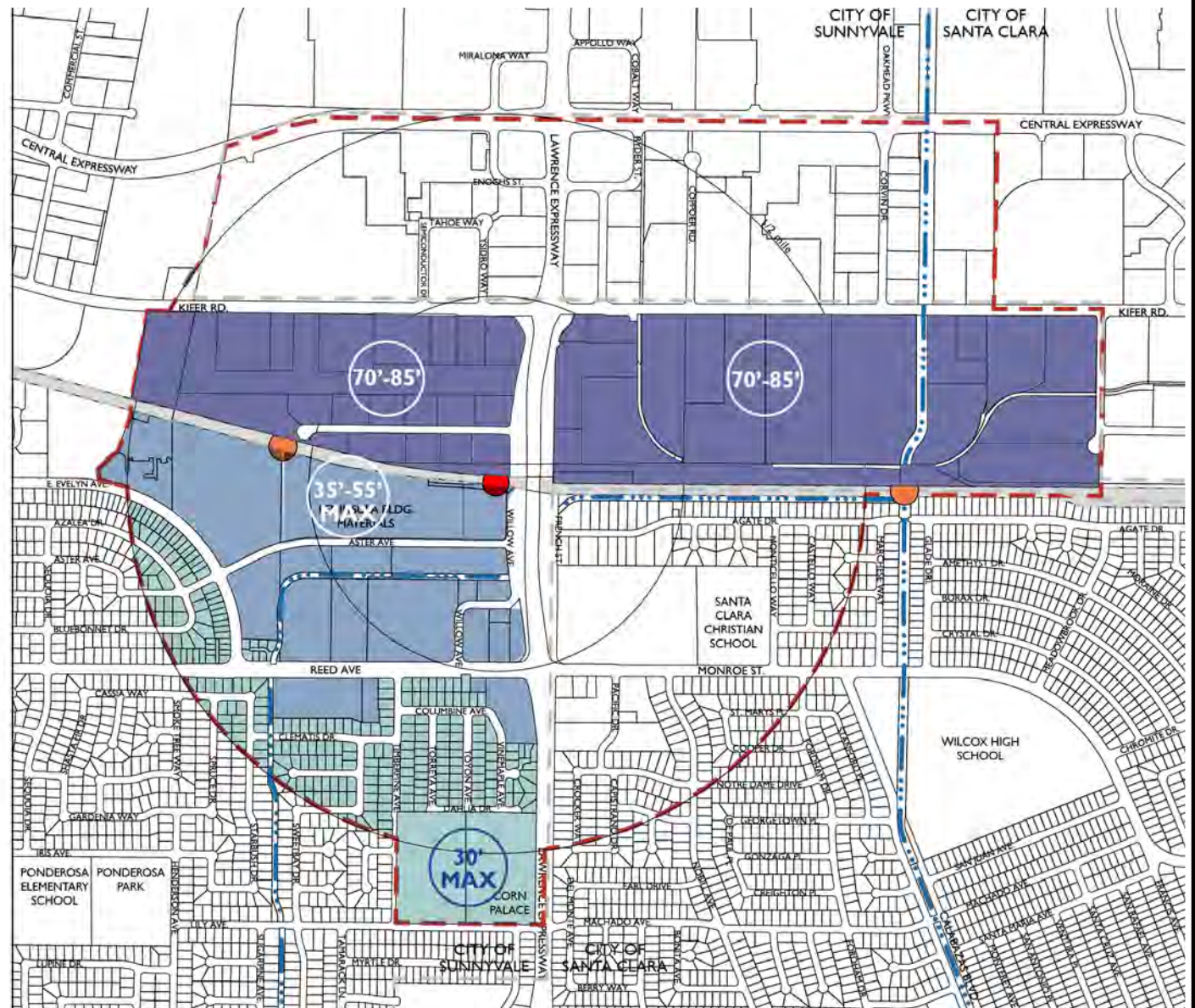


Source: BMS Design Group

Not To Scale

Figure 3.12-1
Transit Core Illustrative Concept Plan

- LEGEND**
- STUDY AREA BOUNDARY
 - CITY BOUNDARY
 - EL CAMINO STORM DRAIN CHANNEL / CALABAZAS CREEK
 - LAWRENCE CALTRAIN STATION (EXISTING PEDESTRIAN / BICYCLE UNDERCROSSING)
 - NEW PEDESTRIAN / BICYCLE RAIL CROSSING
 - 2 STORIES | 30' MAX
 - 35' -55' MAX
 - 8 STORIES | 75'-100' MAX



Source: BMS Design Group

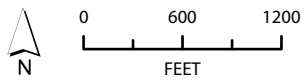


Figure 3.12-2
Proposed Building Height Zones

Light and Glare (Standard of Significance 4)

Impact 3.12.2 Subsequent projects developed under the LSAP could result in an increase of nighttime lighting and glare. This impact would be **less than significant**.

There are existing sources of nighttime lighting and glare in the plan area because it is nearly built out with residential and nonresidential uses. The LSAP includes a proposed lighting plan for roadways and pedestrian/bicycle facilities (see **Figure 3.12-3**). New development in the Transit Core, West, East, and Peninsula subareas would comprise the predominant potential sources of additional nighttime lighting and illumination in the plan area because those areas could experience the greatest amount of land use changes. Potential sources of nighttime lighting would be expected to include exterior lighting on new nonresidential and residential buildings, light emanating from building interiors, additional street lighting on new street improvements (e.g., The Loop, which would be a public roadway to provide access to redeveloped areas where currently only private roads serve the nonresidential uses north of the Caltrain tracks), pedestrian/bicycle trail lighting, and safety lighting. Increased nighttime lighting and illumination could result in spillover lighting that could occur within the plan area and in off-site adjacent locations. Additional nighttime illumination could also contribute to existing skyglow conditions. Glare could be created from reflective surfaces, such as vehicles in parking lots and windows on buildings.

The LSAP contains several areawide design guidelines that would help reduce the potential for spillover lighting and skyglow effects associated with nighttime illumination and to minimize glare from reflective surfaces. For example, a Lighting Master Plan would be required as part of the Streetscape Master Plan (Guideline L-UDG1). Dark sky goals would be incorporated into the Lighting Master Plan (L-UDG2). Other guidelines address the use of luminaries with white, natural-appearing light in pedestrian and retail areas and requirements for pole heights that relate to the scale of the street and include shielding or directionality to avoid light spillover and glare. Potential glare effects from new buildings would be minimized through Guideline BO-UDG3 (clear, nonreflective glazing on all windows at street level) and avoiding highly reflective surfaces and materials (BM-UDG5). Shading and perimeter landscaping at surface parking lots (PK-UDG9) would reduce the amount of glare that could be generated from vehicle windshields.

Additionally, compliance with Section 19.42.050 of the Sunnyvale Municipal Code would further minimize potential light and glare impacts by ensuring that all lights, spotlights, floodlights, reflectors, and other means of illumination are 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.

Implementation of the proposed lighting, building design, and landscaping guidelines, as well as continued compliance with the City's existing lighting regulations, would ensure that potential light and glare impacts are reduced to a level that would be **less than significant**.

Mitigation Measures

None required.

Shade/Shadow

3.12 VISUAL RESOURCES AND AESTHETICS

Impact 3.12.3 Subsequent projects developed under the LSAP could increase the amount of shade and shadow in public areas. This impact would be **less than significant**.

Development in the Transit Core and adjoining West and East subareas could involve buildings that may be up to 85 feet tall, which would be substantially taller than the existing low-rise buildings that currently occupy those areas. This could result in increased potential for shadow effects in public areas, such as retail streets and open spaces. However, such effects would be minimized through LSAP guidelines such as varying building heights, footprints, and stepped setbacks, which would reduce the potential shadow-producing building mass. In addition, LSAP Guideline BH-UDG1 would restrict building heights under specific situations (e.g., around parks and public open spaces to maximize daylight/sky exposure), and guideline BMA-UDG2 requires articulated building façades, walls, and massing to reduce the impacts of shade on open spaces, pedestrian corridors, and retail streets. The LSAP recognizes the importance of future public open spaces in the Calabazas Creek subarea, and subarea guideline CCS-UDG5 would limit building heights along the linear park setback to a maximum of three stories for compatibility with the park's pedestrian scale and to avoid shadows on usable public open spaces.

Therefore, implementation of the proposed LSAP would not create new shadow in a manner that would detract from the usability of public outdoor areas or open space areas. Impacts would be **less than significant**.

Mitigation Measures

None required.

3.12.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for the analysis of visual resources and aesthetics is the viewshed comprising the cities of Sunnyvale, Santa Clara, Cupertino, and Mountain View.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

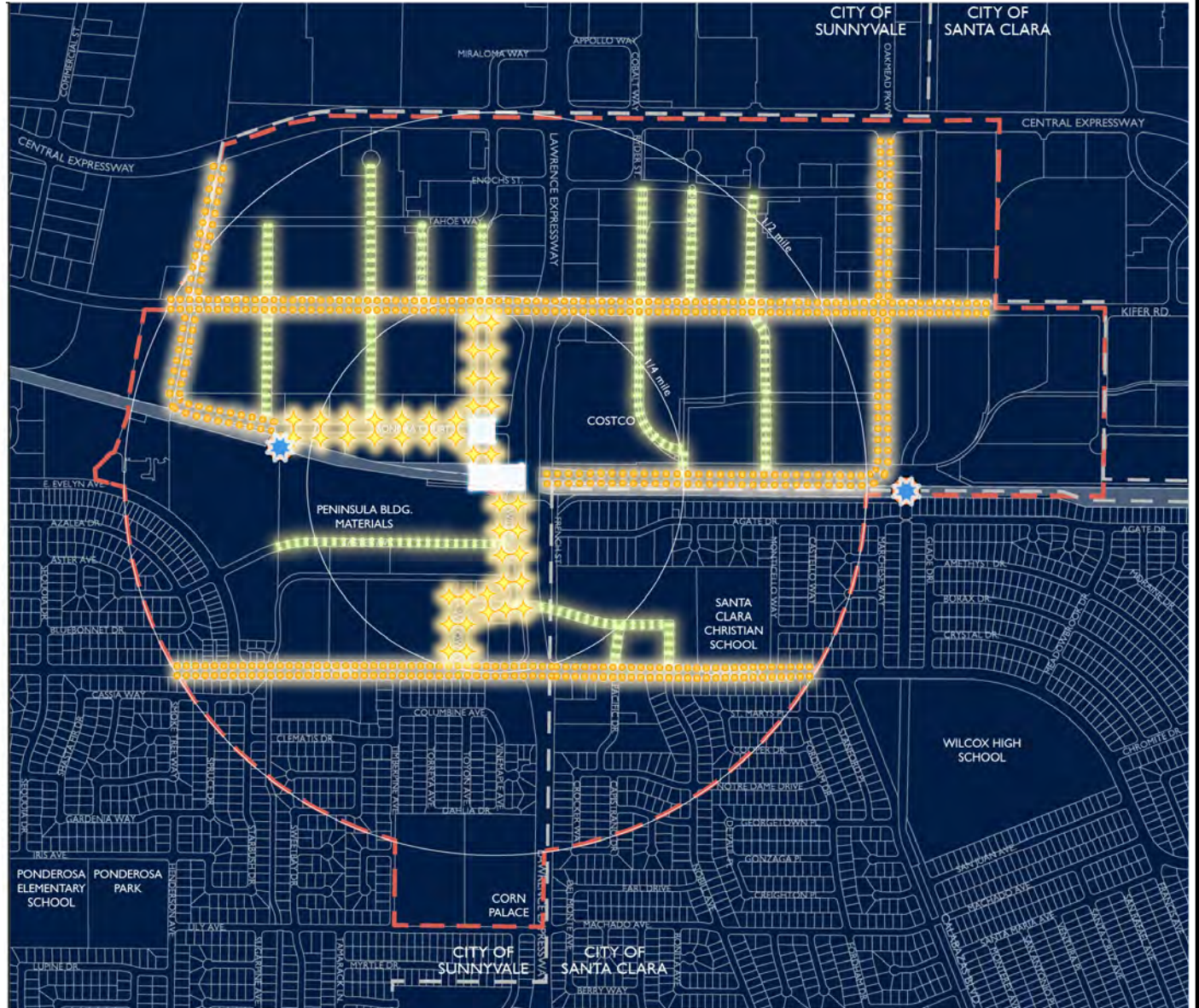
Cumulative Impacts on Visual Resources and Aesthetics

Impact 3.12.4 Implementation of the proposed LSAP would not result in a significant contribution to the cumulative conversion of open space or illumination of the night sky. This impact would be **less than cumulatively considerable**.

Cumulative development in the surrounding cities would not significantly alter the scenic resources and visual character because the visual characteristics of those cities are defined by dense urban environments. As discussed under Impacts 3.12.1 and 3.12.2, implementation of the proposed LSAP would result in the intensification of urban development in the plan area, which when combined with continued urban development in nearby communities, could result in a cumulative change to the region's visual environment (which is urban in nature). However, such a change would have minimal impact on visual resources and aesthetics. The LSAP would be implemented in an already urbanized area. The City has adopted development standards and design guidelines to promote quality design, building materials, and landscaping that would apply to development and redevelopment in the plan area, and the LSAP also contains design guidelines to ensure it would complement existing developed conditions. Therefore, the project's contribution would be **less than cumulatively considerable**.

LEGEND

- STUDY AREA BOUNDARY
- CITY BOUNDARY
- LAWRENCE CALTRAIN STATION (EXISTING PEDESTRIAN / BICYCLE UNDERCROSSING)
- NEW PEDESTRIAN / BICYCLE RAIL CROSSING
- PEDESTRIAN ORIENTED LIGHTING
- PLAZA LIGHTING
- BOULEVARD LIGHTING
- NEIGHBORHOOD STREET LIGHTING
- ✦ SAFETY LIGHTING AT UNDERPASS



Source: BMS Design Group



Figure 3.12-3
Proposed Lighting Plan

As discussed under Impact 3.12.2, development under the proposed LSAP could result in the addition of new sources of nighttime lighting and daytime glare. However, the plan area and adjoining locations already contain substantial sources of nighttime lighting and glare. Implementation of the proposed urban design and streetscape guidelines identified in the LSAP for each development project would minimize light spillover, skyglow, and glare effects. Therefore, the proposed project's contribution to this impact would be **less than cumulatively considerable**.

Shade/shadow impacts, if any, would be project-specific and generally confined to the individual project site. As such, the project would not combine with shade/shadow effects elsewhere to result in a cumulative impact. The proposed LSAP's contribution to this impact would be **less than cumulatively considerable**.

Mitigation Measures

None required.

3.12 VISUAL RESOURCES AND AESTHETICS

REFERENCES

Caltrans (California Department of Transportation). 2013. California Scenic Highway Mapping System. Accessed October 22. http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm.

3.13 GREENHOUSE GASES AND CLIMATE CHANGE

3.13 GREENHOUSE GASES AND CLIMATE CHANGE

This section provides a discussion of the project's effect on greenhouse gas (GHG) emissions and the associated effects of climate change. The reader is referred to Section 3.2, Air Quality, for a discussion of project impacts associated with air quality.

A summary of impact conclusions is provided below.

Impact Number	Impact Topic	Impact Significance
3.13.1	Generation of Greenhouse Gas Emissions and Compliance with Sunnyvale Climate Action Plan	Less than cumulatively considerable

3.13.1 EXISTING SETTING

Since the early 1990s, scientific consensus holds that the world's population is releasing GHGs faster than the earth's natural systems can absorb them. These gases are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to a warming of the earth and has the potential to severely impact the earth's climate system.

While often used interchangeably, there is a difference between the terms *climate change* and *global warming*. According to the National Academy of Sciences, climate change refers to any significant, measurable change of climate lasting for an extended period of time that can be caused by both natural factors and human activities. Global warming, on the other hand, is an average increase in the temperature of the atmosphere caused by increased GHG emissions. Use of the term *climate change* is becoming more prevalent because it encompasses all changes to the climate, not just temperature.

To fully understand global climate change, it is important to recognize the naturally occurring greenhouse effect and to define the GHGs that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are CO₂, CH₄, and N₂O.

Table 3.13-1 provides descriptions of the primary GHGs attributed to global climate change, including a description of their physical properties, primary sources, and contribution to the greenhouse effect.

3.13 GREENHOUSE GASES AND CLIMATE CHANGE

**TABLE 3.13-1
GREENHOUSE GASES**

Greenhouse Gas	Description
Carbon Dioxide (CO ₂)	Carbon dioxide is a colorless, odorless gas. CO ₂ is emitted in a number of ways, both naturally and through human activities. The largest source of CO ₂ emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO ₂ emissions. The atmospheric lifetime of CO ₂ is variable because it is so readily exchanged in the atmosphere. ¹
Methane (CH ₄)	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH ₄ to the atmosphere. Natural sources of CH ₄ include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH ₄ is about 12 years. ²
Nitrous Oxide (N ₂ O)	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N ₂ O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. Nitrous oxide is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N ₂ O is approximately 120 years. ³

Sources: ¹ EPA 2011a, ² EPA 2011b, ³ EPA 2010

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Methane traps over 28 times more heat per molecule than CO₂, and N₂O absorbs 265 times more heat per molecule than CO₂. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO₂e), which weigh each gas by its global warming potential (GWP). Expressing GHG emissions in CO₂e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of the California Environmental Quality Act (CEQA), greenhouse gas impacts to global climate change are inherently cumulative.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural emissions sectors (CARB 2014). California is a significant emitter of CO₂e in the world and produced 459 million gross metric tons of CO₂e in 2012 (CARB 2014). In the state, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CARB 2014). Emissions of CO₂ are byproducts of fossil fuel combustion. CH₄, 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. N₂O is also largely attributable to agricultural practices and soil management. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and

dissolution (CO₂ dissolving into the water), respectively, two of the most common processes for removing carbon dioxide from the atmosphere.

EFFECTS OF GLOBAL CLIMATE CHANGE

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to provide the world with a scientific view on climate change and its potential effects. According to the IPCC, global average temperature is expected to increase relative to the 1986–2005 period by 0.3 to 4.8 degrees Celsius (°C) (0.5–8.6 degrees Fahrenheit [°F]) by the end of the twenty-first century (2081–2100), depending on future GHG emission scenarios (IPCC 2014). According to the California Natural Resources Agency (2012, p. 2), temperatures in California are projected to increase 2.7°F above 2000 averages by 2050 and, depending on emission levels, 4.1–8.6°F by 2100.

Physical conditions beyond average temperatures could be indirectly affected by the accumulation of GHG emissions. For example, changes in weather patterns resulting from increases in global average temperature are expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. Based on historical data and modeling, the California Department of Water Resources projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050 (DWR 2008, p. 4). An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the Sierra Nevada until spring could flow into the Central Valley concurrently with winter storm events (CNRA 2012, p. 5). This scenario would place more pressure on California's levee/flood control system.

Another outcome of global climate change is sea level rise. The sea level rose approximately 7 inches during the last century and, assuming that sea level changes along the California coast continue to track global trends, the sea level along the state's coastline in 2050 could be 10–18 inches higher than in 2000 and 31–55 inches higher by the end of this century (CNRA 2012, p. 9).

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable conditions are no longer available (CNRA 2012, pp. 11 and 12).

Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and the associated moisture content of plants and soils. An increase in the frequency of extreme heat events and drought is also expected. These changes are expected to lead to increased frequency and intensity of large wildfires (CNRA 2012, p. 11).

The San Francisco Bay Conservation and Development Commission (BCDC) issued a report on sea level rise that states that sea level along the West Coast rises approximately 7.9 inches per century, or approximately 0.08 inches per year (BCDC 2011). However, the rate of sea level rise is increasing. During the period of 1993–2003, the rate was approximately 0.12 inches per year, which could demonstrate the result of human-induced warming on sea level. The BCDC uses the same sea level rise estimates that are used by California Climate Action Team-funded assessments. These estimates anticipate the sea level in the Bay Area will rise 16 inches by mid-century and 55 inches by the end of the century.

3.13 GREENHOUSE GASES AND CLIMATE CHANGE

This data was used to make maps of projected flood areas but does not take into consideration existing shoreline protections; if an area is below sea level, it is shown as vulnerable on their maps despite any existing projections. By mid-century, approximately 180,000 acres of the Bay Area could be flooded, and 213,000 acres could be flooded by the end of the century. A large amount of development along the shoreline is vulnerable to flooding and erosion. Due to Bay Area topography, 100 percent of the development located in 100-year floodplain areas will likely flood by the year 2050. Also, different parts of the Bay Area are more vulnerable to flooding and erosion than others. In the vulnerable areas are several large commercial and industrial developments, including 93 percent of both the Oakland and the San Francisco airports that may be inundated by 2100. Half of the vulnerable development is residential and approximately 270,000 people would be at risk of flooding and problems with erosion. Approximately 4,300 acres of waterfront parks are expected to flood by 2100 (BCDC 2011).

The Bay Area currently has approximately 300 miles of public access to and along the San Francisco Bay shoreline. Eighty-seven (87) percent of that access is located in areas vulnerable to flooding and erosion by 2100. It may be very hard to relocate or re-create access opportunities in areas further inland. Jetties and seawalls may have to be raised and strengthened to protect harbors that are used for shipping, recreation, and tourism. As discussed above, by the year 2050, 100 percent of 100-year floodplain areas are expected to be flooded, and by the year 2100 an estimated 213,000 acres of Bay Area land, much of which is in the central Bay Area, could be impacted.

The City of Sunnyvale is located in the southern Bay Area. A portion of Sunnyvale just north and just east of Moffett Federal Airport could potentially be exposed to sea level rise by the year 2050. Fortunately, this area is largely undeveloped; however, by 2100 a larger area of Sunnyvale could be exposed, including existing development (generally land areas between the bay and SR 237). Much of the developed Bay Area shoreline will require enhanced shoreline protection, which will be developed regionally to maximize safety and minimize impacts on sensitive Bay resources, including public access, visual resources, and soil stability. Structural shoreline protections common to the Bay Area include seawalls, riprap revetments, and levees. These protections are reliable but expensive to build and maintain and often cause significant impacts to resources. Incorporating ecosystem elements with engineering elements would provide balanced and long-term shoreline protection.

City of Sunnyvale Greenhouse Gas Emissions Inventory

The City of Sunnyvale's Climate Action Plan includes a community-wide GHG inventory for the baseline year of 2008. In 2016, the City conducted an inventory of GHG emissions for the 2014 calendar year to track the City's progress toward its GHG reduction target. A community-wide GHG inventory identifies sources and estimates quantifies of GHG emissions generated from activities by the Sunnyvale community. The 2008 and 2014 emissions sources calculated in the baseline GHG inventory include commercial, residential, and industrial electricity and natural gas use, on-road transportation and rail transit (BART and Caltrain), solid waste disposal, energy use and direct process emissions related to water and wastewater, and off-road equipment use for construction and lawn and garden activities. GHG emissions from these activities were calculated from activity data such as kilowatt hours of electricity, therms of natural gas, tons of waste disposed, and vehicle miles traveled (VMT) from trips with an origin or destination in Sunnyvale. In 2008, the community emitted approximately 1,270,170 metric tons of CO₂e, while the City's 2014 community emissions totaled 971,140 metric tons (15.8% lower than 2008 emissions).

3.13.2 REGULATORY FRAMEWORK

California has adopted various administrative initiatives and legislation relating to climate change, much of which set aggressive goals for GHG emissions reductions in the state. Although lead agencies must evaluate climate change and greenhouse gas emissions of projects subject to the California Environmental Quality Act, the CEQA Guidelines do not require or suggest specific methodologies for performing an assessment or specific thresholds of significance and do not specify GHG reduction mitigation measures. Instead, the guidelines allow lead agencies to choose methodologies and make significance determinations based on substantial evidence, as discussed in further detail below. In addition, no state agency has promulgated binding regulations for analyzing GHG emissions, determining their significance, or mitigating significant effects in CEQA documents. Thus, lead agencies exercise their discretion in determining how to analyze GHGs.

CALIFORNIA GLOBAL WARMING SOLUTIONS ACT (ASSEMBLY BILL 32)

The primary act that has driven GHG regulation and analysis in California include the California Global Warming Solutions Act of 2006 (AB 32) (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599), which instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The act directed CARB to set a greenhouse gas emissions limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020.

AB 32 Scoping Plan

CARB adopted the Scoping Plan to identify how the state would achieve the goals of Assembly Bill (AB) 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. CARB determined that achieving the 1990 emissions level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business as usual"). The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. Additional development of these measures and adoption of the appropriate regulations occurred through the end of year 2013.

Key elements of the first Scoping Plan included:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
- Achieving a statewide renewables energy mix of 33 percent.
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions.
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.

3.13 GREENHOUSE GASES AND CLIMATE CHANGE

- Adopting and implementing measures pursuant to existing state laws and policies, including California’s clean car standards, heavy-duty truck measures, and the Low Carbon Fuel Standard.
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State of California’s long-term commitment to AB 32 implementation (CARB 2008).

In 2012, CARB released revised estimates of the expected 2020 emissions reductions. The revised analysis relies on emissions projections updated in light of current economic forecasts that account for the economic downturn since 2008, reduction measures already approved and put in place relating to future fuel and energy demand, and other factors. This reduced the projected 2020 emissions from 596 million metric tons (MMT) CO₂e to 545 MMTCO₂e. The reduction in projected 2020 emissions means that the revised business-as-usual (BAU) reduction necessary to achieve AB 32’s goal of reaching 1990 levels by 2020 is now 21.7 percent. CARB also provided a lower 2020 inventory forecast that incorporated State-led GHG emissions reduction measures already in place. When this lower forecast is considered, the necessary reduction from BAU needed to achieve the goals of AB 32 is approximately 16 percent.

AB 32 requires CARB to update the Scoping Plan at least once every five years. CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts to California and the levels of GHG reduction necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32. The Scoping Plan update also looks beyond 2020 toward the 2050 goal established in Executive Order S-3-05, though not yet adopted as state law, and observes that “a mid-term statewide emission limit will ensure that the State stays on course to meet our long-term goal.” The Scoping Plan update does not establish or propose any specific post-2020 goals, but identifies such goals adopted by other governments or recommended by various scientific and policy organizations. Executive Order B-30-15 (signed April 29, 2015) endorses the effort to set interim GHG reduction targets for year 2030 (40% below 1990 levels).

Table 3.13-4 provides a brief overview of the other California legislation relating to climate change that may affect the emissions associated with the proposed project.

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**TABLE 3.13-4
CALIFORNIA STATE CLIMATE CHANGE LEGISLATION**

Legislation	Description
Assembly Bill 1493 and Advanced Clean Cars Program	Assembly Bill 1493 (“the Pavley Standard”) (Health and Safety Code Sections 42823 and 43018.5) aims to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks of model years 2009–2016. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO ₂ e emissions and 75 percent fewer smog-forming emissions.
Low Carbon Fuel Standard (LCFS)	Executive Order S-01-07 (2007) requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California. The regulation took effect in 2010 and is codified at Title 17, California Code of Regulations, Sections 95480–95490. The LCFS will reduce greenhouse gas emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020.
Renewables Portfolio Standard (Senate Bill X1-2 & Senate Bill 350)	California’s Renewables Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. The 33 percent standard is consistent with the RPS goal established in the Scoping Plan. The passage of Senate Bill 350 in 2015 updates the RPS to require 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. The bill will make other revisions to the RPS Program and to certain other requirements on public utilities and publicly owned electric utilities.
Senate Bill 375*	Senate Bill (SB) 375 (codified in the Government Code and the Public Resources Code) took effect in 2008 and provides for a new planning process to coordinate land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires metropolitan planning organizations (MPOs) to incorporate a Sustainable Communities Strategy in their Regional Transportation Plans that will achieve GHG emissions reduction targets by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities.
California Building Energy Efficiency Standards	In general, the California Building Energy Efficiency Standards require the design of building shells and building components to conserve energy. The California Energy Commission adopted changes to the 2013 Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 6 (also known as the California Energy Code) and associated administrative regulations in Part 1. The amended standards took effect in the summer of 2014. The 2013 Building Energy Efficiency Standards are 25 percent more efficient than previous standards for residential construction and 30 percent better for nonresidential construction. The standards offer builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses. Energy-efficient buildings require less electricity; and increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions.
California Green Building Standards	The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics.

* Senate Bill 375 is codified at Government Code Sections 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588, 14522.1, 14522.2, and 65080.01, as well as at Public Resources Code Sections 21061.3 and 21159.28 and Chapter 4.2.

3.13 GREENHOUSE GASES AND CLIMATE CHANGE

California Executive Orders

In addition to the legislation identified in **Table 3.13-4**, two Executive Orders, California Executive Order S-03-05 (2005) and California Executive Order B-30-15 (2015), highlight GHG emissions reduction targets, though such targets have not been adopted by the state and remain only a goal of the Executive Orders. Specifically, Executive Order S-03-05 seeks to achieve a reduction of GHG emissions of 80 percent below 1990 levels by 2050 and Executive Order B-30-15 seeks to achieve a reduction of GHG emissions of 40 percent below 1990 levels by 2030. The Executive Orders are not laws but do provide the Governor's direction to state agencies in their actions. For instance, as a result of the AB 32 legislation, the State's 2020 reduction target is backed by the adopted AB 32 Scoping Plan, which provides a specific regulatory framework of requirements for achieving the 2020 reduction target. The State-led GHG reduction measures identified in **Table 3.13-4**, such as the Low Carbon Fuel Standard and the Renewables Portfolio Standard, are largely driven by the AB 32 Scoping Plan. Executive Orders S-03-05 and B-30-15 do not have any such framework and therefore provide no specific emissions reduction mechanisms.

REGIONAL

Bay Area Air Quality Management District

The Bay Area Air Quality Management District's (2011) CEQA Air Quality Guidelines were developed to assist lead agencies in evaluating air quality impacts for projects and plans in the San Francisco Bay Area Air Basin. The guidelines were updated in 2010 to include guidance on assessing GHG and climate change impacts as required under CEQA Section 15183.5(b) and to establish thresholds of significance for impacts related to GHG emissions. These thresholds can be used to assess plan-level and project-level impacts.

LOCAL

City of Sunnyvale Climate Action Plan

The City's (2014) Climate Action Plan (CAP) was prepared consistent with the Bay Area Air Quality Management District's (BAAQMD) expectations for a Qualified GHG Reduction Strategy. The standard elements of a Qualified GHG Reduction Strategy include the following steps:

- 1) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic range.
- 2) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable.
- 3) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area.
- 4) Specify measures or a group of measures, including performance standards that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.
- 5) Monitor the plan's progress.
- 6) Adopt the greenhouse gas reduction strategy in a public process following environmental review.

The Sunnyvale CAP was developed to satisfy these requirements. The CAP will allow future development projects to assess their consistency with the City's CAP. The CAP as a qualified GHG reduction strategy allows the City to determine that development projects that demonstrate consistency and/or compliance with the CAP could have a less than significant impact on GHG emissions. The framework of the CAP consists of (1) an inventory of GHG emissions that identifies and quantifies existing emissions and projected future emissions; (2) reduction targets to reduce GHG emissions incrementally by 2010, 2020, and 2035; (3) the goals, measures, and action items that have been devised to reduce existing emissions to meet state, regional, and local GHG emissions reduction targets; and (4) a implementation and reporting program

Specifically, the CAP identifies that the City's GHG emissions per service population will decrease from 6.1 metric tons per person in 2008 to 3.6 metric tons per person in 2020 and 2.6 metric tons per person in 2035, and identifies how the City will achieve and exceed the State-recommended GHG emissions reduction target of 15 percent below 2008 levels (equivalent to 1990 emissions) by the year 2020 and continue on a trajectory toward the Executive Order S-3-05 target for 2050 (i.e., 80 percent below 1990 levels by 2050). The CAP provides goals and associated measures, also referred to as reduction measures, in the sectors of energy use, transportation, land use, water, solid waste, and off-road equipment. Several CAP reduction measures are directly applicable to individual development projects, which are required to adhere to the CAP as a condition of development approval.

The City's CAP and its reduction targets are consistent with AB 32, post-2020 statewide GHG reduction goals, and CARB recommendations to ensure that California emissions are reduced.

City of Sunnyvale General Plan

The Land Use and Transportation chapter of the General Plan contain the following policies that are relevant to the analysis of GHG emission-related impacts:

Land Use and Transportation

- | | |
|-----------------|--|
| Policy LT-1.3b | Promote shorter commute trips and ease congestion by advocating that all communities provide housing and employment opportunities. |
| Policy LT-1.7a | Locate higher intensity land uses and developments so that they have easy access to transit services. |
| Policy LT-1.9b | Promote modes of travel and actions that reduce single-occupant vehicle trips and trip lengths. |
| Policy LT-1.10b | Support alternative transportation services, such as light rail, buses and commuter rail, through appropriate land use planning. |
| Policy LT-1.10c | Encourage mixed uses near transit centers. |
| Policy LT-2.2c | Encourage development of multi-modal transportation centers. |
| Policy LT-3.4a | Locate higher-density housing with easy access to transportation corridors, rail transit stations, bus transit corridor stops, commercial services and jobs. |
| Policy LT-4.3c | Design streets, pedestrian paths and bicycle paths to link neighborhoods with services. |

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- Policy LT-4.14b Ensure the provision of bicycle support facilities at all major public use locations.
- Policy LT-5.2c Encourage mixed use developments that provide pedestrian scale and transit oriented services and amenities.
- Policy LT-5.5a Promote alternate modes of travel to the automobile.
- Policy LT-5.5b Require sidewalk installation in subdivisions of land and in new, reconstructed or expanded development.
- Policy LT-5.5c Support land uses that increase the likelihood of travel mode split.
- Policy LT-5.5d Maximize the provision of bicycle and pedestrian facilities.

3.13.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

GHG and climate change-related impacts were assessed in accordance with methodologies recommended by the BAAQMD, based on the development potential assumptions described in Section 2.0, Project Description. This impact discussion assumes full development potential under the proposed Lawrence Station Area Plan by the year 2035.

Proposed LSAP Policies and Guidelines

The analysis in this section assumes implementation of the relevant polices (P) and urban design guidelines (UDG) proposed in the LSAP. The guidelines listed below are not all-inclusive but are intended to highlight overall design considerations that address potential greenhouse gas emission reduction.

Land Use

- LU-G5 *Provide a mix of uses within the Plan area that encourages transit ridership, creates a neighborhood of 24-hour activity and supports the provision of amenities such as open space and support services such as retail.*
- LU-P3 *Allow transition to higher density transit-supportive uses as opportunities arise through turnover of businesses or property ownership.*

Housing

- H-G1 *Provide sufficient housing in the Plan area to support an increase rail transit ridership.*

Retail

- R-G4 *Provide retail that is convenient and accessible to pedestrians and transit users.*
- R-G5 *Do not encourage auto-oriented and auto serving retail.*

Open Space

- OSG-1 *Establish a system of parks and public spaces connected by green corridors and linear parks that serve and connect both new residential development and new non-residential development.*
- OSG-2 *Provide open space within a five- to ten minute walk of all residents and employees.*
- OSG-3 *Connect open space areas to local and regional bikeways and trail networks to the greatest extent possible.*
- OSP-4 *Provide pedestrian and bicycle amenities on all Green Streets, including abundant landscaping, Class I or Class II bicycle facilities, lighting and intersection amenity and safety improvements.*

Development

- D-G1 *Develop the Plan area with a diverse mix of uses at intensities sufficient to support and take advantage of the significant existing public investment in transit.*

Circulation

- CF-G1 *Create a complete, multi-modal transportation network that supports a mixed-use neighborhood throughout the Plan area.*
- CF-G2 *Create a balanced circulation system that is accessible to all modes of travel and does not favor one mode over another.*
- CF-G3 *Create a street and block framework that provides a variety of vehicular access options and is scaled to pedestrians.*
- CF-G5 *Improve access to bus and rail transit by all modes of travel.*
- CF-G6 *Create streets (both new and improved) that are comfortable and convenient for pedestrians, so walking is a pleasure and accessing residences and businesses is easy.*
- CF-G7 *Make the area in and around the station bicycle-friendly, so residents and employees of all ages and abilities can feel comfortable and secure biking to work, services, and for recreation.*
- CF-P1 *In the residential areas south of the Caltrain tracks, retain the existing framework of streets and blocks. Improve existing streets to provide safer street crossings and minor access improvements for pedestrians, bicycles and transit users.*
- CF-P12 *Provide a wide, landscaped pedestrian sidewalk zone, continuous Class II bicycle lanes, on-street parking and transit stops continuously along Kifer Road in the Plan area.*

Pedestrian

- P-G1 *Provide safe, inviting, and attractive pedestrian connections for residents, workers and visitors to Lawrence Station and other key destinations in the Plan area.*

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- P-P1 Promote walking access through new street connections.
- P-P2 Provide two new Caltrain track crossings for pedestrians and bicyclists: one at the Calabazas Creek Trail (per study by the City of Santa Clara); the other west of Lawrence Expressway aligning with and connecting to The Loop near the western end of Sonora Court.
- P-P3 Facilitate pedestrian access and safety along key pedestrian corridors through pedestrian enhancements, including crosswalk enhancements, sidewalk extensions (bulbouts), and wider sidewalks.
- P-P4 Provide enhanced crosswalks on all legs of signalized intersections and at key pedestrian crossing locations.
- P-P5 Provide new pedestrian crossings, including potential mid-block crosswalks, on Reed Avenue, Kifer Road, and The Loop.
- P-P6 Provide sidewalk extensions (bulbouts) on all new streets, where feasible, and on select existing streets along primary pedestrian corridors.

Bicycle

- B-P1 Require property development to provide Class I and Class II bicycle facilities to fill in the gaps in the existing and planned bicycle network.
- B-P2 Provide direct Class I and Class II bicycle connections to the future Calabazas Creek Trail from The Loop.
- B-P3 Provide direct Class I multi-use public linkages between The Loop in the northeast quadrant of the Plan area to the Calabazas Creek Trail at spacings not to exceed 400 feet.
- B-P4 Connect new neighborhood open spaces with publicly-accessible streets, bicycle facilities and pedestrian linkages.
- B-P5 Install bicycle detection loops at signalized intersections.
- B-P6 Provide Class I or Class II bicycle parking per Lawrence Station Area Plan bicycle parking requirements.
- B-P7 Implement a bicycle sharing program.

Public Transit

- PT-P4 Provide bus stops with bus pull-outs, shelters, furnishings, lighting and signage along the Primary Loop Road and all other bus transit streets in the Plan area.
- PT-P5 Locate bus stops on the Primary Loop Road approximately every ¼-mile (1,300 feet).

Transportation Demand Management

- TDM-P2 *Achieve a daily trip reduction target of 20 percent and a peak hour trip reduction target of 30 percent for new Office/R&D development.*
- TDM-P3 *Achieve a peak hour trip reduction of 5 percent for new retail and residential development*
- TDM-P4 *Include incentives for the provision of the following features as part of a TDM program for the Plan area:*
- a. Provide shuttle service*
 - b. Provide bicycle parking and end-of-trip facilities (e.g., lockers, showers)*
 - c. Create marketing campaigns to discourage auto trips*
 - d. Offer low-cost or free transit passes to employees*
 - e. Dedicate carpool/vanpool parking spaces*
 - f. Offer cash in place of a free parking space (parking cash-out)*
 - g. Charge for parking*
 - h. GreenTrip registration.*

Parking

- PK-G1 *Manage future parking supply so that it promotes and supports transit ridership as well as the needs of local retail, employment and residential uses.*
- PK-P1 *Adopt specific parking requirements for all new development in the Plan area.*
- PK-P3 *Establish a shared parking program in advance of development, with the following features:*
- a. Require developers to submit a shared parking analysis.*
 - b. Allow new development to either provide sufficient off-street parking supply to meet the incremental increase in parking demand associated with the proposed project, and/or lease parking spaces from earlier parcel owners who have available parking located adjacent to the development parcel (within ¼ mile radius or closer).*
 - c. Require new residential development to provide no more than 1.7 parking spaces per residential unit for exclusive use by residents. Additional parking supply that may be needed for the development shall be provided in shared facilities that will be required to be open to all users, including transit station patrons.*

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- d. *Price shared parking facilities according to market conditions, and encourage management by either the parcel owner, or the Plan area Parking Management District.*
- e. *Consider allowing on-street parking spaces to be added as part of the development of a parcel to count towards a project's required shared parking supply, but do not allow it to be used as reserved spaces for residential uses.*
- f. *Verify the accuracy of the parking demand estimates of the shared parking model based on interim parking demand counts over the course of the build-out of the Plan area. Conduct parking counts during the peak parking demand period as identified in the shared parking analysis: weekday afternoons in December. Parking ratios in the shared parking model shall be calibrated to the parking demand counts if there is a significant discrepancy.*

PMP-4: Plan for structured parking as demand increases. This can be in the form of a stand-alone parking structure for nearby users, or shared parking integrated with residential or office/R&D uses.

PMP-5: Unbundle parking costs from property or lease costs.

PMP-6: Provide parking spaces at the Lawrence Caltrain Station for the exclusive use of car sharing vehicles.

PMP-7: Implement a parking pricing system as demand for parking in the area increases.

PMP-8: Establish a residential parking permit (RPP) program in the Plan area in the future if / when analysis demonstrates a need for such measures.

Utilities

U-P7 Minimize the use of irrigation-dependent landscape improvements for public streets, rights-of-way, and open space.

U-P8 In areas where large irrigation demand is anticipated, construct improvements such that they can be efficiently switched to recycled water when it is available.

Street Planting

STP-UDG1 Plant street trees on all streets

Lighting

L-UDG4 Utilize energy-efficient lighting, such as light-emitting diode (LED) bulbs.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the application of the following CEQA Guidelines Appendix G thresholds of significance. Climate change impacts are considered significant if implementation of the proposed project would:

- 1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- 2) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The California Natural Resources Agency has noted that impacts of GHG emissions should focus on the cumulative impact on climate change. Thus, CEQA amendments continue to make clear that the significance of GHG emissions is most appropriately considered on a cumulative level.

Addressing GHG generation impacts requires an agency to make a determination as to what constitutes a significant impact. The CEQA Guidelines give authority to lead agencies to determine thresholds of significance that illustrate the extent of an impact and are a basis from which to apply mitigation measures. This means that each agency is left to determine whether a project's GHG emissions will have a significant impact on the environment. The guidelines direct that agencies are to use "careful judgment" and "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" the project's GHG emissions (14 California Code of Regulations Section 15064.4(a)).

A number of expert agencies throughout the state, including the BAAQMD, have drafted or adopted varying threshold approaches and guidelines for analyzing 2020 operational greenhouse gas emissions in CEQA documents. The different thresholds include (1) compliance with a qualified GHG reduction strategy, (2) performance-based reductions, (3) numeric "bright-line" thresholds, and (4) efficiency-based thresholds.

The California Supreme Court decision in the *Center for Biological Diversity et al. v. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (November 30, 2015, Case No. S217763) (hereafter *Newhall Ranch*) confirmed that when an "agency chooses to rely completely on a single quantitative method to justify a no-significance finding, CEQA demands the agency research and document the quantitative parameters essential to that method."

The BAAQMD CEQA Guidelines include guidance on assessing greenhouse gases and climate change impacts as required under CEQA Section 15183.5(b) and establish thresholds of significance for impacts related to GHG emissions. The City of Sunnyvale has determined that these guidelines are based on substantial evidence to "attribute an appropriate share of greenhouse gas emission reductions necessary to reach AB 32 goals to new land use development projects in the BAAQMD's jurisdiction that are evaluated pursuant to CEQA" (BAAQMD 2011). Therefore, the City has elected to apply the BAAQMD CEQA Guidelines to determine the level of impact from the proposed project's contribution of GHG emissions.

CEQA authorizes reliance on previously approved GHG reduction plans (i.e., a climate action plan) prepared as a "Plan for the Reduction of Greenhouse Gas Emissions" per State CEQA Guidelines Section 15183.5. This section of the State CEQA Guidelines provides that quantified plans "may be used in the cumulative impacts analysis of later projects." More specifically, "later project-specific environmental documents may tier from and/or incorporate by reference" the "programmatic review" conducted for the GHG reduction plan. "An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project" (State CEQA Guidelines Section 15183.5).

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For the purposes of this assessment, the project is evaluated for compliance with the City of Sunnyvale Climate Action Plan and its emission reduction targets for 2035, which is the anticipated build out year of the LSAP. As just described, utilization of an approved program-level GHG reduction document is recommended by the BAAQMD as a preferred method to address GHG emissions in project-level CEQA documents. The Newhall Ranch decision affirmed that the AB 32 Scoping Plan encourages the use of adopted local GHG reduction plans, and consistency with a geographically specific GHG reduction plan, or CAP, can relieve some of the burden taken on by local governments in analyzing the cumulative contribution of project-level GHG emissions.

Consequently, if a project is consistent with a local climate action plan and that plan is consistent with AB 32 and future GHG targets, then the project would be considered consistent with statewide GHG reduction goals for 2020 and the trajectory of statewide GHG planning in the post-2020 period. As described in Section 2.0, Project Description, project build out is anticipated for the year 2035 approximately. After buildout of the area Plan in 2030, the next milestone year under the state's GHG emission reduction strategy is the year 2050. As previously stated, the CAP has been designed to instigate community-wide GHG emission reductions by 2035 to levels on a trajectory toward the Executive Order S-3-05 target for 2050 (i.e., 80 percent below 1990 levels by 2050).

IMPACTS AND MITIGATION MEASURES

Compliance with Sunnyvale Climate Action Plan, a Qualified Greenhouse Gas Emissions Reduction Plan (Standards of Significance 1 and 2)

Impact 3.13.1 The project would not conflict with an applicable plan adopted for the purpose of reducing GHG emissions. This is a **less than cumulatively considerable** impact.

The Sunnyvale CAP is a strategic planning document that identifies sources of GHG emissions from within the city's boundary and reduces emissions through energy use, transportation, land use, water use, and solid waste strategies (referred to as "reduction measures" in the CAP). The policy provisions contained in the CAP were prepared with the purpose of complying with the requirements of AB 32 and achieving the goals of the AB 32 Scoping Plan. In addition, the CAP has been designed to instigate GHG emission reductions by 2035 to levels on a trajectory toward the Executive Order S-3-05 target for 2050 (i.e., 80 percent below 1990 levels by 2050). As noted above, the City emitted approximately 1,153,970 metric tons of CO₂e in 2008, while the City's 2014 community emissions totaled 971,140 metric tons (15.8% lower than 2008 emissions) that demonstrates implementation of the CAP is reducing GHG emissions.

While the LSAP-specific growth was not factored into the CAP growth projections as the CAP used the current General Plan land use designations, future development projects in the plan area would be required to comply with the provisions of the Sunnyvale CAP. Ways in which future development would need to comply include the following:

- Use of energy-efficient lighting technologies for parking lot lighting (Action Item EC-1.3).
- Requirement of energy-efficient orientation of buildings (a building's orientation coupled with landscape material considerations shall be designed for maximum energy efficiency) (Action Item EC-2.2).
- Installation of interior real-time energy monitors (Action Item EC-5.1).

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- Installation of new and resurfaced parking lots, sidewalks, and crosswalks made of materials with high reflectivity, such as concrete or reflective aggregate in paving materials (Action Item EC-6.1).
- Require new multi-family buildings and re-roofing projects to install “cool roofs” consistent with the current California Green Building Code (CALGreen) standards for commercial and industrial buildings (Action Item EC-6.2).
- Pre-wiring for solar water heating and solar electricity (Action Item EP-2.1).
- Reduction of potable indoor water consumption by 30 percent (Tier 1 CALGreen) and outdoor landscaping water use by 40 percent (Action Item WC-2.1).
- Require multi-family homes to participate in the City’s Multifamily Recycling Program (Action Item LW-2.1).
- Installation of electrical outlets on the exterior of building at an accessible location to charge electric-powered lawn and garden equipment (Action Item OR-1.2).
- Provision for cross-parcel access and linkages from the school entrance to the public sidewalk system (Action Item CTO-1.3).
- Require sidewalks to be a minimum of 6 feet wide in order to allow side-by-side walking at identified locations that currently serve high pedestrian traffic volumes or locations planned to serve high volumes of pedestrian traffic (Action Item CTO-1.6).
- Provision for bicycle parking consistent with the Valley Transportation Authority Bicycle Technical Guidelines, as amended (Action Item CTO-2.1).
- Require existing and future major employers to utilize a variety of transportation demand management (TDM) measures such as flexible work schedules, telecommuting, guaranteed rides home, low- or no-cost transit passes, parking “cash-out” incentives, and other programs that provide employees with alternatives to single-occupant commutes (Action Item CTO-4.1).
- Designation of preferred parking stalls for electric, hybrid, and other alternative-fuel vehicles in all public and private parking lots consistent with the California Green Building Code (Action Item OVT-1.1).
- Require sufficient electrical service in the garages/parking facilities of new residential development to support electric vehicle charging (Action Item OVT-1.3).
- Require new buildings to provide electrical outlets on the exterior in an accessible location to charge electric-powered lawn and garden equipment (Action Item OR-1.2).
- Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]), or less. Clear signage will be provided at all access points to remind construction workers of idling restrictions (Action Item OR-2.1).

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- Construction equipment must be maintained per manufacturer's specifications (Action Item OR-2.2).
- Planning and Building staff will work with project applicants to limit GHG emissions from construction equipment by selecting one of the following measures, at a minimum, as appropriate to the construction project:
 - a. Substitute electrified or hybrid equipment for diesel- and gasoline-powered equipment where practical.
 - b. Use alternatively fueled construction equipment on-site, where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.
 - c. Avoid the use on on-site generators by connecting to grid electricity or utilizing solar-powered equipment.
 - d. Limit heavy-duty equipment idling time to a period of 3 minutes or less, exceeding CARB regulation minimum requirements of 5 minutes (Action Item OR-2.3).

Implementation and subsequent development under the proposed LSAP would comply with the CAP. Several of the policies proposed in the LSAP directly conform to CAP policies. CAP policies are intended to achieve transit-oriented and mixed land use development throughout Sunnyvale, with an abundance of opportunity for alternative modes of transportation. For instance, CAP Policy LUP-2.1 requires the City to plan for most new residential, commercial, and industrial developments in specific plan areas, near transit, and close to employment and activity centers. CAP Policy LUP-2.3 focuses development of affordable housing near transit and Policy LUP-2.5 focuses development of live/work spaces in commercial zoning districts and mixed-use residential zoning districts. The CAP contains 19 separate policy provisions addressing the increase of pedestrian, bicycle, and mass transit facilities. For instance, while future project-level development is variable and specific future individual projects have not been identified, the conceptual land uses anticipated under the proposed project would be collectively required to provide 1,193 bicycle parking spaces per Action Item CTO-2.1 and designate at least 8 percent of all nonresidential parking spaces for electric, hybrid, and other alternative-fuel vehicles per Action Item OVT-1.1. Consistent with the CAP, the proposed plan area is a transit-oriented development in support of the Lawrence Caltrain station.

The LSAP includes strategies to establish a transit-supportive environment by improving connections between the station and adjacent destinations, densifying and intensifying land uses at key locations within the plan area, and enhancing the physical design of the urban environment. The proposed LSAP would provide moderate- to high-density housing in locations within convenient walking distance of employment centers, shopping centers, and transit routes. As such, the LSAP would result in improved access to local and regional transit services, as well as the promotion of alternative means of transportation through increased access to pedestrian and bicycle facilities.

Furthermore, as listed above, the proposed LSAP contains environmental sustainability-related policy provisions in the categories of land use and mixed use development, open space, efficient and alternative transportation, transportation demand management, and parking that promotes transit. The LSAP promotes a similar commitment to sustainability as contained in the City CAP. According to the proposed LSAP, diversity of land use allows flexibility in response to varying market conditions over time as well as allowing access to a range of job and housing opportunities. Additionally, diversity of transportation options reduces dependence on a single

mode of transportation and provides feasible long-term alternatives in response to fuel shortages, climate change and other unforeseen challenges. By its nature, the LSAP has been developed with the objective of environmental sustainability, as its focus is to enhance utilization of an existing commuter rail line. According to the LSAP, it is the intent of the plan area to decrease the current heavy dependence upon the automobile by providing a mix of uses to allow people to live, work, shop and relax in the area without needing an automobile for access, and increasing walking and bicycling opportunities, which also furthers the sustainability goal by providing a diversity of transportation choices.

The required compliance with the CAP would reduce the GHG emissions attributable to the plan area. As previously stated, future development projects in the plan area would be required to comply with the provisions of the Sunnyvale CAP as a condition of development approval. Furthermore, the proposed LSAP conforms to the overall intent of the City CAP as it has been developed with the objective of environmental sustainability and enhances utilization of an existing commuter rail line. According to the LSAP, it is the intent of the plan area to decrease the current heavy dependence upon the automobile by providing a mix of uses to allow people to live, work, shop and relax in the area without needing an automobile for access, and increasing walking and bicycling opportunities. In addition to GHG emission reductions noted above, the LSAP would have a VMT per capita below the target set the CAP (11.62 miles under CAP versus 10.58 miles under LSAP).

As demonstrated, the project is compliant with the City's CAP, which is a Qualified Greenhouse Gas Emissions Reduction Program as defined by the BAAQMD and was developed to comply with the requirements of AB 32 and achieve the goals of the AB 32 Scoping Plan as well as post-2020 GHG reduction targets (i.e., EO S-3-05).

In its Final Statement of Reasons for Regulatory Action accompanying the CEQA Amendments (FSOR), the California Natural Resources Agency (2009) explains that quantification of GHG emissions "is reasonably necessary to ensure an adequate analysis of GHG emissions using available data and tools" and that "quantification will, in many cases, assist in the determination of significance." However, as explained in the FSOR, the revised Section 15064.4(b) assigns lead agencies the discretion to determine the methodology to quantify GHG emissions. Nonetheless, for informational purposes, **Table 3.13-5** is presented in order to show estimated GHG emissions resulting from operation of the new land uses allowed in the project area beyond existing conditions. Quantifying the GHG emissions from future, short-term, temporary construction activities allowed under the proposed plan area is not possible due to project-level variability and uncertainties related to future individual projects in terms of detailed site plans, construction schedules, equipment requirements, etc., which are not currently determined. As previously listed, CAP provisions require that all construction within the city minimize construction equipment idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]), or less. Clear signage needs to be provided at all access points to remind construction workers of idling restrictions. The CAP requires that all construction equipment be maintained per manufacturer's specifications and that all construction activities must adhere to at least one of the following measures, as appropriate to the construction project:

- a. Substitute electrified or hybrid equipment for diesel- and gasoline-powered equipment where practical.
- b. Use alternatively fueled construction equipment on-site, where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.

3.13 GREENHOUSE GASES AND CLIMATE CHANGE

- c. Avoid the use on on-site generators by connecting to grid electricity or utilizing solar-powered equipment.
- d. Limit heavy-duty equipment idling time to a period of 3 minutes or less, exceeding CARB regulation minimum requirements of 5 minutes.

Once construction is complete, generation of GHG emissions would cease.

Table 3.13-5 is presented in order to show estimated GHG emissions resultant from operation of the new land uses allowed under the plan area beyond existing conditions.

**TABLE 3.13-5
GREENHOUSE GAS EMISSIONS – PROJECT OPERATIONS (METRIC TONS PER YEAR) ¹**

Emissions Source	CO ₂ e
Area Source (landscaping, hearth)	106
Energy (indirect electricity and natural gas consumption) ²	5,462
Mobile ³	12,834
Waste	2,971
Water	739
Total	22,112

Source: CalEEMod 2013.2.2 (see **Appendix H**)

Notes:

1. Emission projections account for 2,323 new multi-family residential units, 1,200,000 square feet of office/R&D square footage, 16,600 square feet of retail square footage, and 9,000 square feet of industrial square footage.
2. Emission projections account for 2015 CalGREEN standards and the Renewables Portfolio Standard year 2030 target.
3. Emission projections account for the trip generation rates and vehicle miles traveled identified in the transportation impact analysis prepared for the project (Hexagon 2015, see **Appendix C**). Average daily vehicle miles traveled were further refined by Fehr and Peers Transportation Consultants (2011) to account for the additional reductions from the policy provisions contained in the City of Sunnyvale Climate Action Plan.

As previously stated, the CAP identifies that the City’s GHG emissions per service population (residents + employees) will decrease from 6.1 metric tons per person in 2008 to 3.6 metric tons per person in 2020 and 2.6 metric tons per person in 2035.

As described in Section 3.0, Assumptions, buildout of the plan area could result in a population increase of up to 5,622 people beyond current conditions as well as an additional 3,459 jobs in the plan area. Therefore, the LSAP service population would be 9,081.

As shown in **Table 3.13-6**, dividing the GHG emissions yields a metric ton per service population ratio of 2.4. The service population ratio does not exceed the CAP targets of 3.6 metric tons per person in 2020 and 2.6 metric tons per person in 2035.

TABLE 3.13-6
PLAN AREA GHG EMISSIONS PER SERVICE POPULATION

Per Capita Emissions	Emissions	Jobs	Population	Service Population (SP)	MTCO _{2e} /SP/Year
LSAP Buildout	22,112	3,459	5,622	9,081	2.4
Sunnyvale CAP 2020 Per Capita Emissions Target					3.6
Sunnyvale CAP 2035 Per Capita Emissions Target					2.6
Sunnyvale CAP Targets Exceeded?					No

As demonstrated, the project is required to comply with the City CAP and would also generated GHG emissions below the CO_{2e} per service population per year targets contained in the CAP. Therefore, the impact is **less than cumulatively considerable**.

Exposure to Environmental Impacts From Climate Change

Table 3.13-3 provides an overview of various environmental impacts from climate change that could occur. Impacts to City and the LSAP area would include droughts, flooding/ sea level rise. As noted in Table 3.13-3, the LSAP area is outside of the areas anticipated to be impacted by sea level rise. Water supply is addressed in Section 3.11 of this Draft EIR that notes water conservation measures to reduce water demand and regional efforts to improve water supply reliability. No significant environmental impacts from climate change are expected to occur in the LSAP area.

Mitigation Measures

None required.

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REFERENCES

- BAAQMD (Bay Area Air Quality Management District). 2011. *CEQA Air Quality Guidelines*.
- BCDC (San Francisco Bay Conservation and Development Commission). 2011. *Living with a rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline*. October 6, 2011.
- CARB (California Air Resources Board). 2008. *Climate Change Scoping Plan Appendices (Appendix F)*.
- . 2010. *Regional Greenhouse Gas Emission Reductions Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375*. <http://www.arb.ca.gov/board/books/2010/092310/10-8-2pres.pdf>.
- . 2011a. *Notice of Decision, Regional Greenhouse Gas Emissions Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375*. <http://www.arb.ca.gov/cc/sb375/notice%20of%20decision.pdf>.
- . 2011b. *Executive Order No. G-11-024, Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375*. http://www.arb.ca.gov/cc/sb375/executive_order_g11024.pdf.
- . 2014. *California Greenhouse Gas Inventory for 2000–2012*. <http://www.arb.ca.gov/cc/inventory/data/data.htm>.
- CNRA (California Natural Resources Agency). 2009. *Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97*. http://ceres.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf.
- . 2012. *Our Changing Climate: Vulnerability & Adaptation to the Increasing Risks of Climate Change in California*. <http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf>.
- DWR (California Department of Water Resources). 2008. *Climate Change Impacts on California's Water*.
- EPA (US Environmental Protection Agency). 2010. *Nitrous Oxide*. <http://www.epa.gov/nitrousoxide/scientific.html>.
- . 2011a. *Climate Change – Greenhouse Gas Emissions: Carbon Dioxide*. <http://www.epa.gov/climatechange/emissions/co2.html>.
- . 2011b. *Methane*. <http://www.epa.gov/methane/scientific.html>.
- Fehr & Peers. 2011. *Memorandum: City of Sunnyvale LUTE/CAP: Year 2035 Citywide Transportation Performance Indicators Estimates and Reductions*. October 7, 2011
- Hexagon (Hexagon Transportation Consultants, Inc.) 2015. *Lawrence Station Area-Wide Transportation Plan and Near-Term Traffic Impact Analysis*. June 25, 2015.

3.13 GREENHOUSE GASES AND CLIMATE CHANGE

IPCC (Intergovernmental Panel on Climate Change). 2013. *Carbon and Other Biogeochemical Cycles*. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf.

———. 2014. *Climate Change 2014 Synthesis Report: Approved Summary for Policymakers*. <http://www.ipcc.ch/>.

PG&E (Pacific Gas and Electric Company). 2014. Website: *New Numbers Confirm PG&E's Energy Among the Cleanest in Nation*. <http://www.pgecurrents.com/2014/02/06/new-numbers-confirm-pge%E2%80%99s-energy-among-the-cleanest-in-nation/>.

Sunnyvale, City of. 2014. *Climate Action Plan*.

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4.0 ALTERNATIVES

4.1 INTRODUCTION

California Environmental Quality Act (CEQA) Guidelines Section 15126.6(a) states that an environmental impact report (EIR) shall describe and analyze a range of reasonable alternatives to a project. These alternatives should feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening one or more of the significant environmental impacts of the project. An EIR need not consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. The discussion of alternatives shall focus on those alternatives which are capable of avoiding or substantially lessening any significant effects of the project, even if they impede the attainment of the project objectives to some degree or would be more costly (CEQA Guidelines Section 15126.6[b]).

According to the CEQA Guidelines, an EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the project. When addressing feasibility, CEQA Guidelines Section 15126.6 states that “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, jurisdictional boundaries, and whether the applicant can reasonably acquire, control or otherwise have access to alternative sites.” The State CEQA Guidelines also specify that the alternatives discussion should not be remote or speculative; however, they need not be presented in the same level of detail as the assessment of the proposed project. The objectives of the LSAP are provided below.

The CEQA Guidelines indicate that several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project; (2) the ability of alternatives to avoid or lessen the significant impacts associated with the project; (3) the ability of the alternatives to meet the objectives of the project; and (4) the feasibility of the alternatives. These factors would be unique for each project. The significant impacts of the LSAP are listed below.

PROJECT OBJECTIVES

The City of Sunnyvale has established “Vision” goals below that are the basis of the LSAP and are the project objectives for purposes of this EIR:

- Promote a diversity of land uses and densities that will support transit usage and neighborhood services.
- Locate highest-intensity development closest to the Lawrence Station.
- Improve connectivity for all modes of travel.
- Ensure the area has a character that is unique to its location while being compatible with the overall character of Sunnyvale and sensitive to existing environmental assets.
- Create a strong sense of place and community identify with the development of a vibrant neighborhood center.
- Allow the area to redevelop over time through a flexible system that is responsive to the goals, schedule, and needs of individual business and property owners, developers, and residents.

4.0 ALTERNATIVES

- Redevelop the area in a manner that is environmentally, economically, and socially sustainable.

LSAP SIGNIFICANT IMPACTS SUMMARY

In addition to identifying feasible mitigation for a proposed project's impacts, a lead agency must also consider alternatives that could provide a means of avoiding altogether or reducing the level of impact that would otherwise result from implementation of a project. The following significant impacts would result from the proposed project.

- Impact 3.3.3 – Hazardous Materials and Contaminated Sites (less than significant with mitigation)
- Impact 3.3.5 – Emergency Response and Evacuation Plans During Construction (less than significant with mitigation)
- Impact 3.4.6 – Traffic Operational Impacts (significant and unavoidable)
- Impact 3.5.3 – Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation During Short-Term Construction Activities (significant and unavoidable)
- Impact 3.5.5 – Exposure to Sensitive Receptors to Substantial Toxic Air Contaminant Concentrations During Construction (less than significant with mitigation)
- Impact 3.5.6 - Exposure to Sensitive Receptors to Substantial Toxic Air Contaminant Concentrations During Operations (less than significant with mitigation)
- Impact 3.5.8 – Cumulatively Considerable Increase in Nonattainment Criteria Pollutants (cumulative considerable and significant and unavoidable)
- Impact 3.8.3 – Flood Hazards (less than significant with mitigation)
- Impact 3.9.1 – Burrowing Owl (less than significant with mitigation)
- Impact 3.9.2 – Special-Status Bats (less than significant with mitigation)
- Impact 3.9.3 – Nesting Raptors and Migratory Birds (less than significant with mitigation)
- Impact 3.9.11 – Cumulative Biological Resources (less than cumulatively considerable with mitigation)
- Impact 3.10.2 – Disturb Archaeological Resources or Human Remains (less than significant with mitigation)

4.2 ALTERNATIVES UNDER CONSIDERATION

Based on the environmental impact analysis in Sections 3.1 through 3.13, there are no unique ground disturbance impacts that would identify the need for a modification of the development pattern for the LSAP area. For example, any development activity in the LSAP area is anticipated to result in air quality impacts related to construction emissions, potential exposure to hazardous materials, and potential impacts on biological and cultural resources that may occur in the plan area. Thus, the alternatives analysis evaluates environmental impacts that involve modification in

the type of development in the LSAP. These alternatives are identified below and include retaining the existing General Plan land use designations for the area (No Project Alternative) and two land use alternatives that would emphasize different development intensities based on Appendix A of the LSAP.

- Alternative 1 – Existing General Plan and Zoning (No Project Alternative)
- Alternative 2 – Residential Emphasis
- Alternative 3 – Office/Research and Development Emphasis

These alternatives constitute an adequate range of reasonable alternatives as required under State CEQA Guidelines Section 15126.6.

Table 4.0-1 provides a comparison of the project alternatives. The development assumptions are based on land use data for the existing land use designations identified in Table E.2 of Appendix E of the LSAP and concept alternatives A and B in Appendix A of the LSAP.

**TABLE 4.0-1
BUILD OUT CONDITIONS FOR ALTERNATIVES AND PROPOSED LSAP**

Development Assumption	Alternative 1 (No Project - Existing General Plan and Zoning)	Alternative 2 (Residential Emphasis)	Alternative 3 (Office/R&D Emphasis)	Proposed LSAP
Population	6,585	14,239	4,511	8,826
Housing Units	2,597	5,760	1,740	3,523
Industrial/Office/Commercial (million square feet)	4.2	0.89	6.1	3.8

Notes: Residential and commercial development potential for Alternative 1 was based on Table E.2 of Appendix E of the LSAP. Alternatives 2 and 3 were based on concept alternatives A and B of Appendix A of the LSAP. The maximum development potential of concept alternatives A and B were adjusted based on factors used for the LSAP to determine estimated likely development (40% reduction of maximum development for residential uses and 25% reduction of maximum development for non-residential uses). Population estimate was based on a blend of the existing City-wide persons per unit factor 2.67 and the LSAP persons per unit factor of 2.42. For the proposed LSAP, there are existing land uses within the plan area. The LSAP identifies the total number of residential units and the total mixed-use square footage for existing and proposed uses.

4.3 ALTERNATIVE 1 – NO PROJECT ALTERNATIVE

DESCRIPTION OF ALTERNATIVE

Section 15126.6(e) (2) of the State CEQA Guidelines requires an EIR to include an analysis of the No-Project Alternative. Evaluation of the No-Project Alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. In this Draft EIR, the No Project Alternative assumes that the LSAP would not be approved, but it does not necessarily preclude use or development of the area around the Lawrence Caltrain Station. Rather, the No Project Alternative evaluated in this Draft EIR considers “what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services” (State CEQA Guidelines Section 15126.6 [e][2]).

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As provided by State CEQA Guidelines Section 15126(e)(3)(A), a discussion of the No-Project Alternative will usually proceed along one of two lines: a “plan-to-plan” comparison when the project is the revision of an existing land use plan, such as the proposed project; or—if the project is other than a land use plan (e.g., a development project on identifiable property)—a comparison of the environmental effects of the property remaining in its existing state against the environmental effects if the proposed project is approved. The plan-to-plan comparison is the appropriate analysis for this EIR.

Under the No Project Alternative, the existing General Plan designations and policies and Zoning regulations would continue to apply to the area within the plan area boundary. The proposed LSAP policies and guidelines that would guide growth within the plan area would not be adopted.

ENVIRONMENTAL ANALYSIS

Land Use

As identified in Section 3.1, Land Use, the proposed LSAP would not result in any significant land use impacts related to physical division of an established community, conflicts with adopted land use plans, or conflicts with an adopted habitat conservation plan or natural community conservation plan.

Alternative 1 would also avoid significant land use impacts because development would be in accordance with General Plan policies and zoning regulations that the City has adopted for the purposes of avoiding and/or mitigating potential land use impacts.

Population and Housing

Implementation of the proposed LSAP would not result in any significant environmental impacts associated with substantial increases in population and housing, or result in displacement of substantial numbers of persons (see Section 3.2, Population/Housing).

Alternative would result in less residential development as compared to the project at build out (2,241 fewer residents, 926 fewer dwelling units), and impacts would also be less than significant.

Hazards and Human Health

Implementation of the proposed LSAP could result in the potential release of hazardous materials (Impact 3.3.3) and potential conflicts with emergency response and evacuation during construction (Impact 3.3.5). These impacts would be mitigated to less than significant through implementation of mitigation measures MM 3.3.3 (hazards investigation and remediation) and MM 3.3.5 (construction traffic control plan).

Development under Alternative 1 would have the potential to result in the same significant impacts identified for the LSAP, but such impacts could be mitigated with implementation of MM 3.3.3 and MM 3.3.5.

Traffic and Circulation

Appendix C provides a traffic impact analysis for both the proposed LSAP as well as the existing General Plan (Alternative 1). Implementation of the LSAP would result in significant traffic operation impacts in year 2035 conditions for study intersections (including Congestion Management Plan facilities and intersections in the City of Santa Clara) and freeway segments

(see Impact 3.4.6). While improvements to the Lawrence Expressway, SR 237 and US 101 are planned, the City does not have ability to ensure their construction. Thus, this impact was identified as significant and unavoidable.

Alternative 1 would avoid significant traffic operation impacts to the Wolfe Road & Arques Avenue and Wolf Road & Reed Avenue intersections. However, it would result in similar impacts to the following intersections:

- Lawrence Expressway & Tasman Drive (#2) (CMP intersection) – from LOS D in AM and E in PM under existing conditions to LOS E in AM and LOS F in PM under 2035 conditions
- Lawrence Expressway & Lakehaven Drive (#3) (CMP intersection) – from LOS E in AM and PM under existing conditions to LOS E in AM and LOS F in PM under 2035 conditions
- Lawrence Expressway & Oakmead Parkway (#6) (CMP intersection) – from LOS D in AM and E in PM under existing conditions to LOS F in AM and PM under 2035 conditions
- Lawrence Expressway & Arques Avenue (#7) (CMP intersection) – from LOS E in AM and F in PM under existing conditions to LOS C in AM and LOS F in PM under 2035 conditions
- Wolfe Road & Kifer Road (#13) –from LOS C in AM and PM under existing conditions to LOS C in AM and LOS F in PM under 2035 conditions
- Wolfe Road & Fremont Avenue (#18) – from LOS D in AM and PM under existing conditions to LOS E in AM and F in PM under 2035 conditions
- Lawrence Expressway & Cabrillo Avenue (#25) (CMP intersection in the city of Santa Clara)– from LOS E in AM and PM under existing conditions to LOS F in AM and PM under 2035 conditions
- Lawrence Expressway & Benton Street (#27) (CMP intersection in the city of Santa Clara) – from LOS F in AM and LOS E in PM under existing conditions to LOS F in AM and PM under 2035 conditions
- Lawrence Expressway & Homestead Road (#28) (CMP intersection in the city of Santa Clara) – from LOS F in AM and PM under existing conditions to LOS F in AM and PM under 2035 conditions
- Lawrence Expressway & Pruneridge Avenue (#29) (CMP intersection in the city of Santa Clara) – from LOS E in AM and LOS D in PM under existing conditions to LOS F in AM and LOS E in PM under 2035 conditions
- Lawrence Expressway & I-280 Southbound Ramp (#33) (CMP intersection) – from LOS E in AM and LOS D in PM under existing conditions to LOS F in AM and LOS E in PM under 2035 conditions
- Bowers Avenue & Central Expressway (#38) – from LOS E in AM and PM under existing conditions to LOS F in AM and PM under 2035 conditions
- Bowers Avenue & Kifer Road (#39) – from LOS C in AM and PM under existing conditions to LOS F in PM under 2035 conditions

4.0 ALTERNATIVES

- Bowers Avenue & Monroe Street (#41) – from LOS C in AM and PM under existing conditions to LOS F in PM under 2035 conditions

Alternative 1 would result in new significant traffic operational impacts to the Lawrence Expressway & Kifer Road (LOS F in AM under 2035 conditions) and Oakmead Parkway & Central Expressway (LOS E in AM and LOS F in PM under 2035 conditions).

It should also be noted that Alternative 1 would not include project-specific design features and policy direction for the improvement and promotion of pedestrian, bicycle and transit facilities that are included in the LSAP.

Air Quality

Implementation of the proposed LSAP could result in significant and unavoidable air quality impacts associated with the extent of construction activities under project and cumulative conditions (Impact 3.5.3 and 3.5.8). The LSAP could also result in sensitive receptors being exposed to toxic air contaminants (TACs) (Impact 3.5.5 and 3.5.6), which would be mitigated to less than significant through implementation of mitigation measures MM 3.5.3a and b and MM 3.5.5 (construction control measures) and MM 3.5.6 (siting and design provisions).

Alternative 1 would result in similar construction air quality impacts, given that extent of construction would be similar as the LSAP. Alternative 1 would also result in similar TAC impacts that could be mitigated through implementation of mitigation measures MM 3.5.3a and b, MM 3.5.5, and MM 3.5.6. This alternative would result in fewer residents being exposed to TACs as compared to the LSAP (2,241 fewer residents).

Noise

Implementation of the proposed LSAP would not result in any significant noise or vibration impacts as identified in Section 3.6, Noise.

Alternative 1 would also result in no significant noise or vibration impacts as land uses and traffic volumes in the plan area would be similar.

Geology and Soils

Implementation of the proposed LSAP would not result in any significant geologic or seismic impacts (see Section 3.7, Geology and Soils).

Alternative 1 would result in the same less than significant geologic and seismic impacts as the project.

Hydrology and Water Quality

The proposed LSAP has some locations within the plan area that are within FEMA-designated 100-year flood hazard Zone AO. Areas that could be redeveloped under the LSAP (i.e., where new buildings could be constructed) would be limited to the Peninsula subarea (the current location of the Calstone/Peninsula Building Materials operations), the Lawrence/Reed/Willow subarea and a small part of the Southern Residential subarea north of the Lawrence/Reed Willow subarea, and the undeveloped part of the Southern Residential area at the southern boundary of the LSAP (i.e. Corn Palace parcel) (see Impact 3.8.3) Implementation of mitigation measure MM 3.8.3 would ensure that development of this area would not result in new flooding impacts.

Alternative 1 does not specifically propose any new uses. However, development of this area could still occur under the existing General Plan, and implementation of mitigation measure MM 3.8.3 could address this impact.

Biological Resources

Implementation of the proposed LSAP could result in significant impacts to special-status mammal and bird species (see Impacts 3.9.1, 3.9.2, 3.9.3 and 3.9.11) that may occupy with LSAP area. Implementation of mitigation measures MM 3.9.1 through MM 3.9.3 would ensure that these species are protected if discovered during subsequent construction activities and reduce the impact to less than significant.

Alternative 1 would have the potential to result in significant biological resource impacts as the LSAP given that the urban development area between this alternative and the LSAP are the same and that these impacts could be mitigated through application of the identified mitigation measures.

Cultural Resources

Implementation of the proposed LSAP could result in significant impacts to undiscovered archaeological resources and human remains from development activities (see Impact 3.10.2). However, implementation of mitigation measure MM 3.10.2 would ensure that this impact is mitigated through resource protection measures.

Alternative 1 would have the same impact as the project given that the urban development area between this alternative and the proposed LSAP are the same and that these impacts could be mitigated through application of the identified mitigation measure.

Public Services and Utilities

As identified in Section 3.11, Public Services and Utilities, implementation of the proposed LSAP would not result in any significant impacts to fire protection and emergency medical services, law enforcement, public schools, parks and recreation, water supply, wastewater, solid waste, energy, and electrical/natural gas/telephone services.

Alternative 1 would have the following reduced demand for services as compared to the LSAP:

- 55.43 acre-feet annually of reduced total water supply demand
- 0.25 million gallons per day of reduced residential wastewater generation
- 3.81 tons per day of reduced solid waste generation from residential uses
- 11.43 acres of reduced park demand
- 244 fewer elementary students and 92 fewer high school students

Visual Resources and Aesthetics

Implementation of the proposed LSAP would not result in any significant visual impacts involving the substantial alteration of a scenic vista or resources, alteration of the visual character, or substantially increase daytime glare and nighttime lighting.

4.0 ALTERNATIVES

Alternative 1 would also result in less than significant visual impacts. Alternative 1 would not include LSAP design standards for development intended enhance the quality and character of the existing neighborhoods and by creating a pedestrian-scale environment with visually interesting attributes in redeveloped areas. However, development would be guided by policies in the Land Use and Transportation and Community Character chapters of the General Plan, Zoning regulations, and the Citywide Design Guidelines.

Greenhouse Gases and Climate Change

As identified in Section 3.13, Greenhouse Gases and Climate Change, implementation of the proposed LSAP would not result in any significant impacts in regard to consistency with Assembly Bill (AB) 32, the City's Climate Action Plan (CAP) and progress towards post year 2020 reduction targets or result in exposure to environmental effects related to climate change.

Alternative 1 would be consistent with the City's CAP because the CAP is based on current General Plan assumptions, and implementation of the CAP would provide progress towards post year 2020 reductions. However, Alternative 1 does not include LSAP policies that implement CAP measures.

4.4 ALTERNATIVE 2 – RESIDENTIAL EMPHASIS ALTERNATIVE

DESCRIPTION OF ALTERNATIVE

In the Residential Emphasis Alternative, new land uses would be almost exclusively residential with a limited amount of retail, restaurants, and small offices to serve the immediate neighborhood and surrounding area.

This alternative would expand the generally residential character of the plan area found south of the Caltrain tracks into the area north of the tracks, although it is envisioned that the north area would develop at considerably higher densities than the predominantly single-family detached densities found in the south. This strategy recognizes research that indicates that residential land uses, particularly at higher densities such as townhouses and above, results in increased transit ridership and also supports neighborhood-serving uses such as retail.

In this alternative, existing low-density industrial, research and development (R&D) and office uses would be replaced over time by residential development at higher densities. Densities would range from 19 dwelling units (dus) per acre (townhouses) to 78 dus per acre in multi-story buildings in new development areas. The highest densities would be focused nearest the Lawrence Station, declining in density as the distance from the station increases. Retail would be located along new pedestrian-oriented retail streets north of the Caltrain tracks on both sides of the Lawrence Expressway and in selected areas south of the tracks. The Calstone/Peninsula Building Materials site would be residential. Along Willow Avenue, small auto-serving retail parcels on the north would be residential, consistent with adjoining uses, while the parcels between Reed and Willow Avenue would be office/retail mixed-use with street-fronting and pedestrian-oriented retail.

All other policy provisions of the proposed LSAP would be included in this alternative.

ENVIRONMENTAL ANALYSIS

Land Use

As identified in Section 3.1, Land Use, the proposed LSAP would not result in any significant land use impacts related to physical division of an established community, conflicts with adopted land use plans, or conflicts with an adopted habitat conservation plan or natural community conservation plan.

Alternative 2 would have a similar land use pattern as the LSAP, except residential densities would be higher. This would not result in physical division of the community or conflicts with land use plans, and impacts would be less than significant, similar to the proposed LSAP.

Population and Housing

Implementation of the proposed LSAP would not result in any significant environmental impacts associated with substantial increases in population and housing, or result in displacement of substantial numbers of persons (see Section 3.2, Population/Housing).

Alternative 2 would result in more residential development as compared to the project at build out (5,413 additional residents, 2,237 additional dwelling units), but it would not result in any new or greater population and housing impacts than the proposed LSAP.

Hazards and Human Health

Implementation of the proposed LSAP could result in the potential release of hazardous materials (Impact 3.3.3) and potential conflicts with emergency response and evacuation during construction (Impact 3.3.5). These impacts would be mitigated to less than significant through implementation of mitigation measures MM 3.3.3 (hazards investigation and remediation) and MM 3.3.5 (construction traffic control plan).

Development under Alternative 2 would have the potential to result in the same significant impacts identified for the LSAP that could be mitigated with implementation of MM 3.3.3 and MM 3.3.5.

Traffic and Circulation

Appendix C provides a traffic impact analysis for the proposed LSAP. Implementation of the LSAP would result in significant traffic operation impacts in year 2035 conditions for study intersections (including Congestion Management Plan facilities and intersections in the City of Santa Clara) and freeway segments (see Impact 3.4.6). While improvements to the Lawrence Expressway, SR 237 and US 101 are planned, the City does not have ability to ensure their construction. Thus, this impact was identified as significant and unavoidable.

Alternative 2 could result in fewer vehicle trips because it would not include the industrial/office/R&D component (which generates more daily trips than residential uses). This could reduce some of the traffic volume generated during peak AM and PM periods. However, it is anticipated that significant traffic operation impacts along Lawrence Expressway corridor as well as SR 237 and US 101 would still occur under year 2035 conditions.

4.0 ALTERNATIVES

Air Quality

Implementation of the proposed LSAP could result in significant and unavoidable air quality impacts associated with the extent of construction activities under project and cumulative conditions (Impact 3.5.3 and 3.5.8). The LSAP could also result in sensitive receptors being exposed to toxic air contaminants (TACs) (Impact 3.5.5 and 3.5.6), which would be mitigated to less than significant through implementation of mitigation measures MM 3.5.3a and b and MM 3.5.5 (construction control measures) and MM 3.5.6 (siting and design provisions).

Alternative 2 would result in similar construction air quality impacts, given that extent of construction would be similar as the LSAP. Alternative 2 would also result in similar TAC impacts that can be mitigated through implementation of mitigation measures MM 3.5.3a and b, MM 3.5.5, and MM 3.5.6. This alternative would result in additional residents being exposed to TACs as compared to the LSAP (5,413 additional residents).

Noise

Implementation of the proposed LSAP would not result in any significant noise or vibration impacts as identified in Section 3.6, Noise.

Alternative 2 would also result in no significant noise or vibration impacts as land uses and traffic volumes under this alternative would not be substantially different to trigger a significant noise impact¹.

Geology and Soils

Implementation of the proposed LSAP would not result in any significant geologic or seismic impacts (see Section 3.7, Geology and Soils).

Alternative 2 would result in the same less than significant geologic and seismic impacts as the project.

Hydrology and Water Quality

The proposed LSAP has some locations within the plan area that are within FEMA-designated 100-year flood hazard Zone AO. Areas that could be redeveloped under the LSAP (i.e., where new buildings could be constructed) would be limited to the Peninsula subarea (the current location of the Calstone/Peninsula Building Materials operations), the Lawrence/Reed/Willow subarea and a small part of the Southern Residential subarea north of the Lawrence/Reed Willow subarea, and the undeveloped part of the Southern Residential area at the southern boundary of the LSAP (i.e. Corn Palace parcel) (see Impact 3.8.3). Implementation of mitigation measure MM 3.8.3 would ensure that development of this area would not result in new flooding impacts.

Alternative 2 would have the same flooding impacts associated with the proposed the redevelopment of this area. Implementation of mitigation measure MM 3.8.3 would address this impact.

¹ Roadway traffic volumes would need to increase by over 50% for there to be a noticeable change in noise levels.

Biological Resources

Implementation of the proposed LSAP could result in significant impacts to special-status mammal and bird species (see Impacts 3.9.1, 3.9.2, 3.9.3 and 3.9.11) that may occupy with LSAP area. Implementation of mitigation measures MM 3.9.1 through MM 3.9.3 would ensure that these species are protected if discovered during subsequent construction activities and reduce the impact to less than significant.

Alternative 2 would have the potential to result in significant biological resource impacts as the LSAP given that the urban development area between this alternative and the LSAP are the same and that these impacts could be mitigated through application of the identified mitigation measures.

Cultural Resources

Implementation of the proposed LSAP could result in significant impacts to undiscovered archaeological resources and human remains from development activities (see Impact 3.10.2). However, implementation of mitigation measure MM 3.10.2 would ensure that this impact is mitigated through resource protection measures.

Alternative 2 would have the same impact as the project given that the urban development area between this alternative and the proposed LSAP are the same and that these impacts could be mitigated through application of the identified mitigation measure.

Public Services and Utilities

As identified in Section 3.11, Public Services and Utilities, implementation of the proposed LSAP would not result in any significant impacts to fire protection and emergency medical services, law enforcement, public schools, parks and recreation, water supply, wastewater, solid waste, energy, and electrical/natural gas/telephone services.

Alternative 2 would also avoid significant public service and utility impacts and would have the following changes in demand for services as compared the LSAP:

- 455.17 acre-feet annually of reduced total water supply demand
- 0.59 million gallons per day of increased residential wastewater generation
- 9.2 tons per day of increased solid waste generation from residential uses
- 55.60 acres of increased park demand
- 452 additional elementary students and 224 additional high school students

Visual Resources and Aesthetics

Implementation of the proposed LSAP would not result in any significant visual impacts involving the substantial alteration of a scenic vista or resources, alteration of the visual character, or substantially increase daytime glare and nighttime lighting.

Alternative 2 would also result in less than significant visual impacts.

4.0 ALTERNATIVES

Greenhouse Gases and Climate Change

As identified in Section 3.13, Greenhouse Gases and Climate Change, implementation of the proposed LSAP would not result in any significant impacts in regard to consistency with Assembly Bill (AB) 32, the City's Climate Action Plan (CAP) and progress towards post year 2020 reduction targets or result in exposure to environmental effects related to climate change.

Alternative 2 would be required to implement the City's CAP. This alternative would alter the new service population (population plus jobs) in the LSAP area from 9,081 under proposed LSAP to 7,386 as a result of changes in employment and housing under Alternative 2.

4.5 ALTERNATIVE 3 – OFFICE/RESEARCH AND DEVELOPMENT EMPHASIS

DESCRIPTION OF ALTERNATIVE

Under this alternative, land uses in new development areas north of the station would be almost exclusively office and research and development (R&D), with a limited amount of support services.

While land uses north of the Caltrain tracks would be similar to the existing condition, there would be less emphasis on industrial uses. Development would be at higher densities, appropriate to R&D and office uses, and buildings and parking would conform to the more accessible circulation framework. Highest densities would be focused nearest the Lawrence Station, declining in density as distances from the station increase. Similar to Alternative 2, this concept would likely generate higher transit ridership at the Lawrence Station, although research suggests that ridership levels may be somewhat lower than with residential uses.

It is anticipated that market demand for retail uses would be lower with the office/R&D concept than for the LSAP or Alternative 2 concepts that include residential. Retail would be located along new pedestrian-oriented retail streets north of the Caltrain tracks on both sides of the Lawrence Expressway and in selected areas south of the tracks. Such support uses would include copy and print shops, restaurants, delis, and business supply stores, with less demand for grocery stores and pharmacies than Alternative 2 may generate.

New residential development would be limited to specific parcels south of the Caltrain tracks (the Calstone/Peninsula Building Materials property).

All other policy provisions of the proposed LSAP would be included in this alternative.

ENVIRONMENTAL ANALYSIS

Land Use

As identified in Section 3.1, Land Use, the proposed LSAP would not result in any significant land use impacts related to physical division of an established community, conflicts with adopted land use plans, or conflicts with an adopted habitat conservation plan or natural community conservation plan.

Alternative 3 would also not result in any significant land use impacts associated with division of an established community or conflicts with land use plans. Office/R&D uses would continue to be located in areas where these uses already exist and where current land use designations allow for such uses. Impact would be less than significant, similar to the proposed LSAP.

Population and Housing

Implementation of the proposed LSAP would not result in any significant environmental impacts associated with substantial increases in population and housing, or result in displacement of substantial numbers of persons (see Section 3.2, Population/Housing).

Alternative 3 would result in less residential development as compared to the LSAP at build out (4,315 fewer residents, 1,783 fewer dwelling units), and impacts would also be less than significant.

Hazards and Human Health

Implementation of the proposed LSAP could result in the potential release of hazardous materials (Impact 3.3.3) and potential conflicts with emergency response and evacuation during construction (Impact 3.3.5). These impacts would be mitigated to less than significant through implementation of mitigation measures MM 3.3.3 (hazards investigation and remediation) and MM 3.3.5 (construction traffic control plan).

Development under Alternative 3 would have the potential to result in the same significant impacts identified for the LSAP that could be mitigated with implementation of MM 3.3.3 and MM 3.3.5.

Traffic and Circulation

Appendix C provides a traffic impact analysis for the proposed LSAP. Implementation of the LSAP would result in significant traffic operation impacts in year 2035 conditions for study intersections (including Congestion Management Plan facilities and intersections in the City of Santa Clara) and freeway segments (see Impact 3.4.6). While improvements to the Lawrence Expressway, SR 237 and US 101 are planned, the City does not have ability to ensure their construction. Thus, this impact was identified as significant and unavoidable.

Alternative 3 could result in fewer vehicle trips because of job proximity to Caltrain. This could reduce some of the traffic volume generated during peak AM and PM periods. However, it is anticipated that significant traffic operation impacts along Lawrence Expressway corridor as well as SR 237 and US 101 would still occur under year 2035 conditions.

Air Quality

Implementation of the proposed LSAP could result in significant and unavoidable air quality impacts associated with the extent of construction activities under project and cumulative conditions (Impact 3.5.3 and 3.5.8). The LSAP could also result in sensitive receptors being exposed to toxic air contaminants (TACs) (Impact 3.5.5 and 3.5.6), which would be mitigated to less than significant through implementation of mitigation measures MM 3.5.3a and b and MM 3.5.5 (construction control measures) and MM 3.5.6 (siting and design provisions).

Alternative 3 would result in similar construction air quality impacts, given that extent of construction would be similar as the LSAP. Alternative 3 would also result in similar TAC impacts that can be mitigated through implementation of mitigation measures MM 3.5.3a and b, MM 3.5.5, and MM 3.5.6. This alternative would result in fewer residents being exposed to TACs as compared to the LSAP (4,315 fewer residents).

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Noise

Implementation of the proposed LSAP would not result in any significant noise or vibration impacts as identified in Section 3.6, Noise.

Alternative 3 would also result in no significant noise or vibration impacts as land uses and traffic volumes under this alternative would not be substantially different to trigger a significant noise impact.

Geology and Soils

Implementation of the proposed LSAP would not result in any significant geologic or seismic impacts (see Section 3.7, Geology and Soils).

Alternative 3 would result in the same less than significant geologic and seismic impacts as the project.

Hydrology and Water Quality

The proposed LSAP has some locations within the plan area that are within FEMA-designated 100-year flood hazard Zone AO. Areas that could be redeveloped under the LSAP (i.e., where new buildings could be constructed) would be limited to the Peninsula subarea (the current location of the Calstone/Peninsula Building Materials operations), the Lawrence/Reed/Willow subarea and a small part of the Southern Residential subarea north of the Lawrence/Reed Willow subarea, and the undeveloped part of the Southern Residential area at the southern boundary of the LSAP (i.e. Corn Palace parcel) (see Impact 3.8.3) Implementation of mitigation measure MM 3.8.3 would ensure that development of this area would not result in new flooding impacts.

Alternative 3 would have the same flooding impacts associated with the proposed the redevelopment of this area. Implementation of mitigation measure MM 3.8.3 would address this impact.

Biological Resources

Implementation of the proposed LSAP could result in significant impacts to special-status mammal and bird species (see Impacts 3.9.1, 3.9.2, 3.9.3 and 3.9.11) that may occupy with LSAP area. Implementation of mitigation measures MM 3.9.1 through MM 3.9.3 would ensure that these species are protected if discovered during subsequent construction activities and reduce the impact to less than significant.

Alternative 3 would have the potential to result in significant biological resource impacts as the LSAP given that the urban development area between this alternative and the LSAP are the same and that these impacts could be mitigated through application of the identified mitigation measures.

Cultural Resources

Implementation of the proposed LSAP could result in significant impacts to undiscovered archaeological resources and human remains from development activities (see Impact 3.10.2). However, implementation of mitigation measure MM 3.10.2 would ensure that this impact is mitigated through resource protection measures.

Alternative 3 would have the same impact as the project given that the urban development area between this alternative and the proposed LSAP are the same and that these impacts could be mitigated through application of the identified mitigation measure.

Public Services and Utilities

As identified in Section 3.11, Public Services and Utilities, implementation of the proposed LSAP would not result in any significant impacts to fire protection and emergency medical services, law enforcement, public schools, parks and recreation, water supply, wastewater, solid waste, energy, and electrical/natural gas/telephone services.

Alternative 3 would also avoid significant public service and utility impacts and would have the following changes in demand for services as compared the LSAP:

- 412.03 acre-feet annually of increased total water supply demand
- 0.47 million gallons per day of decreased residential wastewater generation
- 7.3 tons per day of decreased solid waste generation from residential uses
- 21.3 acres of reduced park demand
- 432 fewer elementary students and 178 fewer high school students

Visual Resources and Aesthetics

Implementation of the proposed LSAP would not result in any significant visual impacts involving the substantial alteration of a scenic vista or resources, alteration of the visual character, or substantially increase daytime glare and nighttime lighting.

Alternative 3 would also result in less than significant visual impacts.

Greenhouse Gases and Climate Change

As identified in Section 3.13, Greenhouse Gases and Climate Change, implementation of the proposed LSAP would not result in any significant impacts in regard to consistency with Assembly Bill (AB) 32, the City's Climate Action Plan (CAP) and progress towards post year 2020 reduction targets or result in exposure to environmental effects related to climate change.

Alternative 3 would be required to implement the City's CAP. This alternative would alter the new service population (population plus jobs) in the LSAP area from 9,081 under proposed LSAP to 11,396 under this alternative as a result of changes in employment and residential uses.

4.8 COMPARISON OF ALTERNATIVES

Table 4.0-2, at the end of this chapter, provides a summary of the potential impacts of the alternatives evaluated in this section, as compared with the potential impacts of the LSAP. The impact significance is identified for each alternative as well as the ranking of the impact as compared to the proposed LSAP. A "B" ranking means that the alternative would either avoid or lessen the identified environmental impacts of the project, while a "W" ranking means the alternative would result in a greater impact. The "S" ranking identifies where the alternative has a

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similar impact as the project. Based upon the evaluation described in this section, Alternative 3 would be the environmentally superior alternative.

4.9 ALTERNATIVES CONSIDERED BUT REJECTED FOR ANALYSIS IN THE DRAFT EIR

OFF-SITE ALTERNATIVE

Given the nature of the project (adoption of a land use plan to guide mixed-use development around the Lawrence Caltrain Station to support transit usage), it would not be appropriate to evaluate another location in the City. Further, this alternative would not meet the basic project objectives identified above. For these reasons, an off-site alternative is considered infeasible pursuant to CEQA Guidelines Section 15126.6(c).

NO DEVELOPMENT ALTERNATIVE

This alternative would assume that Sunnyvale would remain in its existing condition (year 2013 conditions when the Notice of Preparation was released) and no additional development would occur. This alternative was eliminated from detailed analysis, as it would not meet the basic project objectives identified above. For these reasons, a no-development alternative is considered infeasible pursuant to CEQA Guidelines Section 15126.6(c).

TABLE 4.0-2
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS OF ALTERNATIVES

Environmental Impacts	Proposed LSAP	Alternative 1 (No Project – Existing General Plan and Zoning)	Alternative 2 (Residential Emphasis)	Alternative 3 (Office/R&D Emphasis)
<i>Land Use</i>				
Physical Division of an Established Community, Conflicts with Adopted Land Use Plans, or Conflicts with an Adopted Habitat Conservation Plan or Natural Community Conservation Plan	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
<i>Population/Housing</i>				
Housing and Resident Displacement and Substantial Growth	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
<i>Hazards and Human Health</i>				
Hazardous Materials Handling, School Exposure, Emergency Response	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
<i>Traffic and Circulation</i>				
Traffic Operational Impacts	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		S	S	S
<i>Air Quality</i>				
Project and Cumulative Impacts with Air Quality Violation During Construction	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		S	S	S
Exposure to Air Toxic Contaminants	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable
Rank		B	W	B

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Environmental Impacts	Proposed LSAP	Alternative 1 (No Project – Existing General Plan and Zoning)	Alternative 2 (Residential Emphasis)	Alternative 3 (Office/R&D Emphasis)
Noise				
Project and Cumulative Traffic Noise, Construction Noise, Stationary Noise and Vibration	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable
Rank		S	S	S
Geology and Soils				
Geologic or Seismic impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Hydrology and Water Quality				
Flood Impacts	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable
Rank		S	S	S
Biological Resources				
Project and Cumulative Special-Status Species Impacts	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable
Rank		S	S	S
Cultural Resources				
Archaeological Resource and Human Remains Impacts	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable	Significant but Mitigable
Rank		S	S	S
Public Services and Utilities				
Project and Cumulative Water Supply, Wastewater, Solid Waste, Electrical/Natural Gas/Telephone Service Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B

Environmental Impacts	Proposed LSAP	Alternative 1 (No Project – Existing General Plan and Zoning)	Alternative 2 (Residential Emphasis)	Alternative 3 (Office/R&D Emphasis)
Visual Resources and Aesthetics				
Project and Cumulative Impacts Associated with Substantial Change to Visual Character, Daytime Glare, and Nighttime Lighting	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Greenhouse Gases and Climate Change				
Conflicts with Greenhouse Gas Reduction Plans and Environmental Effects of Climate Change	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S

Notes:

- B: Alternative would result in better conditions than the project.
- S: Alternative would result in similar conditions as the project.
- W: Alternative would result in worse impacts than the project.

4.0 ALTERNATIVES

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5.0 OTHER CEQA ANALYSIS

This section identifies significant unavoidable impacts, significant irreversible changes, and growth-inducing effects associated with the proposed Lawrence Station Area Plan (LSAP).

5.1 SIGNIFICANT UNAVOIDABLE IMPACTS

CEQA Guidelines Section 15126.2(b) requires an environmental impact report (EIR) to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. In addition, Section 15093(a) of the CEQA Guidelines allows the decision-making agency to determine whether the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The City can approve a project with unavoidable adverse impacts if it prepares a Statement of Overriding Considerations setting forth the specific reasons for making such a judgment.

The following impacts of the proposed project, which have been recognized as significant and unavoidable in either the project or cumulative context, have been identified in this Draft EIR. All other impacts have been identified as either no impact, less than significant, or less than significant with mitigation.

- Implementation of the land uses under the LSAP would contribute to significant traffic operational impacts at intersections and freeway segments as compared to existing conditions. (Impact 3.4.6)
- The LSAP could result in short-term construction emissions that could violate or substantially contribute to a violation of federal and state standards. (Impact 3.5.3)
- The proposed project, in combination with cumulative development in the San Francisco Bay Area Air Basin (SFBAAB), could result in a cumulatively considerable net increase of criteria air pollutants for which the air basin is designated nonattainment. (Impact 3.5.8)

5.2 GROWTH-INDUCING IMPACTS

CEQA Guidelines Section 15126.2(d) requires that an EIR evaluate the growth-inducing impacts of a proposed action. A growth-inducing impact is defined by the CEQA Guidelines as:

The way in which a 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 project can have direct and/or indirect growth inducement potential. For example, direct growth inducement potential would result if a project involved construction of new housing. A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities or if it involved a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new employment demand (*Napa Citizens for Honest Government v. Napa County Board of Supervisors*). Similarly, a project would indirectly induce growth if it removed an obstacle to additional growth and development, such as removing a constraint on a required public service. A project providing an increased water supply in an area where water service historically limited growth could be considered growth-inducing.

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The CEQA Guidelines further explain that the environmental effects of induced growth are considered indirect impacts of the proposed action. These indirect impacts or secondary effects of growth may result in significant, adverse environmental impacts. Potential secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, and adverse environmental impacts such as degradation of air and water quality, degradation or loss of plant and animal habitat, and conversion of agricultural and open space land to developed uses.

Growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans establish land use development patterns and provide growth policies that allow the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service.

GROWTH EFFECTS OF THE PROJECT

Direct Growth Effects

The purpose of the LSAP is to establish a framework for the future development of the area in order to improve the relationship between transit availability and land use for the long-term development of an economically, environmentally, and socially vibrant mixed-use district in Sunnyvale.

The LSAP is a land use plan and policy document that would guide future development of the Lawrence Caltrain Station area by putting forward land use, circulation and parking, design guidelines, and public utilities improvement plans. The project would guide and manage future land uses in the project area. The project also includes policy that would transform the area into a multimodal area incorporating a “complete streets” approach, thus directing transportation policy in the project area.

Project area growth inducement and increased economic activity are an intended consequence of the LSAP. If project objectives, as described in subsection 2.3 in Section 2.0, Project Description, are to be met, a program of long-term revitalization activities would occur, which would include increased density of residential, commercial and offices uses, with a mix of open space and institutional development. Future development in the plan area would take place within the framework of existing City of Sunnyvale policies, including the City’s General Plan and Climate Action Plan. The project, through its proposed policies in the LSAP, would facilitate sustainable growth in the city, consistent with General Plan policies and projections.

INDIRECT GROWTH EFFECTS

The primary growth-inducing project impacts would take place within the boundaries of the plan area. To a lesser extent, indirect growth effects would be expected in the areas immediately surrounding the plan area in Sunnyvale and in the neighboring city of Santa Clara. In particular, the expected population growth would have a “multiplier” effect by increasing land use demands on community-supporting services in the areas outside of the plan area boundaries. The project would facilitate such indirect effects through the provision of mixed-use development, which would include facilities to serve expected population needs. This would include the development of stand-alone neighborhoods with unique character in the project area that would serve commercial and transit needs in a more localized manner.

Secondary effects could also include increased vehicular traffic. Such effects are addressed through the project's proposal to develop the area as a multimodal area, which would accommodate public transit, bicycling, and pedestrian uses. As such, the incorporation of complete streets ideals into the project area would decrease the need for vehicular usage and transform the area into a regional transportation hub.

Indirect effects outside of the project boundary would occur primarily in the form of future development needs. Most of the secondary growth inducement impacts are expected to occur in a manner consistent with the City's General Plan and policies. Where applicable, such impacts would be reviewed for consistency through development applications to ensure any associated environmental impacts are adequately addressed.

ENVIRONMENTAL EFFECTS OF GROWTH

As described above and in Section 2.0, Project Description, the intent of the LSAP is to guide development in the Lawrence Caltrain Station area in a manner consistent with Sunnyvale's anticipated growth and development through 2035. By applying the proposed new land use designations and zoning in combination with the policies and guidelines in the LSAP, the proposed project would result in a compact, walkable, infill, and mixed-use development. The specific environmental effects resulting from the project's direct and indirect growth effects are discussed in Sections 3.1 through 3.13 of this Draft EIR. These effects include population-related impacts on services and utilities and transportation systems and impacts of the LSAP on environmental resources such as biological resources, cultural resources, and visual resources. Construction and occupancy of projects within the plan area would result in air emissions and noise.

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Public Resources Code Sections 21100(b)(2) and 21100.1(a) require that EIRs prepared for the adoption of a plan, policy, or ordinance of a public agency include a discussion of significant irreversible environmental changes that would result from project implementation. In addition, CEQA Guidelines Section 15126.2(c) describes irreversible environmental changes in the following manner:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irrecoverable commitments of resources should be evaluated to assure that such current consumption is justified.

Implementation of the project could result in the conversion of undeveloped and/or underutilized development areas to residential, commercial, office, industrial, public, and recreational uses. Development as envisioned by the LSAP would constitute a long-term commitment to these uses. It is unlikely that circumstances would arise which would justify the return of those sites to their original conditions.

Development of the plan area would irretrievably commit building materials and energy to the construction and maintenance of buildings and infrastructure. Renewable, nonrenewable, and limited resources that would likely be consumed as part of the development of the proposed project would include but are not limited to oil, gasoline, lumber, sand and gravel, asphalt, water,

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steel, and similar materials. In addition, development of the project would result in increased demand on public services and utilities (see Section 3.11, Public Services and Utilities).

Development in the project areas would be required by law to comply with the California Code of Regulations Title 24 and would not be expected to use energy or any other resources in a wasteful manner (see Impact 3.11.8.1 in Section 3.11, Public Services and Utilities). Further, the LSAP incorporates numerous sustainability principles in its guidelines that would minimize the wasteful, inefficient, or unnecessary consumption of resources. Projects would also be required to implement the City's Climate Action Plan (CAP) energy-conservation measures (see Impact 3.13.1 in Section 3.13, Greenhouse Gases and Climate Change).

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