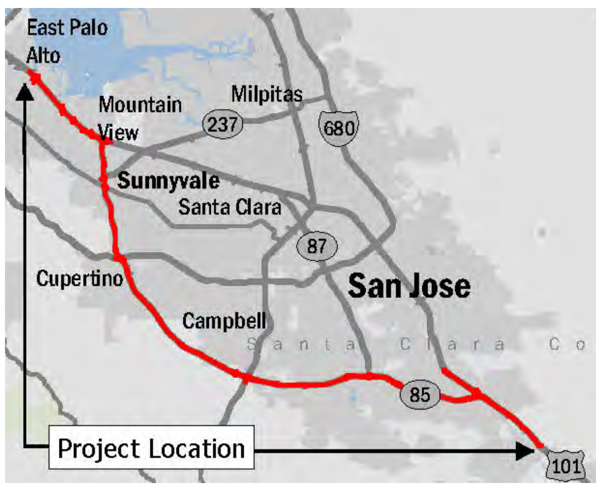
State Route 85 Express Lanes Project

SANTA CLARA COUNTY, CALIFORNIA
DISTRICT 4 – SCL – 85 (PM 0.0/R24.1)
4 – SCL – 101 (PM 23.1/28.6)
4 – SCL – 101 (PM 47.9/52.0)
4A7900/0400001163

Initial Study with Negative Declaration/ Environmental Assessment with Finding of No Significant Impact

Volume 1: Text and Appendices A–G



Prepared by the
State of California Department of Transportation
in Cooperation with the Santa Clara Valley Transportation Authority

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

Caltrans

April 2015

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Text changes to the IS/EA resulting from the public comments are summarized in the responses. Revisions to the IS/EA made after the public review period are indicated by a vertical line in the margin of the IS/EA text, similar to the one shown to the left of this paragraph.

SCH: 2013122065
4-SCL-85-PM 0.0/R24.1
4-SCL-101-PM 23.1/28.6
4-SCL-101-PM 47.9/52.0
4A7900/0400001163

Construct express lane facility on SR 85 from US 101 in Mountain View to US 101 in San Jose (Post Miles 0.0 to R24.1) and on US 101 from SR 85 interchange in San Jose to Metcalf Road (Post Miles 25.3 to 26.8); add a second express lane in both directions between SR 87 and I-280; and construct advance notification signs on portions of US 101 in Palo Alto and Mountain View (Post Miles 47.9 to 52.0) and San Jose (Post Miles 23.1 to 28.6).

Initial Study with Negative Declaration/Environmental Assessment

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation
and
Santa Clara Valley Transportation Authority

April 20, 2015
Date of Approval

Bijan Sartipi
District Director
California Department of Transportation
NEPA and CEQA Lead Agency

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CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT

FOR THE

SR 85 EXPRESS LANES PROJECT

The California Department of Transportation (Department) has determined that the Build Alternative will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) and supporting technical reports, which have been independently evaluated by the Department and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The Department takes full responsibility for the accuracy, scope, and content of the attached EA.

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried-out by the Department under its assumption of responsibility pursuant to 23 U.S.C. 327.

April 20, 2015
Date

BIJAN SARTIPI
District Director
California Department of Transportation, District 4

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SCH: 2013122065

Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Department), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to convert the existing High-Occupancy Vehicle (HOV) lanes on State Route (SR) 85 to express lanes and add a second express lane in both directions between SR 87 and Interstate 280 (I-280). Use of the HOV lanes is currently restricted to vehicles with two or more occupants, motorcycles, and certain alternative fuel vehicles. The conversion of the HOV lanes to express lanes would allow single-occupant vehicles (SOVs) to pay a toll to use the lanes, while HOVs would continue to use the lanes for free. The express lanes would extend along the entire 24.1-mile length of SR 85 and 1.5 miles of United States Highway 101 (US 101) from the southern end of SR 85 to Metcalf Road in San Jose.

The project would also convert the SR 85/US 101 HOV direct connectors in San Jose to express lane connectors, add signs to 4.1 miles of US 101 north of SR 85 in Mountain View and Palo Alto and to 1.8 miles of US 101 between Metcalf Road and Bailey Avenue in San Jose, and add an auxiliary lane to a 1.1-mile segment of northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard in Cupertino. The total project length is 33.7 miles.

Determination

The Department has prepared an Initial Study for this project, and following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on agricultural and forest resources, land use and planning, mineral resources, population and housing, public services, and recreation. In addition, the proposed project would have less than significant effects on aesthetics, air quality, biological resources, cultural resources, geology and soils, paleontology, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, transportation/traffic, and utilities and service systems.

Melanie Brent

Melanie Brent
Deputy District Director
Environmental Planning and Engineering
District 4
California Department of Transportation

April 17, 2015
Date

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Summary

The California Department of Transportation (Department), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to convert the existing High-Occupancy Vehicle (HOV) lanes on State Route (SR) 85 to express lanes and add a second express lane in both directions between SR 87 and Interstate 280 (I-280). Use of the HOV lanes is currently restricted to vehicles with two or more occupants, motorcycles, and certain alternative fuel vehicles. The conversion of the HOV lanes to express lanes would allow single-occupant vehicles (SOVs) to pay a toll to use the lanes, while HOVs would continue to use the lanes for free.

The express lanes would extend along the entire 24.1-mile length of SR 85 and 1.5 miles of United States Highway 101 (US 101) from the southern end of SR 85 to Metcalf Road in San Jose. The project would also convert the SR 85/US 101 HOV direct connectors in San Jose to express lane connectors, add signs to 4.1 miles of US 101 north of SR 85 in Mountain View and Palo Alto and to 1.8 miles of US 101 between Metcalf Road and Bailey Avenue in San Jose, and add an auxiliary lane to a 1.1-mile segment of northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard in Cupertino. The total project length is 33.7 miles.

The Department is the National Environmental Policy Act (NEPA) lead agency per assignment of responsibilities by the Federal Highway Administration (FHWA) pursuant to Title 23, United States Code (USC), Section 327. The Department is also the California Environmental Quality Act (CEQA) lead agency for the project. The project is proposed in cooperation with VTA, which is responsible for providing regional funding.

The purpose of the project is to manage traffic in the congested HOV segments of the freeway between SR 87 and I-280, and maintain consistency with provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in an HOV lane system in Santa Clara County.

This Initial Study/Environmental Assessment (IS/EA) addresses the proposed project's potential to have adverse impacts on the environment. Potential impacts and avoidance, minimization, and mitigation measures are summarized in Table S-1.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

	Potential Impact		
Affected Resource	**No Build Alternative**	**Build Alternative**	**Avoidance, Minimization, and/or Mitigation Measures**
Land Use	None.	None. The project would not change or conflict with existing land use designations or parkland.	None required.
Growth	None.	None. The proposed project would not substantially change roadway capacity, provide new access to previously inaccessible areas, or improve access in ways that would foster local development beyond that which is already planned.	None required.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures, continued

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Farmlands/ Timberlands	None.	None. The project would not convert or conflict with zoning for farmlands or timberlands.	None required.
Community Impacts	None.	None. The project would not displace or relocate any residents, change any existing community boundaries, physically divide an established community, or create a new barrier to movement within the project corridor. No acquisition or relocation of residences, businesses, or other land uses would be required.	None required.
Environmental Justice	None.	The project study area includes communities with a substantial population of minority and/or low-income residents. The project would not cause disproportionately high and adverse effects on any minority or low-income populations.	None required.
Utilities/ Emergency Services	None.	No utility relocations are anticipated. Emergency services access would be maintained throughout project construction.	The project's Transportation Management Plan (TMP) will address temporary lane closures during construction. No further measures are needed.
Traffic and Transportation/ Pedestrian and Bicycle Facilities	In 2015 and 2035, the general purpose lanes in many segments of SR 85 would have high traffic density and impaired traffic flow during the AM and PM peaks. In 2015 and 2035, some HOV lane segments would also have impaired flow.	The project would improve travel times compared to No Build in 2015 and 2035. Most express lane segments would operate at or close to free-flow conditions. The project would not affect any pedestrian or bicycle facilities.	The project's TMP will address temporary lane closures during construction. No further measures are needed.
Visual/Aesthetics	None.	Changes to SR 85 and US 101 through lane restriping and pavement widening, construction of retaining walls, SR 85 bridge widening, and installation of project signs, toll structures, and lighting would be visually compatible with the existing freeway setting. The project would not have substantial adverse effects on a state scenic highway or scenic vista. Project lighting would not result in light or glare impacts.	None required.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures, continued

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Cultural Resources	None.	The project's Area of Potential Effects contains 20 cultural resource sites. Subsurface geoarchaeological explorations were undertaken to identify obscured or buried archaeological resources that could be affected by project construction. No cultural resources of significance were found during the subsurface testing. The project would not affect a Section 4(f) historic resource.	All previously determined eligible and unevaluated sites would be designated as Environmentally Sensitive Areas (ESAs) and avoided during construction. If cultural materials are unearthed during construction, work will be halted in the area until a qualified archaeologist can assess the find. If human remains are encountered, the procedures described in state law will be implemented.
Hydrology and Floodplain	None.	Parts of the project corridor are in the 100-year floodplain. The project would not cause longitudinal encroachments or substantially increase impervious surfaces or runoff quantity.	Measures proposed to avoid and minimize impacts to water quality and storm water runoff would also avoid and minimize hydrology and floodplain impacts.
Water Quality and Storm Water Runoff	As SR 85 has no known, existing treatment best management practices (BMPs), roadway runoff would affect water quality.	Project construction could have temporary impacts to water quality and storm water runoff from increased erosion and subsequent transport of sediment to surface waters. Spills and fluid leaks from construction vehicles, equipment, or materials may also occur during construction. Groundwater could be encountered during installation of foundations. The project would have a disturbed soil area of approximately 75.4 acres and would increase impervious surface areas by approximately 40.14 acres. The project area is susceptible to hydromodification.	Temporary and permanent erosion control BMPs will be included in the project to prevent an adverse change in downstream water quality. Measures will include feasible temporary (short-term) and permanent (long-term) BMPs. Potentially feasible treatment BMPs that will be considered during final design include biofiltration devices, infiltration devices, media filters, and detention devices. The project would incorporate BMPs to maintain or restore pre-project hydrology in accordance with hydromodification requirements. The required Storm Water Pollution Prevention Plan will include storm water BMPs for temporary soil stabilization and sediment control.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures, continued

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
Geology/Soils/ Seismicity/ Topography	The No Build Alternative would be subject to the same geologic, soils, and seismic hazards as the Build Alternative.	The project area could be exposed to strong earthquake shaking. Liquefaction could affect untreated soil at foundations for overhead signs and widened SR 85 bridge decks in areas of high susceptibility.	Project elements will be designed and constructed to meet the Department's seismic design requirements for ground shaking and ground motions. Additional geotechnical subsurface and design investigations will be performed during the final project design and engineering phase. The investigations will include site-specific evaluation of subsurface conditions at the location of proposed foundation features.
Paleontology	None.	Road widening, grading, and trenching have the potential to take place in geologic formations that are of the same age and type as formations known to contain fossils. The potential to encounter unexpected subsurface paleontological resources cannot be ruled out.	The project would implement resource stewardship measures to allow for monitoring during active construction within surface exposures of Pleistocene alluvial fan deposits and Santa Clara Formation and discovery, collection, and curation of fossils, if found, in accordance with a Paleontological Mitigation Plan.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures, continued

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Hazardous Waste/ Materials	None.	Five potential hazardous materials sites are outside, but within 1 mile, of the project corridor. The risk of encountering contaminated groundwater from these sites during project construction is medium to high, depending on the depth of excavation or disturbance. Soils adjacent to the project corridor may contain naturally occurring asbestos or pesticides from previous agricultural land uses. Vehicle tire and brake wear, oil, grease, and exhaust from vehicular traffic on SR 85 and US 101 and other roads within the project area may have contaminated surface soils in the immediate vicinity with aerially deposited lead (ADL) and other heavy metals.	Further investigation of potential hazardous materials sites is recommended due to the potential presence of petroleum hydrocarbons, solvents, and ADL in soil and/or groundwater. During final project design, soils and groundwater would be tested to determine management options and special handling requirements for the construction contractor. If encountered, contaminated soil, groundwater, and other hazardous materials would be properly characterized and disposed of at an appropriate facility per applicable regulations.
Air Quality	None.	The project would not increase concentrations of criteria pollutants that would result in air quality standard violations. The project would not violate standards for particulate matter less than 2.5 micrograms in diameter ($PM_{2.5}$). Minor increases in mobile source air toxics in the project opening year (2015) and horizon year (2035) would be offset by emissions improvements from national control programs. Construction activities associated with the proposed project would be relatively short in duration and intensity and would not exceed state thresholds for construction emissions.	Implementation of the Department's Special Provisions, Standard Specifications, and other recommended measures listed in Section 2.2.6.4 would minimize or eliminate dust from construction activities.
Noise	Residences and other land uses along SR 85 and US 101 have existing and future noise levels that approach or exceed federal noise abatement criteria.	Depending on the location, the project would have no effect on existing noise levels, or no more than a 3-decibel increase. Construction noise would be temporary, limited in duration, and generally at or below the existing freeway noise levels. A traffic noise abatement evaluation following Department procedures identified feasible sound walls, but none were determined cost-effective.	Measures would be implemented to minimize or reduce the potential for temporary noise impacts resulting from project construction.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures, continued

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Natural Communities	None.	The project area is dominated by pavement, various kinds of urban development, and landscaping. Roadway and bridge widening, construction of signs and toll structures, and associated utility work in the project area could result in approximately 0.97 acres of permanent impacts to vegetation and removal of 2 trees. No direct impacts on serpentine grasslands, a natural community of concern, would occur. Temporary construction-related increases in nitrogen are expected to be immeasurable and to have minimal or no deposition impacts on serpentine grasslands and associated species. The project would not result in habitat fragmentation or impacts to fish passage and wildlife corridors. Construction activities to widen SR 85 bridges at Saratoga Creek would permanently affect 0.03 acre and temporarily affect 0.11 acre of California sycamore woodland located immediately below the top of bank. In addition, an arroyo willow and a big leaf maple may need to be removed to accommodate widening of the SR 85 bridges.	A project landscaping plan will be developed during final design and will include a tree planting ratio of 1:1. Tree removal would take place before the start of the nesting season for protected raptors and migratory birds (February 15). Vegetation would be preserved in areas of the project limits where no construction is planned. Preconstruction surveys for serpentine grasslands will be conducted during the spring before construction begins. If serpentine grasslands are present within the limits of construction, an approximate 5-foot buffer will be placed around the grasslands using ESA fencing. To minimize impacts to riparian areas around Saratoga Creek, payment will be provided through an in-lieu fee to the HCP/NCCP. If payment through the HCP/NCCP is not feasible for impacts to riparian areas, other minimization options include mitigation/conservation banks, in-lieu fee programs, and permittee-responsible mitigation.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures, continued

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Wetlands and Other Waters	None.	No permanent or temporary impacts are anticipated to wetlands or waters of the U.S. (including culverted waters of the U.S.), and minimal impacts would occur to waters of the state. The project could have temporary indirect effects if construction-related discharges occur.	Temporarily affected areas will be restored to pre-project or ecologically improved conditions. Measures will be employed to prevent construction material or debris from entering surface waters or their channels. Erosion control measures will be in place prior to, during, and after construction to avoid silt or sediment entering surface waters.
Plant Species	None.	Potential effects related to nitrogen deposition would be negligible.	Implementing the proposed measures for serpentine grasslands (Section 2.3.1.3) and wetlands and other waters (Section 2.3.2.4) would avoid or minimize permanent or temporary impacts to smooth lessingia and other plants associated with serpentine soils.
Animal Species	None.	Project construction could result in temporary effects to 1.57 acres of potential upland habitat for western pond turtle. No permanent impacts to special-status birds or bats would occur. Project construction noise could temporarily disturb migratory birds, nesting raptors, and special-status bats.	Temporary construction-related effects on western pond turtle habitat would be avoided or minimized by implementing the proposed measures for wetlands and other waters (Section 2.3.2.4). Preconstruction surveys would also be conducted for bat roosts. If located, the roosts will be flagged and avoided during construction. If construction takes place during the nesting season (February 15 through August 31), preconstruction surveys would be conducted for nesting migratory birds and raptors. If active nests are found, buffers will be imposed until nesting is completed.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures, continued

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Threatened and Endangered Species	None.	Project construction could result in temporary effects to 1.57 acres of potential upland habitat for California red-legged frog (CRLF) and California tiger salamander (CTS). During consultation, the U.S. Fish and Wildlife Service also identified the potential for up to 0.11 acre of temporary and permanent impacts to CRLF habitat during bridge widening at Saratoga Creek. Project construction has a very low potential to result in take of bay checkerspot butterflies. Serpentine grassland habitat for Metcalf Canyon jewel-flower could be affected by project construction.	Preconstruction surveys, wildlife exclusion fencing, use of appropriate erosion control materials, and biological monitoring would avoid or minimize effects to CRLF and CTS. Preconstruction surveys and ESA fencing for the host plant for bay checkerspot butterfly, construction outside of the adult flight period (March through early May), and regular watering of exposed soils would avoid or minimize effects to bay checkerspot butterfly. Preconstruction surveys and ESA fencing for Metcalf Canyon jewel-flower and the plant's serpentine grassland habitat would avoid or minimize impacts to Metcalf canyon jewel-flower.
Invasive Species	None.	Invasive species in the project corridor include English ivy and sweet fennel. Project construction activities have the potential to inadvertently spread invasive species.	Project landscaping and erosion control will not use species listed as noxious weeds. No disposal of soil and plant materials would be allowed from areas that support invasive species to areas dominated by native vegetation. Resident Engineers would be educated on weed identification and the importance of controlling and preventing the spread of identified invasive nonnative species. Gravel and/or fill material to be placed in relatively weed-free areas would come from weed-free sources. Certified weed-free imported materials (or rice straw in upland areas) will be used.
Cumulative Impacts	None.	None.	None required.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures, continued

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Climate Change	In 2015 and 2035, the No Build Alternative would have higher carbon dioxide emissions than existing conditions.	In 2015 and 2035, the Build Alternative would have higher vehicle speeds and higher demand volumes than No Build. In 2015, the Build Alternative would have higher carbon dioxide emissions than existing conditions and No Build. Build emissions in 2035 would be lower than existing conditions and No Build. Slight increases in emissions during construction will be offset by the improvement in operational emissions.	None required.

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Department), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to convert the existing High-Occupancy Vehicle (HOV) lanes on State Route (SR) 85 to High-Occupancy Toll (HOT) lanes (hereafter known as express lanes) and add a second express lane in both directions between SR 87 and Interstate 280 (I-280). Use of the HOV lanes is currently restricted to vehicles with two or more occupants, motorcycles, and certain alternative fuel vehicles. The conversion would allow single-occupant vehicles (SOVs) to pay a toll to use the lanes, while HOVs would continue to use the lanes for free.

The express lanes would extend along the entire 24.1-mile length of SR 85 and 1.5 miles of United States Highway 101 (US 101) from the southern end of SR 85 to Metcalf Road in San Jose (see Figures 1.1-1 and 1.1-2). The project would also convert the SR 85/US 101 HOV direct connectors in San Jose to express lane connectors, add signs to 4.1 miles of US 101 north of SR 85 in Mountain View and Palo Alto and to 1.8 miles of US 101 between Metcalf Road and Bailey Avenue in San Jose, and add an auxiliary lane to a 1.1-mile segment of northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard in Cupertino. The total project length is 33.7 miles.

The project is listed in the 2009 Santa Clara Valley Transportation Plan 2035 (VTP 2035; VTA 2009), in the Metropolitan Transportation Commission's (MTC's) 2013 Regional Transportation Plan (RTP) (Association of Bay Area Governments [ABAG] and MTC 2013), and in MTC's financially constrained 2013 Transportation Improvement Program (TIP) (MTC 2013).

The Department is the National Environmental Policy Act (NEPA) lead agency per assignment of responsibilities by the Federal Highway Administration (FHWA) pursuant to Title 23, United States Code (USC), Section 327. The Department is also the California Environmental Quality Act (CEQA) lead agency for the project.

1.1.1 Location and Route Description

SR 85 and US 101 both connect Mountain View to southern San Jose. SR 85 crosses the southern part of Santa Clara County, and US 101 crosses the northern part (Figure 1.1-1). SR 85 passes through the cities of Mountain View, Los Altos, Sunnyvale, Cupertino, Saratoga, Los Gatos, Campbell, and San Jose. SR 85 intersects with SR 237, I-280, SR 17, and SR 87. Trucks over 9,000 pounds are prohibited on SR 85 between the US 101 interchange in San Jose and I-280, except for maintenance and emergency vehicles, buses, and recreational vehicles. SR 85 typically has three lanes in each direction: two general purpose (mixed flow) lanes and one HOV lane. Some parts of SR 85 also have auxiliary lanes (lanes that extend from on-ramps to off-ramps).

1.1.2 Background

The proposed project was originally conceived in 2003 as part of a VTA Adhoc Financial Stability Committee recommendation. In 2004 the California Legislature passed Assembly Bill

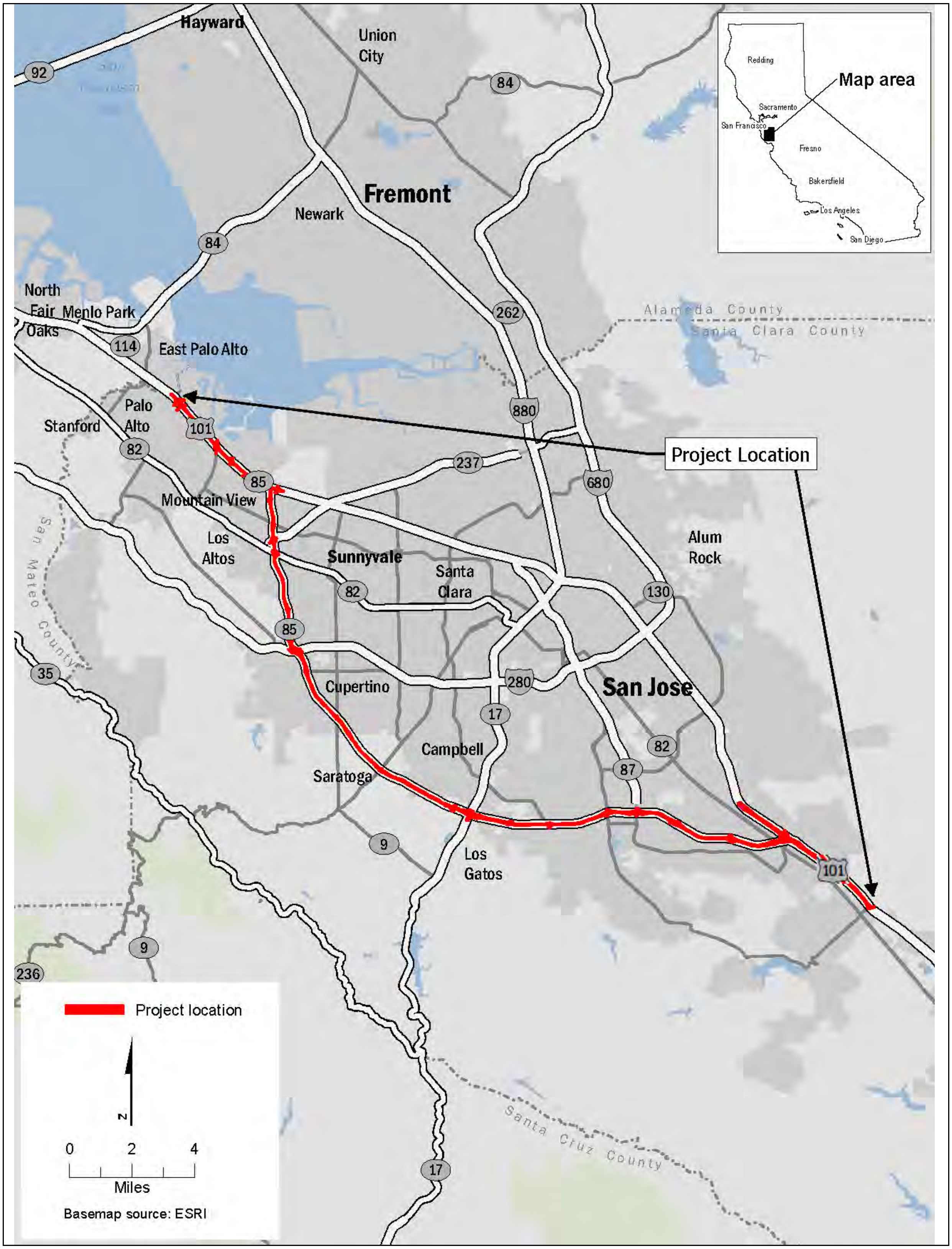

Figure 1.1-1: Project Location and Regional Setting

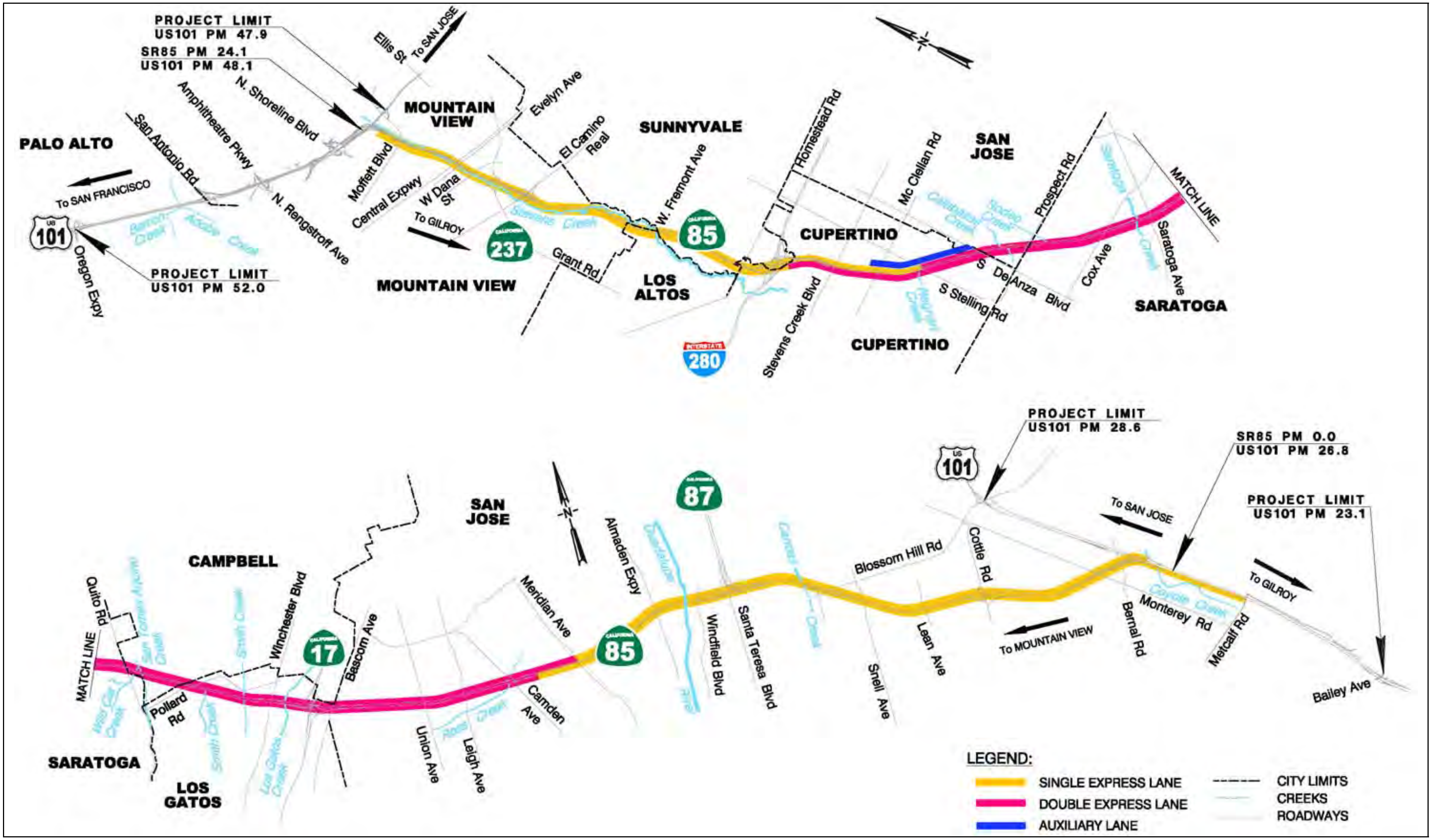

Figure 1.1-2: Project Area

(AB) 2032 authorizing the VTA, as part of a demonstration project, to conduct, administer, and operate a value pricing and transit development program under which SOVs may use HOV lanes during the HOV hours of operation for a fee. A Feasibility Study was completed in 2005. In 2007, AB 574 was passed, removing the “demonstration” category from the law (California Streets and Highways Code Section 149.6) and allowing the VTA to implement a value pricing program within any two corridors in the Santa Clara County HOV lane system. VTA began preliminary engineering and public outreach in 2007, and the VTA Board of Directors approved a Silicon Valley Express Lane Program in December 2008.

Work on the development of SR 85 express lanes has been on-going since 2007. As part of the preliminary engineering work, more than 19 express lane access configurations were reviewed, public outreach was conducted, and a technical memorandum was prepared that was used as input for the approval of the Silicon Valley Express Lanes Program by the VTA Board. Approval of the project’s Project Study Report (PSR) advanced work into the preliminary engineering and environmental approval phase.

Net revenue generated from the SR 85 express lanes would be used in the SR 85 corridor for HOV, transportation, and transit service improvements (California Streets and Highways Code Section 149.6[e][3]).

1.2 Purpose and Need

1.2.1 Purpose of the Project

The purpose of the project is to:

- Manage traffic in the congested HOV segments of the freeway between SR 87 and I-280; and
- Maintain consistency with provisions defined in AB 2032 (2004) and AB 574 (2007) to implement express lanes in an HOV lane system in Santa Clara County.

1.2.2 Project Need

1.2.2.1 Transportation Demand

The following describes the existing traffic operations on SR 85 and projected future traffic growth.

SR 85 Corridor

The SR 85 corridor provides access to residences and businesses in the western part of Santa Clara County and an alternate route to US 101 for regional traffic. The six-lane SR 85 (two general purpose lanes and a single HOV lane in each direction) carries up to 144,000 vehicles per day including HOV traffic. High transportation demand in several segments[1] of the general purpose lanes leads to substantial congestion and reduced vehicle speeds. Drivers in the HOV lanes also currently experience delays in some segments of the SR 85 corridor.

[1] A segment is the section of the freeway between two consecutive interchanges.

During the peak hours (7 AM to 8 AM in the northbound direction and 5 PM to 6 PM in the southbound direction), the existing freeway cannot accommodate all of the traffic demand in the corridor. In particular, between the I-280 interchange and the I-880/SR 17 interchange, the SR 85 general purpose lanes operate at capacity during the northbound AM peak and southbound PM peak. These segments of SR 85 are considered to operate at impaired Levels of Service (LOS). LOS is an indicator of operational conditions on a freeway and is defined in categories ranging from A to F. These categories can be viewed much like school grades, with A representing the best conditions and F indicating substantial congestion with stop-and-go traffic. On freeways, LOS is evaluated in terms of the ability to travel at the posted speed limit and maneuver easily among lanes. LOS is discussed further in Section 2.1.3.

SR 85 HOV Lanes

In addition to the current congestion in the general purpose lanes, drivers in the HOV lane also experience delays in some segments of the SR 85 corridor. Title 23, Section 166(d)(2) of the United States Code (USC) set a minimum average operating speed of 45 miles per hour (mph) for HOV lanes with a speed limit of 50 mph or higher, which generally corresponds to LOS C or D and a target threshold of approximately 1,650 vph (vehicles per hour) per HOV lane.[2] Until January 1, 2015, LOS D operating conditions in the HOV lane were only allowed with written approval of the Department (California Streets and Highways Code Section 149.6[b]).[3] The 1,650 vph threshold is intended to provide HOVs with reliable travel times.

With the exception of a few locations, the HOV lane segments north of I-280 and south of SR 87 are relatively free from congestion and operate well below the 1,650 vph threshold. Those HOV segments are currently underutilized and can provide opportunities to maximize the efficiency of the HOV lanes. However, some of the existing HOV lane segments, particularly between SR 87 and I-280, operate at peak-hour demand volumes that range from 1,000 vph to over 1,500 vph (which is near the 1,650 vph threshold) (URS 2012a). The following HOV lane segments have been observed to experience peak-hour congestion and/or reduced speeds (URS 2012a):

AM Northbound Direction

- Between the Almaden Expressway on-ramp and the Camden Avenue off-ramp;
- Between the Union Avenue off-ramp and on-ramp;
- Between the Winchester Boulevard lane drop and the Saratoga Avenue off-ramp;

[2] Under 23 USC 166(d)(2), an HOV lane is considered a "degraded facility" if vehicles fail to maintain a minimum average operating speed 90 percent of the time over a consecutive 180-day period during morning or evening weekday peak hour periods (or both).

[3] After the public circulation of this document, the California Legislature amended California Streets and Highways Code Section 149.6(b). The reference to LOS D was removed and replaced with a statement that "With the consent of the [D]epartment, VTA shall establish appropriate performance measures, such as speed or travel times, for the purpose of ensuring optimal use of the HOT lanes by high-occupancy vehicles without adversely affecting other traffic on the state highway system." (2014 Assembly Bill 2090, Chapter 528, approved September 21, 2014, effective January 1, 2015.)

- Between the Saratoga-Sunnyvale Road on-ramp and Stevens Creek Boulevard off-ramp; and
- Between the Fremont Avenue on-ramp and El Camino Real off-ramp.

PM Southbound Direction

- Between the Moffett Boulevard on-ramp and Fremont Avenue off-ramp;
- Between the SR 17 on-ramp and the Union Avenue off-ramp; and
- Between the SR 87 off-ramp and the Santa Teresa Boulevard off-ramp.

The Traffic Operational Assessment for the San Francisco Bay Area Backbone Express Lanes Network report (Caltrans 2011b) notes that by 2035, HOV lane usage is expected to increase by about 100 vph in the northbound direction and 300 vph in the southbound direction. It is expected that the segments listed above will exceed the 1,650 vph threshold by 2035 due to the growth in HOV demand, as discussed in the next section. The traffic study for the proposed project also shows that segments of the HOV lane system would operate between LOS D and F—with decreased speeds and impaired traffic flow—in 2015 and 2035 (Section 2.1.3.2).

Projected Travel Demand

Traffic conditions are expected to worsen in the future with continued development in the region and along the SR 85 corridor. Between 2010 and 2035, Santa Clara County is predicted to grow by over 252,000 residents and 365,000 jobs, increases of 14.1 and 43.3 percent, respectively (California Department of Finance 2013; Caltrans 2012a). Commute trips within Santa Clara County are forecasted to increase by 51 percent between 2010 and 2035, and commute trips from San Francisco, San Mateo, and Alameda counties to Santa Clara County destinations are forecasted to increase by 34 to 51 percent (MTC 2008). Over the same period, the County expects to increase the capacity of the roadway system by 5 to 6 percent (VTA 2009).

Traffic on SR 85 is also projected to increase in the form of both regional trips using SR 85 to bypass US 101 and local trips to and from locations on the SR 85 corridor. The ability to accommodate traffic growth will be constrained by the existing capacity of the freeway. SR 85 is bordered by residential and commercial development throughout most of the project limits. The adjoining land uses limit the potential to expand SR 85 to meet existing or future demand without resulting in substantial property acquisitions and residential and business relocations.

Growth in travel demand on SR 85 is expected to cause morning and afternoon peak traffic conditions to spread into longer periods of time when delays persist. Congestion will increase in the general purpose lanes, and the HOV lane segments listed above will experience delays and no longer provide the travel time benefits intended for the facility.

1.2.2.2 Legislation

California Streets and Highways Code Section 149.6 allows for permanent implementation of a value pricing program within any two corridors in the Santa Clara County HOV lane system. The enabling legislation stipulates that revenue collected from the SR 85 express lanes would be used in the SR 85 corridor for HOV, transportation, and transit service improvements (California Streets and Highways Code Section 149.6[e][3]).

1.2.2.3 Independent Utility and Logical Termini

FHWA regulations require transportation projects to meet the following criteria:

- Connect logical termini and be of sufficient length to address environmental matters on a broad scope. In other words, a project must have rational end points for a transportation improvement and rational end points for a review of the environmental impacts.
- Have independent utility or independent significance (be usable and require a reasonable expenditure even if no additional transportation improvements in the area are made).
- Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

As described in Section 1.2.2.1, the SR 85 corridor now has peak hour congestion in the general purpose lanes as well as some HOV lane segments. Projected growth in population and jobs through 2035 is expected to increase future congestion. To address the existing and future travel demand, the project encompasses the entire length of SR 85 and short segments of US 101adjacent to the northern and southern ends of SR 85. The project limits allow for management of traffic congestion for HOVs and SOVs within the SR 85 corridor through the implementation of express lanes. Moreover, the project limits allow for consideration of environmental issues associated with each project element on a corridor-wide basis. The segments of US 101 that “bracket” SR 85 represent logical termini for the project in accordance with FHWA standards.

The project contains the elements needed to manage peak period congestion on SR 85 without requiring other improvements to SR 85 or adjacent roadways. A second express lane in each direction on SR 85 between I-280 and SR 87 and an auxiliary lane along a 1.1-mile segment of northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard were included in the project because traffic studies indicated the additional lanes were needed. By using the existing state right-of-way and generating tolls for ongoing maintenance of the express lanes, the proposed project is a reasonable expenditure. Therefore, the project meets the FHWA’s requirement for independent utility.

The project will not prevent consideration of alternatives for other foreseeable transportation improvements on SR 85. MTC’s 2040 RTP includes planned improvements to SR 85 interchange ramps and freeway lanes at the following locations:

- Improve SR 85 ramps at the interchanges at El Camino Real, Fremont and Bernardo Avenues, and Cottle Road.
- Widen the off-ramp from westbound SR 237 to SR 85 southbound connector ramp, including adding southbound auxiliary lanes on SR 237.
- Construct auxiliary lanes on US 101 from SR 85 in Mountain View to Embarcadero Road in Palo Alto.

- Improve SR 85 northbound to SR 237 eastbound connector ramp and construct auxiliary lane on eastbound SR 237 between SR 85 and Middlefield Road.
- Improve SR 237 westbound to SR 85 southbound connector ramp (includes widening off-ramp to SR 85 to two lanes and adding a southbound auxiliary lane between SR 237 and SR 85/El Camino Real interchange.

The latest countywide transportation plan, VTP 2035 (VTA 2009), includes the following planned improvement:

- Add auxiliary lanes to SR 85 between El Camino Real and SR 237 and improve SR 85/El Camino Real interchange.

The proposed project will not preclude implementation of these planned improvements. For other regional projects, the addition of express lanes will be independently considered on SR 87 and US 101 within Santa Clara County. The range of design alternatives considered for those projects would not be affected by express lanes on SR 85.

1.3 Project Description

This section describes the proposed project and the project alternatives that were developed by a multidisciplinary team to achieve the project's purpose and need, while avoiding or minimizing environmental impacts. Two alternatives are considered in this document: a Build Alternative, and the No Build Alternative.

The purpose of the project is to manage traffic in the congested HOV segments of the freeway between SR 87 and I-280, and maintain consistency with provisions defined in AB 2032 (2004) and AB 574 (2007) to implement express lanes in an HOV lane system in Santa Clara County.

1.3.1 Build Alternative

SR 85 currently has two general purpose lanes and a single HOV lane in each direction. US 101 in the project limits has three general purpose lanes and one HOV lane in each direction. Both SR 85 and US 101 have auxiliary lanes in some locations.

The Build Alternative would convert the existing HOV lanes to express lanes along the entire 24.1-mile length of SR 85 and 1.5 miles of US 101 from the southern end of SR 85 to Metcalf Road in San Jose. The express lanes would be one lane in each direction between US 101 in San Jose and SR 87, two lanes in each direction between SR 87 and I-280, and one lane in each direction between I-280 and US 101 in Mountain View (Figure 1.1-2). Conversion of the HOV lanes to express lanes would allow use by SOVs with active FasTrak accounts and toll tags. In addition, the project would convert the SR 85/US 101 HOV direct connectors in San Jose to express lane connectors.

The project would also add signs in the 4.1-mile segment of US 101 from the northern end of SR 85 in Mountain View to Oregon Expressway in Palo Alto, and in the 1.8-mile segment of US 101 from Metcalf Road to Bailey Avenue in San Jose. The project would not widen the roadway or change system or HOV lane access in those segments.

An auxiliary lane would be added to a 1.1-mile segment of northbound SR 85 between the existing South De Anza Boulevard on-ramp and Stevens Creek Boulevard off-ramp to improve traffic operations during peak periods.

The project corridor includes 24.1 miles of SR 85, 4.1 miles of US 101 in Palo Alto and Mountain View, and 5.5 miles of US 101 in southern San Jose,[4] for a total of 33.7 miles (Figure 1.1-2).

In addition, design modifications to revise express lane access to continuous access (with no buffer separation) will be considered during detailed project design.

1.3.1.1 Express Lane Configuration

Like the existing HOV lanes, the express lanes would be adjacent to the center median. The striping that separates the lanes from the general purpose lanes would be changed from the existing dashed line for the HOV lane to a 2-foot-wide double-line striped buffer zone for the express lanes. The striped buffer zone would have gaps in multiple locations where vehicles can enter and exit the express lanes (called access points), as shown in Figure 1.3-1. The buffer zones serve to limit vehicle movement into and out of the express lanes to the designated access points.

Figure 1.3-1 shows the lane striping, sample express lane signs, and a toll structure in the two-lane section of the SR 85 Express Lanes Project, between SR 87 and I-280. The striping labeled with “(1)” is the double-line striped buffer zone. The dynamic message sign (DMS) labeled with “(2)” has electronic panels that show the current toll for upcoming destinations. The toll structure labeled with “(3)” communicates with FasTrak toll tags to record trips and collect tolls. This figure does not represent the actual spacing of signs and toll structures. Representative views of signs and toll structures are provided in Section 2.1.4.3.

Lighting would be added in the SR 85 median in areas with access points and buffer zones. During the design phase of the project, the specific lighting plans may increase to include lighting at toll change zones and toll-related sign gantries. The project would also include signs to advise express lane users that entering or exiting the facility anywhere other than designated buffer zones is a traffic violation.

Figure 1.3-2 is a detailed schematic of proposed express lane access zones throughout the project corridor. The access zones shown in Figure 1.3-2 reflect the configuration described above and shown in Figure 1.3-1, in which a 2-foot-wide double-line striped buffer zone would separate the express lanes from the general purpose lanes except at designated access points.

[4] The 2.2-mile segment of US 101 in San Jose between the southern end of SR 85 and Blossom Hill Road is also officially included in the project limits, but no project activities are planned in that segment.

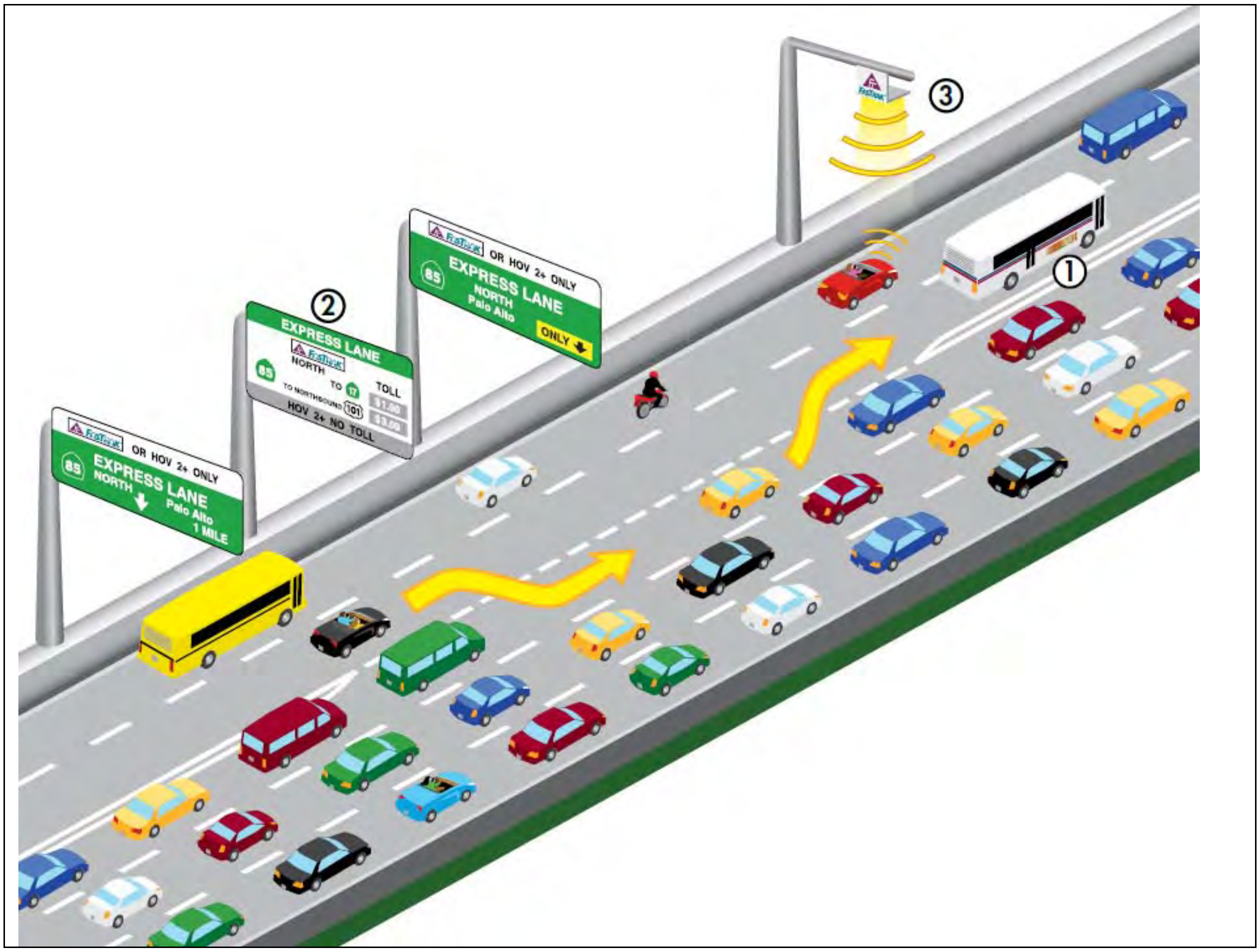

Figure 1.3-1: Express Lane Schematic

Design modifications to revise the proposed express lane access to continuous or open access—like the existing SR 85 HOV lane, with no buffer separation—will be considered during detailed project design. Other Bay Area express lane projects being evaluated by the Bay Area Infrastructure Financing Authority (BAIFA; a joint powers authority of MTC and the Bay Area Toll Authority) and other agencies such as the Alameda County Transportation Commission include continuous access. The Bay Area Express Lane network is an open access system (via continuous access striping) except where access is limited via buffer striping or double white solid striping, as necessary, to enhance or preserve operational efficiency and traffic safety. The project reflects a restrictive access scenario which will be reduced by maintaining as much of the existing continuous access striping scheme during the design phase of the project.

The open access system will include more adequate gaps in traffic stream and easier merging and weaving between the express lane and the general purpose lanes for vehicles and transit vehicles, specifically in segments where only one express lane is proposed, or when freeway interchanges are closely spaced. Controlled access will be provided to manage congestion where excessive weaving or conflict is expected with general purpose lanes.

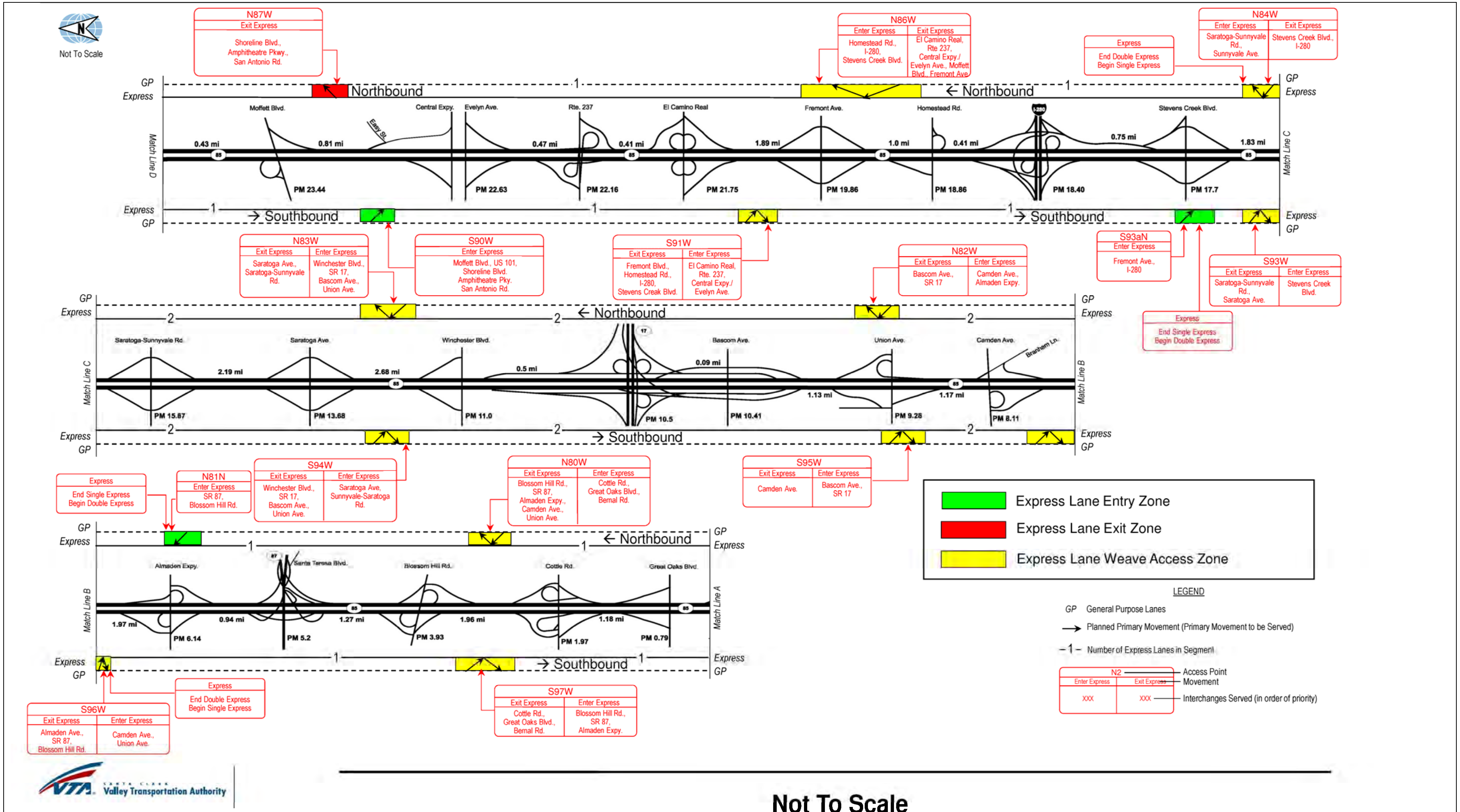

Figure 1.3-2: Express Lane Access Zone Schematic (page 1 of 2)

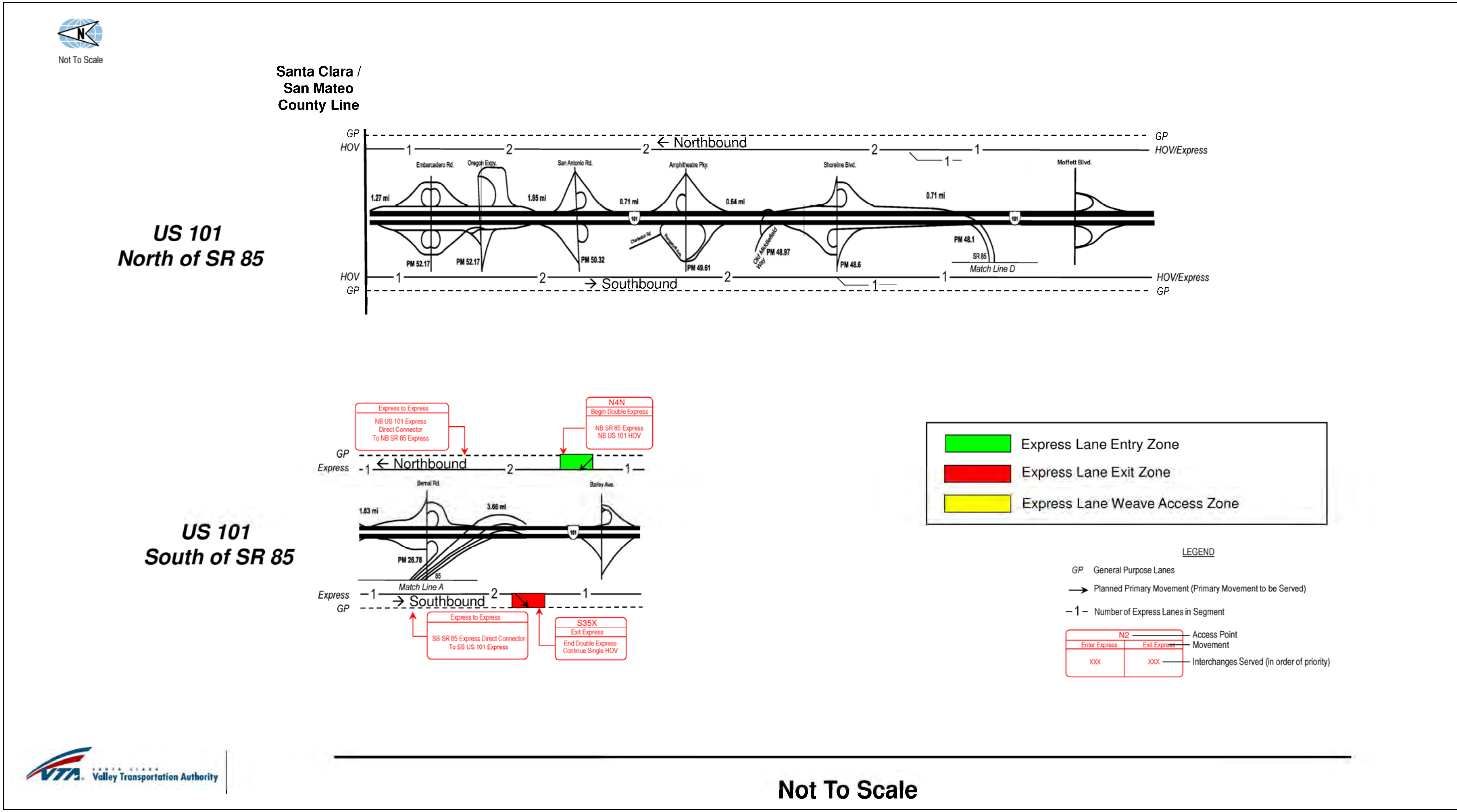

Figure 1.3-2: Express Lane Access Zone Schematic (page 2 of 2)

1.3.1.2 US 101/SR 85 Direct Connectors

At the south end of the project in southern San Jose, both the northbound and southbound HOV direct connectors from SR 85 to US 101 will be converted to express connectors, allowing SOVs with valid FasTrak devices to use the direct connectors. The southern end of the proposed express lanes on US 101 will coincide with the beginning/ending of the double HOV lanes under the Metcalf Road overcrossing.

At the north end of SR 85 in Mountain View, the buffer-separated express lane facility will end just south of the US 101/SR 85 interchange. In the northbound direction on SR 85, the express lane would terminate in advance of the existing HOV-only direct connectors, allowing enough distance for SOVs to exit the lane and merge across the general purpose lanes to use the general purpose ramp from northbound SR 85 to northbound US 101. In the southbound direction, the express lane would start shortly after the direct connector terminates on SR 85, allowing enough distance for SOVs entering southbound SR 85 from the general purpose ramp to merge across the general purpose lanes and enter the express lane.

1.3.1.3 Express Lane Operations

Express lane operations would be tightly integrated with monitoring of traffic speed and density, enforcement, incident management, and other subsystems to maintain free-flow conditions. Static overhead signs would be installed to notify drivers as they approach an express lane access point. An overhead dynamic message sign (DMS) located just before each access point would display the current toll rates. The DMS would display the price to the destination served by the next exit from the express lanes facility as well as the other downstream exits. The toll rates on the DMS would be updated every 3 to 6 minutes to reflect changing speed and traffic density measured at intervals along the express lanes.

After entering the express lanes, all vehicles would pass through one or more tolling zones. Overhead antennas in the express lanes would “read” the toll tag and track the number of zones so that the correct toll is charged to the customer’s FasTrak prepaid account.

Static overhead and barrier-mounted signs would provide advance notice of an express lane exit, including a list of specific interchanges immediately downstream of the exit shown on the sign. The exit would be situated to allow a user adequate distance to change lanes before reaching a particular interchange to exit the freeway.

If the express lanes approach their capacity threshold (1,650 vph per lane), the toll would be increased as needed, up to a maximum toll rate to be determined, in order to reduce the incentive for SOVs to enter the express lanes or proceed through the next tolling zone. The toll increase for SOVs would be used to meet the minimum average operating speed of 45 mph for HOVs (Title 23 USC, Section 166(d)(2)) and to maintain the target performance measures for HOVs (California Streets and Highways Code Section 149.6[b]) (Section 1.2.2.1). If the express lanes reach capacity, the message on the DMS would change to read “HOV only.” At that point, only HOVs would be allowed into the lanes. SOVs would not be allowed even if they have a FasTrak toll tag.

1.3.1.4 Customer Service and Account Management

SOVs will need to have FasTrak toll tags to use the express lanes. The toll tag is a small battery-powered radio toll collection device that can be mounted to the inside of a vehicle windshield. FasTrak toll tags are already used to automatically pay tolls on Bay Area bridges. Toll tags can be obtained online; by phone, mail, or fax; in person from the Bay Area Toll Authority (BATA) Regional Customer Service Center (RCSC); or from retail outlets such as Walgreens, Safeway, and Costco. Toll tags can also be obtained anonymously (without providing personal or vehicle information) from the RCSC. There is no charge to open a FasTrak account, but each account holder must keep a minimum balance in a prepaid account.

More information about obtaining a FasTrak toll tag is available at https://www.bayareafastrak.org/vector/dynamic/signup/index.shtml, or by calling 1-877-BAY-TOLL (1-877-229-8655).

1.3.1.5 SOV Transaction Processing

To use the express lanes as an SOV, the user would need to mount a FasTrak transponder to the vehicle windshield. Upon entering the express lanes and then after passing underneath the toll antennas, transaction records would be sent in near–real time from each toll zone controller to the Central Processing System (CPS) for processing and configuring trips in a specified format for communicating with the RCSC.

1.3.1.6 HOV Transaction Processing

All existing eligible HOVs would continue to be exempt from paying a toll in the SR 85 express lanes. Eligible HOVs consist of:

- Passenger cars with two or more occupants (also known as carpool vehicles);
- Transit or para-transit vehicles with no axle count limitation;
- Motorcycles; and
- Alternative fuel vehicles with a Department of Motor Vehicles (DMV)-issued white or green decal.

HOVs do not require a FasTrak toll tag to use the express lanes. Drivers who have a FasTrak toll tag in their vehicle but are carpooling with two or more people can still use the express lanes for free. FasTrak toll tags come with a Mylar bag. Placing the toll tag in the Mylar bag shields the tag from being “read” by the overhead toll antenna and the toll from being collected.

1.3.1.7 Violation Processing

The California Highway Patrol (CHP) is responsible for enforcing all laws that apply to the express lanes, including toll and HOV laws.

Vehicles without a FasTrak toll tag would trigger a transaction indicator beacon. CHP officers would monitor the indicator beacon and observe from a distance whether the identified vehicle is a qualified HOV. If the CHP determines an SOV in the express lane does not have a valid toll tag, the vehicle will be pulled over and cited.

1.3.1.8 Right-of-Way Requirements

The project would be constructed entirely within the existing right-of-way.

1.3.1.9 Construction

In the segments of SR 85 between US 101 in southern San Jose and SR 87 and between I-280 and US 101 in Mountain View, the 2-foot-wide buffer would be created by reducing the width of the existing HOV lane and the adjacent general purpose lane from 12 feet to 11 feet. The rest of the general purpose lanes would remain 12 feet wide.

In the segment of SR 85 between SR 87 and I-280, where a second express lane would be added in each direction, pavement widening would be conducted in the median to accommodate the express lanes and buffer zones. The median would be paved, and the existing thrie-beam barrier (a corrugated metal railing mounted on posts) would be replaced with a Type 60 concrete barrier.

SR 85 bridge decks would be widened at Almaden Expressway (northbound side only), Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue, as well as at the San Tomas Aquino Creek and Saratoga Creek crossings. The existing gaps between the northbound and southbound bridges at these locations would be closed except at Almaden Expressway, where the northbound bridge would be widened on the inside (toward the median). Bridge widening work would take place along the banks of San Tomas Aquino and Saratoga creeks, but no in-water work is proposed.

The auxiliary lane on northbound SR 85 between the South De Anza Boulevard on-ramp and Stevens Creek Boulevard off-ramp would be added by widening the existing pavement by up to 14 feet to the outside (northeast). To accommodate the auxiliary lane, the existing embankments at the abutments of the South Stelling Road and McClellan Road overcrossings adjacent to northbound SR 85 would be replaced with retaining walls. No drainage pipe or waterway extensions, sound wall modifications, or additional right-of-way would be required.

Overhead signs and toll antennas would be mounted on cantilever structures supported on cast-in-drilled-hole or driven piles in the median. The tops of the overhead signs and toll antennas would be approximately 26 feet in height.

Lighting would be installed on mast-arm standards in the median of SR 85 as well as on overhead signs and toll structures. The maximum height of the lighting would be 35 to 40 feet. The actual spacing and number of lights in the project corridor will be determined during detailed project design in coordination with Caltrans Traffic Safety.

Some Traffic Operations Systems (TOS) equipment such as traffic monitoring stations, Closed Circuit Televisions, cabinets, and controllers would be installed along the outside edge of pavement within the existing right-of-way. Maintenance vehicle pullouts would be installed in SR 85 shoulder areas to allow access to the TOS equipment. The specific locations of these features would be developed during final project design.

Trenching would be conducted along the outside edge of pavement for installation of conduits. The depth of trenching would be 3 to 5 feet below the roadway surface. Conduits would be jacked across the freeway to the median where needed to provide power and communication feeds to the new overhead signs and toll structures.

Because of the relatively flat topography of the study area and the limited amount of proposed widening (in the median and for the new auxiliary lane), there would be minimal cut and fill. No spoils or import sites are anticipated, or associated hauling of earth material except within the existing right-of-way.

Construction activities will take place adjacent to the freeway for installation of the additional lane between SR 87 and I-280, signs, the auxiliary lane, utility trenching, lighting, and concrete barriers.

Project construction would take place at night as well as on weekends and non-peak weekday hours. During construction, some lane closures could be required, but full freeway closures are not expected to be necessary.

Construction would be conducted in approximately five stages to minimize impacts to travelers on SR 85. Staging is anticipated to proceed in the following order:

1. Pavement of the median and bridge widening
2. Installation of overhead signs and toll structures
3. Installation of concrete median barrier-mounted signs
4. Pavement delineation (striping)
5. Implementation of system integrators to operate the vehicle detection and tolling systems

Each construction stage may include several phases, which would be developed during detailed project design.

The project would be constructed in segments depending on availability of funding. The number of segments and the limits of each segment would be decided upon to provide the most operational benefit to the corridor.

1.3.1.10 Traffic Systems Management (TSM) and Traffic Demand Management (TDM) Alternatives

TSM strategies increase the efficiency of existing facilities by accommodating a greater number of vehicle trips on a facility without increasing the number of through lanes. TSM encourages transit use and ridesharing, which the proposed project would continue to facilitate. The Build Alternative is consistent with TSM strategies because it would increase the efficiency of the existing SR 85 facility by allowing for more vehicles to travel within the corridor while minimizing expansion of the freeway. Although Transportation System Management measures alone could not satisfy the purpose and need of the project, the following Transportation System Management measures have been incorporated into the build alternative for this project: vehicle detection systems to monitor traffic speed and density, enforcement, incident management, and other subsystems to maintain LOS C/D in the express lanes, which would benefit transit and other HOVs.

TDM focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled (VMT) as well as increasing vehicle occupancy. The Build Alternative's additional express lane between SR 87 and I-280 would increase freeway capacity for HOV users.

1.3.2 No Build Alternative

The No Build Alternative assumes no modifications would be made to the current SR 85 corridor, including the continuous access HOV lane, other than routine maintenance and rehabilitation of the facility and any currently planned and programmed projects within the area.

The No Build Alternative would not provide traffic congestion management. It would not provide managed-toll lanes that allow SOV drivers to use the available space in the HOV lanes during peak periods. Drivers would remain limited to a choice of using the HOV lanes or remaining in the congested general purpose lanes. Under this scenario, traffic conditions and congestion will continue to degrade with increased future freeway traffic demand. With the No Build Alternative, improvements to freeway operations would be needed sooner than with the proposed Build Alternative, to minimize or avoid continued deterioration of traffic operations. Environmental impacts from the No Build Alternative could include increased air pollutant emissions associated with traffic congestion and the possible need to make physical improvements such as new travel lanes.

1.3.3 Estimated Cost and Schedule

The project is funded through the project approval and environmental document phase from federal earmarks (Surface Transportation Program and Transportation Community and System Preservation), American Recovery and Reinvestment Act funds, and VTA Local funds. VTA is working with local, state, and federal agencies to identify funding sources for the design and construction of the project. The estimated total cost for the project is $176 million.

The proposed schedule identifies completion of the project approval and environmental document phase in 2015, start of construction in 2016, and contract completion acceptance in 2020.

1.3.4 Final Decision Making Process

After the public circulation period, all comments were considered and the Department selected a preferred alternative and made the final determination of the project's effect on the environment. Under CEQA, no unmitigable significant adverse impacts were identified and the Department prepared a Negative Declaration (ND). Similarly, the Department determined the action did not significantly impact the environment, and the Department, as assigned by FHWA, issued a Finding of No Significant Impact (FONSI) in accordance with NEPA.

1.3.5 Identification of a Preferred Alternative

The Project Development Team (PDT) met on April 1, 2015, to identify a preferred alternative for the project. PDT representatives from the City of Saratoga and the Town of Los Gatos expressed support for the No Build Alternative. The PDT as a group opted to identify the Build Alternative as the preferred alternative, after considering comments received during the public comment period. Responses to public comments on the Draft Environmental Document are provided in Volume 2 of this Final Environmental Document. The following summarizes the reasons for choosing the Build Alternative over the No Build Alternative:

- The Build Alternative would manage capacity in the congested HOV segments of the freeway between SR 87 and I-280, a stated purpose of the project.
  - In the 2015 No Build condition, five HOV lane segments between SR 87 and I-280 would operate at impaired LOS E or F in the northbound AM and southbound PM peak hours. In the 2035 No Build condition, seven HOV lane segments between SR 87 and I-280 would operate at impaired LOS E or F in the northbound AM peak hour and southbound PM peak hours.
  - In the 2015 and 2035 Build condition, all express lane segments between SR 87 and I-280 would operate at free-flow LOS C/D or better in both peak hours and both directions. In the 2035 Build condition, one access zone (shorter than a segment) would operate at impaired LOS F in the southbound PM peak.
  - In 2015 and 2035, travel times in the express lanes between SR 87 and I-280 would improve slightly with the Build Alternative in the northbound AM and southbound PM peak hours compared with the No Build condition.
- Compared to No Build, the Build Alternative would also maintain free-flow conditions and travel time benefits in the single-lane express lane segments to the north of I-280 and to the south of SR 87, in the 2015 and 2035 northbound AM and southbound PM peaks. In the 2035 Build condition, two access zones (shorter than a segment) would operate at impaired LOS E or F in the southbound PM peak. In the 2035 No Build condition, two HOV lane segments would operate at impaired LOS E or F in the southbound PM peak.
- The Build Alternative would be consistent with the provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in an HOV system in Santa Clara County, a stated purpose of the project. Net revenue generated from the express lanes would be used in the SR 85 corridor for HOV, transportation, and transit service improvements, as directed in the bills and codified in California Streets and Highways Code Section 149.6.
- The Build Alternative would provide greater traffic congestion relief throughout the project corridor. The conversion of the existing single HOV lanes to express lanes and the addition of a second express lane in each direction between SR 87 and I-280 would increase average speed and reduce travel time and delay compared with the No Build Alternative.
  - In 2015, the Build Alternative would increase average speed by 43 percent in the northbound AM peak period and by 4 percent in southbound PM peak period, compared with the No Build condition. Total travel time would be 21 percent less than with No Build in the northbound AM peak period and approximately the same in the southbound PM peak period. Compared with No Build, the Build Alternative would reduce total delay within the project corridor by 58 percent in the northbound AM peak period and by 6 percent in the southbound PM peak period.

– In 2035, the Build Alternative would increase average speed by 52 percent in the northbound AM peak period and by 27 percent in southbound PM peak period, compared with the No Build condition. Total travel time in the northbound AM peak period would be 25 percent less than with No Build and 16 percent less in the southbound PM peak period. Compared with No Build, the Build Alternative would reduce total delay within the project corridor by 53 percent in the northbound AM peak period and by 29 percent in the southbound PM peak period.

In general, the Build Alternative would better accommodate projected population growth and travel demand growth than the No Build Alternative. The projected population growth would occur with or without the project.

In conclusion, the Build Alternative would satisfy the purpose and need for the project described in Sections 1.2.1 and 1.2.2, and the No Build Alternative would not.

1.3.6 Alternatives Considered but Eliminated from Further Discussion

Several alternatives were considered during the early stages of project development but were eliminated because they did not meet the project's purpose and need or would have unacceptable environmental impacts. The following describes these alternatives and why they were not advanced for further evaluation.

1.3.6.1 Single Express Lane/Separate Access Points

A single express lane with separate zones for entering and exiting (known as separate access points) would involve converting the existing northbound and southbound SR 85 HOV lanes into a single express lane facility, extending from US 101 in southern San Jose to US 101 in Mountain View.

Some of the existing HOV lane segments between SR 87 and I-280 are currently operating at peak-hour demand volumes that range from 1,000 vph to 1,500 vph. Those volumes are near the 1,650 vph threshold, which is the threshold of operation needed to provide HOVs with reliable travel time savings. These segments are expected to exceed the 1,650 vph threshold due to the growth in HOV demand over the next 20 years. As a result, at some point in time between the opening year and the 20-year horizon, there will be no excess capacity available in the HOV lane to sell to the SOVs who are willing to pay a toll. At that point, additional capacity in the form of additional express lanes will be required to accommodate the increase in HOV demand. It was determined that any build alternative should include a second express lane between SR 87 and I-280 to meet the design year operational performance expectations for the facility.

The single-lane alternative was also eliminated because it would preclude the future construction of a second express lane in the SR 85 corridor. The separate ingress/egress option would not have the same access points as a two-lane facility. Therefore, transitioning to two express lanes in the future (which is the ultimate vision for SR 85) would require reconstruction of all overhead signs, electronic toll structures, and access zones in new locations. In addition, expansion from one to two express lanes would have to occur while maintaining operations of the single express lane. The relocation of the signs and toll structures would require a second phase of excavation and disturbance within the corridor. It would also potentially increase risk and congestion while drivers become accustomed to the new lane striping and sign configuration. This alternative's infrastructure would be cost prohibitive, it would not serve the public, and the adverse conditions and impacts would be avoided with the proposed Build Alternative.

1.3.6.2 Single Express Lane/Shared Access Points

The Single Lane/Shared Access Points Alternative is the same as the Single Express Lane/Separate Access Points Alternative described above, with the exception of access points that would allow for both entering and exiting the express lanes. With this alternative, the 2-foot buffer zone would have designated combined entrance and exit openings to provide access into and out of the express lane facility. It was considered and dropped from further consideration because it was determined that any build alternative should include a second express lane between SR 87 and I-280 to meet the design year operational performance expectations for the facility.

1.3.7 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction:

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service (USFWS)	Section 7 consultation for threatened and endangered species.	● Request for Letter of Concurrence was submitted to the USFWS to address species protected under Section 7 of the FESA on December 20, 2013. ● Biological Opinion issued on March 10, 2015 (08ESMF00-2014-F-0197-2).
Federal Highway Administration (FHWA)	Concurrence with project's conformity to Clean Air Act and other requirements.	● FHWA air quality conformity determination issued on April 14, 2015.
State Historic Preservation Officer (SHPO)	Notification of finding of "No Adverse Effect with Standard Conditions – ESAs" under the Section 106 Programmatic Agreement	● Cultural studies were submitted for SHPO notification purposes on June 21, 2013. ● A Section 106 completion memo was issued on August 22, 2013.
California Department of Fish and Wildlife	Section 1602 Lake and Streambed Alteration Agreement	● Permit application will be submitted during the project design phase.
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Waste discharge requirements under the Porter-Cologne Water Quality Control Act; National Pollutant Discharge Elimination System (NPDES) approval for work greater than one acre.	● Joint "Application for 401 Water Quality Certification and/or Report of Waste Discharge" will be submitted during the project design phase. ● NPDES permit application will be submitted during the project design phase. ● A Notice of Intent and Storm Water Pollution Prevention Plan will be prepared/submitted prior to construction.
Santa Clara Valley Water District	Permit for work at creeks	● Permit application will be submitted during the project design phase.
City of Saratoga	Permit for removal of protected tree	● Permit application will be submitted during the project design phase.

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

This chapter addresses the environmental impacts of the proposed project. An evaluation of the proposed project is provided below and is consistent with CEQA checklist criteria provided in Appendix B. Avoidance, minimization, and/or mitigation measures are discussed in the following sections and summarized in Appendix E. The environmental resource discussions presented in this chapter are based on the technical studies cited at the beginning of each discussion and listed in Appendix G. Technical studies were prepared for community impacts, traffic, visual resources, cultural resources, hydrology, water quality, storm water, geotechnical conditions, paleontology, hazardous waste and materials, air quality, noise, and biological resources.

For the proposed project, the CEQA baseline for all resource areas except traffic, air quality, and noise is 2010–2011, the period when environmental studies commenced. For traffic, the CEQA baseline is 2007, the most recent year for which data were available when the traffic studies began in 2010, supplemented with spot-check location counts conducted in 2010 to fine tune and validate the base year traffic model. The air quality and noise studies began in 2011 and used the 2007 baseline year traffic data for existing conditions with the most current monitoring and measurement data for the study area.

The NEPA baseline for comparing environmental impacts is the No Build Alternative.

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document.

Land Use

Existing and Future Land Use

The project would not expand the existing state right-of-way or result in direct or indirect changes to land uses. The proposed project would serve an existing developed urban area and would not involve unused rural land (URS 2012b).

Consistency with State, Regional, and Local Plans and Programs

The project is included in the most recent RTP and is consistent with the RTP goal of providing a regional network of express lanes. The project would not conflict with regional growth plans or the Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP; County of Santa Clara 2012). General and community plans were reviewed for the jurisdictions in the project vicinity, which are Santa Clara County and the Cities of Palo Alto, Mountain View, Sunnyvale, Los Altos, Cupertino, Saratoga, Los Gatos, and San Jose.

The project corridor is not within the coastal zone. Eighteen waterways cross or are adjacent to the project corridor, but none are National or California Designated Wild and Scenic Rivers or rivers under study for this designation (URS 2012b).

Parks and Recreational Facilities

The project would not require the temporary or permanent use of any parkland or recreational facility. No temporary or permanent closures of bike or pedestrian trails are anticipated. The Noise Study Report for the proposed project (Illingworth and Rodkin 2012) evaluated parks or trail segments near the project corridor for noise levels and potential noise impacts and found that the project would increase noise levels by 0 to 2 decibels over existing conditions, depending on location. A 2-decibel increase in a typical noisy environment is generally not noticeable (Illingworth and Rodkin 2012), and no noise barriers are proposed at any of the parks along the project corridor.

The project would not directly or indirectly affect a Section 4(f) public park, recreational area, or wildlife or waterfowl refuge. The project would not affect historic sites recognized under Section 4(f).

Growth

All permanent features of the proposed project would be within the existing SR 85 and US 101, and would not include the construction of new interchanges. As a result, the project would not provide new access to previously inaccessible areas or improve access in ways that would foster local development beyond that which is already planned.

The proposed project would respond to existing and foreseeable demands of the community served, rather than trigger further development beyond the project itself. Therefore, the project would accommodate but not influence growth (URS 2012b).

Farmlands/Timberlands

Farmland is located adjacent to the project corridor in San Jose and unincorporated Santa Clara County (California Department of Conservation 2011). Farmland designations adjacent to the project corridor include Prime Farmland, Unique Farmland, and Grazing Land. All improvements associated with the proposed project would occur within the existing right-of-way. Therefore, the project does not have the potential to result in the conversion of Prime Farmland, Unique Farmland, or Grazing Land. There is no timberland in or adjacent to the project corridor (URS 2012b).

Community Impacts

Community Character and Cohesion

The project would not displace or relocate residents, change existing community boundaries, physically divide an established community, or create a new barrier to movement within the project corridor. Access to and from the project corridor and nearby streets would not change as a result of this project.

Relocations and Real Property Acquisition

The project would not require acquisition or relocation of any residences, businesses, or other land uses.

2.1 Human Environment

2.1.1 Environmental Justice

The following discussion is from the Community Impact Assessment (URS 2012b) for the proposed project, which was completed in August 2012.

2.1.1.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2013, this was $23,550 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix D of this document.

2.1.1.2 Affected Environment

The study area for this analysis included all Census block groups whose borders lie within a 0.5-mile radius of the project corridor. The baseline analysis for this study area was conducted for the communities along the entire project corridor.

For each Census block group within the study area, the following data were gathered:

- Total population (U.S. Census Bureau 2010);
- Ethnicity and race (U.S. Census Bureau 2010); and
- The ratio of income to poverty level of individuals in the past 12 months (U.S. Census Bureau, American Community Survey [ACS] 2006-2010 5-Year Estimates).

For this analysis, the newest data available at the Census block group level was collected—2010 Census data for minority populations and 2006-2010 ACS estimates of block group data for low-income populations.

Minority persons are defined by the 2010 U.S. Census as all individuals not identified as "White only," including those identified as Hispanic or Latino. Low-income persons were defined as those individuals with household incomes below the Census poverty threshold, which is a ratio of income to poverty level in the past 12 months that is below 1.0.[5]

[5] The Census assigns each person or family one of 48 possible poverty thresholds, which vary according to the size of the family and the age of the members. The 2010 weighted average threshold for a family of four is $22,314. The 2010 Department of Health and Human Services poverty guidelines for a family of four is similar, at $22,050; the 2013 guideline is $23,550.

The state-, region-, county-, and city-wide percentages of minority and low-income populations were also reviewed, so that the definition of “disproportionate” adverse effects could be established (U.S. Census Bureau, American Community Survey 2010 one-year estimates for state-, region-, and county-level data; 2008-2010 three-year estimates for city-level data). San Mateo County data was included in the analysis because a portion of the study area extends into the southern part of that county.

Based on the data collected, the minority or low-income communities, also referred to as environmental justice (EJ) communities, were identified within the study area. EJ communities are traditionally defined as a Census block group population that meets either or both of the following criteria:

- The Census block group contains 50 percent or more minority persons, and/or the block group contains 25 percent or more low-income persons.
- The percentage of minority and/or low-income persons in any Census block group is substantially (e.g., more than 10 percentage points) greater than the average of the surrounding region (e.g., the counties overlapping the study area).

The percentage of the population that is a minority in San Mateo County and Santa Clara County exceeds 50 percent, and is 57.7 percent and 64.8 percent, respectively. Therefore, the first criterion was appropriate to determine the presence of an EJ community for minority populations.

The percentage of low-income persons in San Mateo County and Santa Clara County is 6.8 percent and 10.5 percent, respectively. These percentages are both below 25 percent, and thus the first criterion was not appropriate to determine the presence of an EJ community for low-income populations as most of the Census block groups in the study area would be below 25 percent. Therefore, the second criterion was used for low-income populations. For the second criterion, the “surrounding region” for the study area was defined as San Mateo and Santa Clara Counties. The average low-income population for these counties was calculated to be 9 percent. Thus, a Census block group that would be identified as an EJ community would have a low-income population of more than 19 percent (more than 10 percentage points greater than the average low-income population of 9 percent).

Table 2.1.1-1 presents population estimates with minority and low-income percentages for the region as a whole and also for the population living within the 0.5-mile EJ study area. Approximately 98 percent of the population living within the EJ study area is in Santa Clara County, with the remaining 2 percent in southern San Mateo County.

The San Francisco Bay Area as a whole has a high percentage of minority individuals. According to the 2010 Census, 57.6 percent of the total population is minority and according to the 2010 ACS estimate, 11.1 percent are living below the U.S. Census poverty threshold.

Table 2.1.1-1: Minority and Low-Income Percentages in the Region and EJ Study Area

Location	Total Population 2010[a]	% Minority[a]	% Low-Income[b]
State			
California	37,253,956	59.9%	15.8%
Region			
San Francisco Bay Area	7,150,739	57.6%	11.1%
San Mateo County	718,451	57.7%	6.8%
Santa Clara County	1,781,642	64.8%	10.5%
Communities			
Palo Alto	64,403	39.4%	5.2%
Mountain View	74,066	54.0%	6.7%
Sunnyvale	140,081	65.5%	6.6%
Los Altos	28,976	32.2%	2.5%
Cupertino	58,302	70.7%	3.8%
Saratoga	29,926	48.4%	3.8%
Los Gatos	29,413	23.0%	3.9%
San Jose	945,942	71.3%	11.5%
EJ Study Area	**341,347**	**54.6%**	**6.1%**

Sources:
[a] U.S. Census Bureau, 2010 Census
[b] U.S. Census Bureau, American Community Survey 2010 1-year estimates for State and Regional data, 2008-2010 3-year estimates for Community data, and 2006-2010 5-year estimates for the EJ study area.

As stated earlier, the surrounding region of the project was defined as San Mateo and Santa Clara counties. According to an average of 2010 Census data, 62.8 percent of the surrounding region is minority and according to the 2010 ACS estimate, 9.4 percent are living below the U.S. Census poverty threshold. Within the study area, these percentages are lower, with minority and low-income individuals representing 54.6 percent and 6.1 percent of the study area population, respectively. Hispanics are the predominant minority in all portions of the EJ study area.

According to ACS data for 2011, Santa Clara County also had the nineteenth highest income of all counties in the United States, with a median household income of $84,895. San Mateo County had the thirty-third highest income, with a median household income of $81,657.

2.1.1.3 Environmental Consequences

The data above indicate that there are EJ communities in the study area with a substantial population of minority and/or low-income residents. The potential for EJ implications from the project is discussed below.

Project Construction

Construction is planned within the existing state right-of-way. Minor construction impacts from the proposed project would include noise, dust, and visual impacts from bridge widening and installation of overhead signs and toll structures, and associated cantilever structures and pile supports, in the median. The installation of conduits for electrical and communications lines would require trenching to approximately 3 to 5 feet below the roadway surface. In addition, conduits would be jacked across the freeway to the median where needed to provide power and communication feeds to the new overhead signs and toll structures. During construction, some lane closures could be required, but full highway closures are not expected to be necessary. In the segment of SR 85 between SR 87 and I-280, a second express lane would be added through pavement widening in the median. Existing sound walls would reduce visibility of the construction activities, as well as construction noise. As construction would occur primarily in the median of the corridor and potential impacts would be minimal and temporary, construction impacts are not expected to adversely affect adjacent and surrounding communities, including those communities identified as EJ areas.

Project Operation

Once in operation, the express lanes would result in minor changes to the visual setting, air quality, and noise levels, which are evaluated in detail in Sections 2.1.4, 2.2.6, and 2.2.7, respectively. In general, those impacts would affect all communities along the project corridor at similar levels.

Use of the express lanes requires the ability to obtain a FasTrak toll tag. Toll tags can be obtained online, by phone, mail, or fax, in person from the Bay Area Toll Authority (BATA) Regional Customer Service Center (RCSC), or from retail outlets such as Walgreens, Safeway, and Costco (Section 1.3.1.4). With the number of options available, persons of all income levels would have similar access to a FasTrak account. The initial cost to establish an account is less when paid with a credit card than with cash or check ($25 versus $70, although $20 of the $70 is refunded when the account is closed). The higher initial cost for cash or check accounts could be considered an additional economic burden to those who do not pay by credit card, a portion of whom could be low-income or minority persons. However, as the choice to use the express lanes (and establish the necessary FasTrak account) is voluntary, the higher initial costs for cash or check accounts do not constitute a disproportionately high and adverse effect.

Use of the express lanes also requires the ability to pay tolls, which will vary based on traffic conditions. VTA has studied the issue of equity or fairness in charging tolls and whether this practice has a disproportionately high and adverse effect on any minority or low-income populations.[6] Express lanes have been in use for several years around the country. More than 10 years of data are available in California for express lanes in Orange and San Diego counties, where FasTrak is also used. The data indicate that both high- and low-income drivers use express lanes during periods of traffic congestion. A study of the SR 91 Express Lanes in Orange County found that roughly one-quarter of the motorists who elect to use the toll lanes at any given time are in the high-income bracket, but the majority are low- and middle-income motorists (FHWA 2013c). In focus groups conducted by VTA, respondents from all income levels said they would use express lanes (VTA 2008).

Factors other than income alone appear to influence drivers' decisions to use express lanes. On SR 91 in Orange County, for example, most drivers choose the express lanes infrequently but strategically, when they stand to benefit most (Weinstein and Sciara 2004). Express lane projects across the country have shown that 80 percent of solo drivers who use the express lane only use it occasionally, on an as-needed basis (VTA 2012a). In situations where being late due to traffic congestion has high economic or convenience costs, such as missing an airline flight or rushing

[6] The literature surveyed for this report did not address the racial distribution of express lane users or potential for equity impacts to minorities. As described in Section 2.1.1.2, Hispanics are the predominant minority population in all portions of the EJ study area. Bay Area FasTrak has a Spanish-language portion of its website and offers the account application form in Spanish. Outreach to minority groups for the proposed project is discussed in Section 3.1.

to a child care facility that charges by the minute for late pickups, even low-income drivers are sometimes willing to pay to use express lanes. The reliable travel time associated with express lanes may have particular value to low-income persons who lack the schedule flexibility that higher-income or retired persons may have.

Although express lane tolls would represent a slightly greater economic burden to low-income drivers than to middle- and high-income drivers, the burden is not disproportionate because express lane use is voluntary. Drivers may either choose to pay a toll when being late is costly or inconvenient or continue to use the general purpose lanes. Drivers are not denied a mobility option they previously had; rather, the option of paying a toll to obtain travel time savings would be available to drivers of all income groups. Unlike sales taxes for transportation measures, express lane tolls do not affect non-users and non-drivers.

The proposed project would have other potential benefits to drivers of all income levels. By converting the HOV lanes to express lanes and adding a second express lane to part of the corridor, traffic in the general purpose lanes would improve, directly benefiting drivers in the non-express lanes. As required by the authorizing legislation (AB 2032 [2004] and AB 574 [2007]), tolls collected from the express lanes would be used for other transportation and transit improvements in the project corridor, providing direct benefits to both drivers and transit customers whose trips include SR 85. (In fact, as described in Section 3.1, public outreach conducted by VTA found that respondents identified the reinvestment of toll revenues as the primary project benefit.) Congestion relief from the project would also result in slightly lower pollutant emissions from vehicle idling (Section 2.2.6.3). Indirect benefits could include additional economic opportunities for low-income drivers, who could use the express lanes to ensure a reliable commute. VTA focus group participants also identified improved quality of life from less congestion as a project benefit (Section 3.1). These improvements would benefit all users of the local transportation and public transit system, regardless of race and income, even those who do not use the express lanes.

Express lanes allow drivers of all income groups an additional travel option that they did not have previously. Therefore, the project would not have disproportionately high and adverse impacts on minority and low-income populations.

VTA has sought public input on equity issues since early project planning began in 2004. Public outreach, described in detail in Section 3.1, has included minorities and persons from varying income levels. Outreach will continue during the public review period for this IS/EA, which will last a minimum of 30 days. Comments regarding potential effects to minority and low-income populations will be addressed and approaches to avoid or minimize effects will be considered in the Final IS/EA.

Based on the above discussion and analysis, the Build Alternative will not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice.

2.1.1.4 Avoidance, Minimization, and/or Mitigation Measures

None required.

2.1.2 Utilities/Emergency Services

2.1.2.1 Affected Environment

Utilities

The project area contains overhead electric and communications lines and underground electric, gas, sanitary sewer, water, reclaimed water, communications, and fiber optic lines. Utilities in the project area were identified through site visits and reviews of utility plans obtained from the Department, VTA, utility providers, and local municipalities. Utility providers in the project area are listed below by category:

- Gas and electric—PG&E and City of Palo Alto;
- Communications—AT&T, Comcast, Level 3, Verizon, Nextlink, and MCI;
- Water—San Jose Water Company, Santa Clara Valley Water District (SCVWD), California Water Service Company, Great Oaks Water Company, City of Sunnyvale Water Division, City of Mountain View Water Division, and City of Palo Alto Water Division; and
- Sanitary—City of San Jose, West Valley Sanitation District, City of Cupertino, City of Mountain View, and City of Palo Alto.

Storm drain systems are locally maintained.

Emergency Services

Each municipality along the project corridor has its own fire and police departments, with the exception of Cupertino, Los Gatos, and Saratoga, which contract with the Santa Clara County Sherriff's Department and Fire Department. The City of Los Altos has its own police department, but contracts with the Santa Clara County Fire Department for fire and emergency medical services.

The fire and police departments for each jurisdiction along the project corridor are listed below:

- Santa Clara County Fire Department (serves Santa Clara County and the communities of Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Monte Sereno, Morgan Hill, and Saratoga);
- Santa Clara County Sherriff's Office (serves Cupertino, Los Altos Hills, Saratoga, and the unincorporated areas of the county);
- City of Palo Alto Police Department and Fire Department;
- City of Mountain View Police Department and Fire Department;
- City of Sunnyvale Department of Public Safety (police, fire, and emergency medical);
- City of Los Altos Police Department; and
- City of San Jose Police Department and Fire Department.

2.1.2.2 Environmental Consequences

Utilities

The project would not require utility relocations. Utility impacts would be limited to the extension of casings (protective pipes or channels) for existing underground facilities whose casings do not extend through the right-of-way. All other existing utilities would be protected in place. Utility potholing would be conducted during project design to confirm utility locations and to ensure that relocation is not necessary.

Emergency Services

The project would require full or partial lane and shoulder closures to allow for utility work such as installation of conduit or sensors in or under the roadway. These actions could result in short-term, temporary impacts during project construction, including to emergency service providers. A Transportation Management Plan (TMP) will be prepared during the design phase of the project to minimize traffic disruptions from project construction. The TMP will provide for public outreach to inform local agencies and the public of the times and locations of upcoming construction, construction signs in and approaching the project area, and incident management for traffic control in the vicinity of construction activities. Access will be maintained for emergency response vehicles. No adverse impacts to emergency services are anticipated from project construction. After project completion, the additional express lane on SR 85 between SR 87 and I-280 could improve access for emergency service providers responding to incidents on SR 85 or using SR 85 to reach incidents outside of the freeway corridor.

2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures

None required.

2.1.3 Traffic and Transportation/Pedestrian and Bicycle Facilities

The information from this section is based on the *Traffic Operations Analysis Report* (URS and DKS 2013) completed in November 2013.

2.1.3.1 Affected Environment

Roadway Network

SR 85 has two general purpose lanes and one HOV lane in each direction. Several sections of northbound and southbound SR 85 have auxiliary lanes to facilitate merging and weaving between interchanges.

The Mountain View and San Jose sections of US 101 that adjoin each end of SR 85 (Figure 1.1-2) typically have three general purpose lanes and one HOV lane in each direction. These sections also have auxiliary lanes to facilitate merging and weaving between interchanges.

Pedestrian and Bicycle Facilities

There are no pedestrian and bicycle facilities on SR 85 or US 101 in the project limits, and the proposed project would not affect any pedestrian and bicycle facilities that cross over SR 85 or US 101. Therefore, pedestrian and bicycle facilities will not be discussed further.

Traffic Operations Analysis Study Area and Methods

The traffic study area consists of the entire length of SR 85, including on- and off-ramps, and US 101 adjacent to the southern end of SR 85 from Bernal Road to Bailey Avenue in San Jose and adjacent to the northern end of SR 85 from Ellis Street in Mountain View to Oregon Expressway in Palo Alto (see Figure 1.1-2).

For the purposes of this discussion, the SR 85 corridor has been divided into four "segment groups," which represent major system interchanges within the corridor and include all freeway segments within that group. The four segment groups are the same for northbound and southbound and are numbered sequentially in the southbound direction from the northern limit of SR 85, as shown below.

Segment Group No.	Segment Group
Southbound	
1	Northern Limit (just south of the SR 85/US 101 interchange in Mountain View) to I-280
2	I-280 to SR 17
3	SR 17 to SR 87
4	SR 87 to Southern Limit (SR 85/US 101 interchange in San Jose)
Northbound	
4	SR 87 to Southern Limit (SR 85/US 101 interchange in San Jose)
3	SR 17 to SR 87
2	I-280 to SR 17
1	Northern Limit (just south of the SR 85/US 101 interchange in Mountain View) to I-280

The traffic study analyzed peak period conditions, defined as 6 AM to 9 AM (AM peak) and 3 PM to 7 PM (PM peak), and peak hour conditions within the peak periods (7 AM to 8 AM and 5 PM to 6 PM). The primary travel direction is northbound in the AM peak and southbound in the PM peak.

Forecasts were developed using VTA's 2005 countywide travel demand model using Association of Bay Area Governments "Projections 2009" data. The traffic operations analysis was developed using a micro-simulation model.

The traffic forecast and operational analysis was conducted for existing conditions, a project opening year of 2015, and a horizon year of 2035. Existing conditions represent the year 2007, based on the most recent data available at the time the traffic studies began in 2010. Existing conditions reflect Caltrans traffic volume data from 2007/2008, vehicle fleet composition from the Caltrans 2007 HOV Report and Caltrans Performance Maintenance System, and additional traffic volume counts conducted in May 2010 at bottleneck areas.

The traffic analysis studied 2015 and 2035 conditions both with and without the proposed project. Future No Build conditions represent changes that will occur without the project. This comparison shows a complete picture of the future transportation environment that accounts for traffic from planned future development in the approved general plans of the cities in Santa Clara

County. This comparison also accounts for planned growth in the region, as well as planned improvements to the transportation network.

Section 2.1.3.2 summarizes the findings of the *Traffic Operations Analysis Report* (URS and DKS 2013), with emphasis on the key operational parameters of travel time and Level of Service (LOS) for both the general purpose and HOV/express lanes on SR 85. LOS is a grading system used by transportation planners and engineers to measure and describe the operational status of the roadway network. LOS is a description of the quality of a roadway facility's operation, ranging from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). Vehicle density, calculated by vehicles per lane per mile, is used to determine the overall LOS that a roadway facility provides.

A qualitative description of LOS conditions and the corresponding vehicle density is shown in Table 2.1.3-1.

Table 2.1.3-1: Roadway Level of Service Thresholds

Level of Service	Description	Density (vplpm)
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤11
B	Free-flow speeds are maintained. The ability to maneuver within the traffic stream is only slightly restricted.	> 11 to 18
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver with the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18 to 26
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26 to 35
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 to 45
F	Represents a breakdown in flow.	> 45

Note: Density is reported in vehicles per lane per mile (vplpm)
Source: Highway Capacity Manual (Transportation Research Board 2000).

Section 2.1.3.2 also briefly summarizes the traffic analysis results for the sections of US 101 adjacent to the southern end of SR 85 from Bernal Road to Bailey Avenue in San Jose and adjacent to the northern end of SR 85 from Ellis Street in Mountain View to Oregon Expressway in Palo Alto.

Existing Conditions

The LOS ratings for both the general purpose and HOV lanes for existing conditions are shown in Table 2.1.3-2 for the northbound AM peak hour and Table 2.1.3-3 for the southbound PM peak hour. During the AM peak, the northbound general purpose lanes in several segments between SR 87 and the SR 85/US 101 interchange in Mountain View operate at impaired levels of service (LOS E and F; Table 2.1.3-2, Segment Groups 1 through 3). During the PM peak, the southbound general purpose lanes in several segments between the SR 85/US 101 interchange in Mountain View and Blossom Hill Road also operate at LOS E and F (Table 2.1.3-3, Segment

Groups 1 through 4). All segments operate at LOS D or better for the northbound PM peak hour and the southbound AM peak hour; therefore, the LOS ratings are not included here.

Most HOV lanes in all northbound and southbound segment groups operate at free-flow LOS C or better. However, seven northbound HOV lane segments in Segment Groups 2 and 3 during the AM peak (Table 2.1.3-2) and two southbound HOV lane segments in Segment Group 3 during the PM peak (Table 2.1.3-3) operate at LOS D, with slightly decreased speeds and increased vehicle density. These segments are included in the areas of HOV lane congestion described in Section 1.2.2.1.

Travel times in all northbound and southbound HOV segments are lower than in the corresponding general purpose segments (Table 2.1.3-4). HOV lane travel times through the project corridor are 9.8 minutes less than the general purpose lanes in the northbound direction in the AM peak hour and 13.9 minutes less in the southbound direction in the PM peak hour. Average travel times for each HOV lane segment group are close to the average "free-flow" times, defined as the number of minutes required to travel through the segment group at the posted speed limit of 65 mph (Table 2.1.3-4).

Table 2.1.3-2: Peak Hour Travel Conditions, Existing Conditions, Northbound AM

Segment	General Purpose	HOV
Segment Group 4 (SR 87 to Southern Limit)		
NB Bernal on-ramp and SB Bernal on-ramp	B	A
SB Bernal on-ramp and SB US 101 on-ramp	B	A
SB US 101 on-ramp and Great Oaks on-ramp	B	A
Great Oaks on-ramp and Cottle off-ramp	C	B
Cottle off-ramp and Cottle on-ramp	B	B
Cottle on-ramp and Blossom Hill off-ramp	C	B
Blossom Hill off-ramp and EB Blossom Hill on-ramp	C	B
EB Blossom Hill on-ramp and WB Blossom Hill on-ramp	D	C
WB Blossom Hill on-ramp and SR 87 off-ramp	D	B
SR 87 off-ramp and Santa Teresa off-ramp	C	B
Segment Group 3 (SR 17 to SR 87)		
Santa Teresa off-ramp and Santa Teresa on-ramp	C	B
Santa Teresa on-ramp and SR 87 on-ramp	C	B
SR 87 on-ramp and Almaden Expy off-ramp	C	B
Almaden Expy off-ramp and NB Almaden Expy on-ramp	**E**	B
NB Almaden Expy on-ramp and SB Almaden Expy on-ramp	**F**	D
SB Almaden Expy on-ramp and Camden off-ramp	**E**	C
Camden off-ramp and Camden on-ramp	D	C
Camden on-ramp and Union off-ramp	**E**	C
Union off-ramp and Union on-ramp	**E**	D
Union on-ramp and Bascom off-ramp	D	C
Bascom off-ramp and SR 17 off-ramp	D	B
SR 17 off-ramp and Bascom on-ramp	**E**	B
Segment Group 2 (I-280 to SR 17)		
Bascom on-ramp and SR 17 on-ramp	**F**	C
SR 17 on-ramp and Winchester on-ramp	**F**	D
Winchester on-ramp and Lane drop	**F**	D
Lane drop and Saratoga off-ramp	**E**	C
Saratoga off-ramp and Saratoga on-ramp	**E**	C

Table 2.1.3-2: Peak Hour Travel Conditions, Existing Conditions, Northbound AM, continued

Segment	General Purpose	HOV
Saratoga on-ramp and Sunnyvale/Saratoga off-ramp	**F**	D
Sunnyvale/Saratoga off-ramp and Sunnyvale/Saratoga on-ramp	**F**	D
Sunnyvale/Saratoga on-ramp and Stevens Creek off-ramp	**E**	D
Stevens Creek off-ramp and I-280 off-ramp	D	B
I-280 off-ramp and SB I-280 on-ramp	B	A
Segment Group 1 (Northern Limit to I-280)		
SB I-280 on-ramp and I-280/Stevens Creek on-ramp	C	B
I-280/Stevens Creek on-ramp and Homestead on-ramp	C	B
Homestead on-ramp and Fremont off-ramp	**F**	C
Fremont off-ramp and Fremont on-ramp	**F**	C
Fremont on-ramp and SB SR 82 off-ramp	**E**	C
SB SR 82 off-ramp and SB SR 82 on-ramp	**E**	B
SB SR 82 on-ramp and NB SR 82 off-ramp	**E**	B
NB SR 82 off-ramp and SR 82 on-ramp	**E**	B
SR 82 on-ramp and EB SR 237 off-ramp	**E**	B
EB SR 237 off-ramp and EB SR 237 on-ramp	C	B
EB SR 237 on-ramp and Evelyn off-ramp	C	B
Evelyn off-ramp and Central Expy on-ramp	C	B
Central Expy on-ramp and Moffett off-ramp	D	B
Moffett off-ramp and SR 85/US 101 connector	C	B

Notes: EB = eastbound, NB = northbound, SB = southbound, WB = westbound
Boldfaced LOS have high vehicle densities and impaired traffic flow, as shown in Table 2.1.3-1.

Table 2.1.3-3: Peak Hour Travel Conditions, Existing Conditions, Southbound PM

Segment	General Purpose	HOV
Segment Group 1 (Northern Limit to I-280)		
SR 85 Connector/Shoreline on-ramp and Moffett on-ramp	D	B
Moffett on-ramp and Central Expy off-ramp	**E**	C
Central Expy off-ramp and Evelyn on-ramp	**F**	C
Evelyn on-ramp and SR 237 off-ramp	**F**	C
SR 237 off-ramp and SR 237 on-ramp	**F**	C
SR 237 on-ramp and NB SR 82 on-ramp	**F**	C
NB SR 82 on-ramp and SR 82 off-ramp	**F**	C
SR 82 off-ramp and SB SR 82 on-ramp	**F**	C
SB SR 82 on-ramp and Fremont off-ramp	**E**	C
Fremont off-ramp and Fremont on-ramp	**F**	C
Fremont on-ramp and Homestead off-ramp	**E**	C
Homestead off-ramp and I-280 off-ramp	D	B
Segment Group 2 (I-280 to SR 17)		
I-280 off-ramp and NB I-280 on-ramp	C	B
NB I-280 on-ramp and SB I-280 on-ramp	C	B
SB I-280 on-ramp and Stevens Creek off-ramp	D	A
Stevens Creek off-ramp and Stevens Creek on-ramp	C	C
Stevens Creek on-ramp and lane drop	**E**	C
Lane drop and De Anza off-ramp	**E**	C
De Anza off-ramp and De Anza on-ramp	D	B

Table 2.1.3-3: Peak Hour Travel Conditions, Existing Conditions, Southbound PM, continued

Segment	General Purpose	HOV
De Anza on-ramp and Saratoga off-ramp	**E**	C
Saratoga off-ramp and Saratoga on-ramp	**F**	C
Saratoga on-ramp and Winchester off-ramp	**E**	C
Winchester off-ramp and SR 17 off-ramp	D	B
SR 17 off-ramp and Bascom off-ramp	D	B
Segment Group 3 (SR 17 to SR 87)		
Bascom off-ramp and SR 17 on-ramp	D	B
SR 17 on-ramp and Bascom on-ramp	**F**	D
Bascom on-ramp and Union/Samaritan off-ramp	**F**	D
Union/Samaritan off-ramp and Union on-ramp	**F**	C
Union on-ramp and Camden off-ramp	**E**	B
Camden off-ramp and Camden on-ramp	D	B
Camden on-ramp and Almaden Expy off-ramp	**E**	C
Almaden Expy off-ramp and SB Almaden Expy on-ramp	D	B
SB Almaden Expy on-ramp and NB Almaden Expy on-ramp	D	B
NB Almaden Expy on-ramp and SR 87 off-ramp	**E**	B
SR 87 off-ramp and Santa Teresa off-ramp	**F**	B
Segment Group 4 (SR 87 to Southern Limit)		
Santa Teresa off-ramp and Santa Teresa on-ramp	**F**	B
Santa Teresa on-ramp and SR 87 on-ramp	**F**	B
SR 87 on-ramp and Blossom Hill off-ramp	**E**	B
Blossom Hill off-ramp and WB Blossom Hill on-ramp	D	B
WB Blossom Hill on-ramp and EB Blossom Hill on-ramp	D	B
EB Blossom Hill on-ramp and Cottle off-ramp	D	A
Cottle off-ramp and SB Cottle on-ramp	C	A
SB Cottle on-ramp and NB Cottle on-ramp	C	A
NB Cottle on-ramp and Great Oaks off-ramp	D	A
Great Oaks Blvd off-ramp and Bernal off-ramp	C	A
Bernal off-ramp and SR 85/US 101 connector	B	A

Notes: EB = eastbound, Expy = Expressway; NB = northbound, SB = southbound, WB = westbound
Boldfaced LOS have high vehicle densities and impaired traffic flow, as shown in Table 2.1.3-1.

Table 2.1.3-4: Peak Hour Travel Times (in minutes), Existing Conditions

Lane Type	Segment Group	Free Flow[2]	Existing
AM Northbound			
General Purpose	1. Northern Limit to I-280	4.8	7.3
	2. I-280 to SR 17	7.3	14.4
	3. SR 17 to SR 87	5.0	6.7
	4. SR 87 to Southern Limit	4.7	5.2
	Total	*21.8*	*33.7*
HOV/Express	1. Northern Limit to I-280	4.8	5.5
	2. I-280 to SR 17	7.3	8.0
	3. SR 17 to SR 87	5.0	5.5
	4. SR 87 to Southern Limit	4.7	4.9
	Total	*21.8*	*23.9*
AM Southbound			
General	1. Northern Limit to I-280	4.8	5.8

Table 2.1.3-4: Peak Hour Travel Times (in minutes), Existing Conditions

Lane Type	Segment Group	Free Flow[2]	Existing
Purpose	2. I-280 to SR 17	7.3	7.8
	3. SR 17 to SR 87	5.0	5.3
	4. SR 87 to Southern Limit	4.7	4.6
	Total	*21.8*	*23.6*
HOV/Express	1. Northern Limit to I-280	4.8	5.2
	2. I-280 to SR 17	7.3	6.9
	3. SR 17 to SR 87	5.0	4.5
	4. SR 87 to Southern Limit	4.7	4.0
	Total	*21.8*	*20.7*
PM Northbound			
General Purpose	1. Northern Limit to I-280	4.8	5.3
	2. I-280 to SR 17	7.3	7.0
	3. SR 17 to SR 87	5.0	5.5
	4. SR 87 to Southern Limit	4.7	5.4
	Total	*21.8*	*23.0*
HOV/Express	1. Northern Limit to I-280	4.8	4.8
	2. I-280 to SR 17	7.3	6.3
	3. SR 17 to SR 87	5.0	5.0
	4. SR 87 to Southern Limit	4.7	4.9
	Total	*21.8*	*21.0*
PM Southbound			
General Purpose	1. Northern Limit to I-280	4.8	12.9
	2. I-280 to SR 17	7.3	10.1
	3. SR 17 to SR 87	5.0	9.6
	4. SR 87 to Southern Limit	4.7	4.8
	Total	*21.8*	*37.4*
HOV/Express	1. Northern Limit to I-280	4.8	6.4
	2. I-280 to SR 17	7.3	7.6
	3. SR 17 to SR 87	5.0	5.3
	4. SR 87 to Southern Limit	4.7	4.1
	Total	*21.8*	*23.5*

Notes:
1. AM peak hour defined as 7:00 to 8:00 AM. PM peak hour defined as 5:00 to 6:00 PM.
2. Free flow travel time is based on an assumed speed of 65 mph. In some cases, speeds may exceed 65 mph producing travel times that are less than free flow.
HOV = high-occupancy vehicle

2.1.3.2 Environmental Consequences

2015 Conditions

SR 85

With the No Build Alternative, most segments of the northbound general purpose lanes from the SR 85/US 101 interchange in Mountain View to SR 87 are projected to have high vehicle densities and impaired traffic flow during the 2015 AM peak hour (Segment Groups 1 through 3, LOS E and F; Table 2.1.3-5). In the PM peak hour, the northbound direction is less heavily traveled, and all but one segment would operate at LOS D or better (in Segment Group 3, LOS E; Table 2.1.3-5).

In the 2015 PM peak hour, the southbound general purpose lanes would also operate at LOS E and F in most segments (Table 2.1.3-6). In the 2015 AM peak hour, the southbound direction is less heavily traveled, and all segments would operate at LOS D or better (Table 2.1.3-6).

Table 2.1.3-5: Peak Hour Travel Conditions, 2015 Northbound No Build and Build

Segment	AM peak hour (7 to 8 AM)				PM peak hour (5 to 6 PM)			
	General Purpose		HOV/Express		General Purpose		HOV/Express	
	No Build	Build[1]	No Build	Build[1]	No Build	Build[1]	No Build	Build[1]
Segment Group 4 (SR 87 to Southern Limit)								
NB and SB Bernal on-ramp	B	A	A	C	B	B	A	A
SB Bernal on-ramp and US 101 SB on-ramp	B	B	B	C	B	B	A	A
US 101 SB on-ramp and Great Oaks on-ramp	B	B	B	C	B	C	A	A
Great Oaks on-ramp and Cottle off-ramp	C	C	B	C	C	D	A	A
Cottle off-ramp and on-ramp	C	B	B	C	C	D	A	A
Cottle on-ramp and Blossom Hill off-ramp	C	D (D)	C	C (C)	D	D (D)	B	A (A)
Blossom Hill off-ramp and EB on-ramp	C	C	B	C	C	D	B	A
Blossom Hill EB on-ramp and WB on-ramp	D	**E**	C	C	D	**E**	B	A
Blossom Hill WB on-ramp and 87 off-ramp	D	D	B	C	D	D	B	A
SR 87 off-ramp and Santa Teresa off-ramp	C	C	B	C	C	D	B	A
Segment Group 3 (SR 17 to SR 87)								
Santa Teresa off-ramp and on-ramp	C	C	B	C	C	C	B	A
Santa Teresa on-ramp and 87 on-ramp	D	D	B	C	C	D	B	A
SR 87 on-ramp and Almaden Expy off-ramp	C	C	B	C	C	D	B	A
Almaden Expy off-ramp and NB on-ramp	**E**	B (C)	C	C (C)	C	B (C)	B	A (A)
Almaden Expy NB and SB on-ramp	**F**	**E**	D	B	**E**	**F**	C	B
SB Almaden Expy on-ramp and Camden off-ramp	**E**	D	D	B	D	**E**	B	B
Camden off-ramp and on-ramp	**F**	D	C	B	C	D	B	B
Camden on-ramp and Union off-ramp	**F**	**E**	D	B	C	C	B	B
Union off-ramp and on-ramp	**F**	**F (E)**	D	B (C)	D	D (D)	B	B (A)
Union on-ramp and Bascom off-ramp	**F**	D	**E**	B	D	D	B	B
Bascom off-ramp and SR 17 off-ramp	**F**	D	**E**	B	C	C	A	B
SR 17 off-ramp and Bascom on-ramp	**F**	C	D	B	B	B	A	B
Segment Group 2 (I-280 to SR 17)								
Bascom on-ramp and SR 17 on-ramp	**F**	**E**	C	B	B	C	A	B
SR 17 on-ramp and Winchester on-ramp	**F**	**F**	D	B	C	C	B	B
Winchester on-ramp and lane drop	**F**	**F**	D	B	D	**F**	B	B
(Express lane access zone only, between Winchester on-ramp and Saratoga off-ramp)		**(F)**		(C)		(C)		(A)
Lane drop and Saratoga off-ramp	**F**	**E**	D	C	D	**E**	B	B
Saratoga off-ramp and on-ramp	**F**	C	C	C	B	C	B	B
Saratoga on-ramp and De Anza off-ramp	**F**	D	D	C	C	D	B	B
De Anza off-ramp and on-ramp	**F**	C	D	C	C	C	B	B
De Anza on-ramp and Stevens Creek off-ramp	**F**	C (C)	**F**	C (B)	C	B (C)	B	B (A)
Stevens Creek off-ramp and 280 off-ramp	D	C	B	C	C	C	A	A
280 off-ramp and 280 SB loop on-ramp	B	B	B	C	A	B	A	A
Segment Group 1 (Northern Limit to I-280)								
280 SB loop on-ramp and 280 NB on-ramp	C	C	B	C	B	B	A	A
280 NB on-ramp and Homestead on-ramp	**E**	**F**	B	C	C	D	A	A
Homestead on-ramp and Fremont off-ramp	**F**	**E (F)**	D	C (C)	D	D (C)	B	A (A)
Fremont off-ramp and Fremont on-ramp	**F**	**F**	D	C	C	D	B	A
Fremont on-ramp and SR 82 SB off-ramp	**F**	**E**	D	C	C	D	B	A
SR 82 SB off-ramp and SR 82 SB on-ramp	**E**	**E**	B	C	C	D	A	A
SR 82 SB on-ramp and SR 82 NB off-ramp	**E**	**E**	B	C	C	C	A	A
SR 82 NB off-ramp and SR 82 NB on-ramp	**E**	**E**	B	C	C	C	A	A
SR 82 NB on-ramp and SR 237 EB off-ramp	**E**	**E**	C	C	B	C	A	A
SR 237 EB off-ramp and EB on-ramp	C	C	B	C	B	C	A	A
SR 237 EB on-ramp and Evelyn off-ramp	D	B	B	C	B	B	A	A
Evelyn off-ramp and Central Expy on-ramp	C	C	B	C	B	B	A	A
Central Expy on-ramp and Moffett off-ramp	**E**	D (C)	B	C (A)	B	C (A)	A	A (A)
Moffett off-ramp and SR 85/US 101 connector	C	B	B	C	B	A	A	A

Notes:
1. For segments that contain access zones where vehicles may enter and/or exit the express lane(s), the LOS in parentheses indicates the level of service for that access movement.
EB = eastbound, Expy = Expressway; NB = northbound, SB = southbound, WB = westbound
Boldfaced LOS have high vehicle densities and impaired traffic flow, as shown in Table 2.1.3-1.

Table 2.1.3-6: Peak Hour Travel Conditions, 2015 Southbound No Build and Build

	2015 AM peak hour (7 to 8 AM)				2015 PM peak hour (5 to 6 PM)			
	General Purpose		HOV/Express		General Purpose		HOV/Express	
Segment	No Build	Build[1]	No Build	Build[1]	No Build	Build[1]	No Build	Build[1]
Segment Group 1 (Northern Limit to I-280)								
SR 85/US 101 connector and Moffett on-ramp	A	A	A	A	**F**	**E**	B	C
Moffett on-ramp and Central Expy off-ramp	A	A (A)	A	A (A)	**F**	**F (F)**	**E**	C (C)
Central Expy off-ramp and Evelyn on-ramp	A	A	A	A	**F**	**F**	C	C
Evelyn on-ramp and SR 237 off-ramp	B	A	A	A	**F**	**F**	D	C
SR 237 off-ramp and on-ramp	A	A	A	A	**F**	**F**	C	C
SR 237 on-ramp and NB SR 82 on-ramp	B	B	A	A	**F**	**F**	C	C
NB SR 82 on-ramp and SB SR 82 off-ramp	C	B	A	A	**F**	**F**	D	C
SB SR 82 off-ramp and SB SR 82 on-ramp	B	B	A	A	**F**	**F**	C	C
SB SR 82 on-ramp and Fremont off-ramp	C	C (C)	A	A (A)	**F**	**F (F)**	C	C (D)
Fremont off-ramp and on-ramp	B	B	A	A	**F**	**F**	C	C
Fremont on-ramp and Homestead off-ramp	C	C	A	A	**F**	**E**	C	C
Homestead off-ramp and SR 280 off-ramp	B	B	A	A	D	C	C	C
Segment Group 2 (I-280 to SR 17)								
280 off-ramp and NB 280 on-ramp	A	A	A	A	B	B	B	C
NB 280 on-ramp and SB 280 on-ramp	A	A	A	A	C	C	B	C
SB 280 on-ramp and Stevens Creek off-ramp	A	A	A	A	D	D	B	C
Stevens Creek off-ramp and on-ramp	A	A (A)	A	A (A)	C	C (B)	B	C (C)
Stevens Creek on-ramp and De Anza off-ramp	B	B (B)	A	A (A)	**E**	D (D)	C	C (C)
De Anza off-ramp and on-ramp	A	A	A	A	D	C	C	C
De Anza on-ramp and Saratoga off-ramp	B	B	A	A	D	D	C	C
Saratoga off-ramp and on-ramp	A	A	A	A	**F**	D	D	C
Saratoga on-ramp and Winchester off-ramp	B	B (C)	A	A (A)	**E**	**F (F)**	D	C (D)
Winchester off-ramp and SR 17 off-ramp	B	A	A	A	**E**	C	C	B
SR 17 off-ramp and Bascom off-ramp	A	A	A	A	**E**	C	C	B
Segment Group 3 (SR 17 to SR 87)								
Bascom off-ramp and SR 17 on-ramp	A	A	A	A	**F**	B	C	B
SR 17 on-ramp and Bascom on-ramp	B	B	A	A	**F**	C	**E**	B
Bascom on-ramp and Union/Samaritan off-ramp	C	B	A	A	**F**	C	**E**	B
Union/Samaritan off-ramp and Union on-ramp	C	C (C)	A	A (A)	**F**	D (D)	D	C (C)
Union on-ramp and Camden off-ramp	C	C	A	A	**F**	**E**	D	B
Camden off-ramp and on-ramp	B	B	A	A	**F**	C	C	B
Camden on-ramp and Almaden Expy off-ramp	C	A (C)	A	A (A)	**F**	C **(F)**	C	B (B)
Almaden Expy off-ramp and SB Almaden Expy on-ramp	B	B	A	A	**F**	D	B	C
SB and NB Almaden Expy on-ramps	B	B	A	A	**F**	C	B	C
NB Almaden Expy on-ramp and SR 87 off-ramp	B	C	A	A	**F**	C	C	C
SR 87 off-ramp and Santa Teresa off-ramp	B	B	A	A	**F**	**E**	D	C
Segment Group 4 (SR 87 to Southern Limit)								
Santa Teresa off-ramp and on-ramp	C	C	A	A	**F**	D	B	C
Santa Teresa on-ramp and SR 87 on-ramp	C	C	A	A	**F**	**E**	B	C
SR 87 on-ramp and Blossom Hill off-ramp	D	C	A	A	**F**	D	C	C
Blossom Hill off-ramp and WB Blossom Hill on-ramp	D	D	A	A	D	D	B	C
WB Blossom Hill on-ramp and EB Blossom Hill on-ramp	D	D	A	A	**E**	D	B	C
EB Blossom Hill on-ramp and Cottle off-ramp	D	B (D)	A	A (A)	**E**	C **(E)**	A	C (C)
Cottle off-ramp and SB Cottle on-ramp	C	C	A	A	C	C	A	C
SB Cottle on-ramp and NB Cottle on-ramp	C	C	A	A	C	C	A	C
NB Cottle on-ramp and Great Oaks off-ramp	D	D	A	A	D	C	A	C
Great Oaks off-ramp and Bernal off-ramp	C	C	A	A	C	C	A	C
Bernal off-ramp and SR 85/US 101 connector	C	C	A	A	B	B	A	C

Notes:
1. For segments that contain access zones where vehicles may enter and/or exit the express lane(s), the LOS in parentheses indicates the level of service for that access movement.
EB = eastbound, Expy = Expressway; NB = northbound, SB = southbound, WB = westbound
Boldfaced LOS have high vehicle densities and impaired traffic flow, as shown in Table 2.1.3-1.

Most HOV lane segments would operate at free-flow LOS C or better in the 2015 No Build condition. However, during the AM peak, several northbound HOV lane segments in Segment Groups 1 through 3 would operate at LOS D, with decreased speeds and increased vehicle density (Table 2.1.3-5). In addition, three HOV lane segments would operate at LOS E or F, with impaired traffic flow (Segment Group 3, between the Union Avenue on-ramp and Bascom Avenue off-ramp and between the Bascom Avenue off-ramp and the SR 17 off-ramp; and Segment Group 2, between the De Anza Boulevard on-ramp and the Stevens Creek Boulevard off-ramp; Table 2.1.3-5). During the PM peak, three southbound HOV lane segments would operate at impaired LOS E, and seven would operate at LOS D (Segment Groups 1 through 3; Table 2.1.3-6). The LOS E and F segments would fail to meet the statutory requirement of LOS C/D for HOV lanes (Section 1.2.2.1, under "SR 85 HOV Lanes"), and some corrective action, independent of the proposed project, would be needed to address the condition.

Travel times in all 2015 No Build Alternative northbound and southbound HOV segments are predicted to remain lower than in the corresponding general purpose lane segments. HOV lane travel times through the project corridor are projected to be 15.3 minutes less than the general purpose lanes in the northbound direction in the AM peak hour and 11.9 minutes less in southbound direction in the PM peak hour (Table 2.1.3-7).

As shown in Tables 2.1.3-5 and 2.1.3-6, the Build Alternative would improve some general purpose lane levels of service compared with the No Build Alternative in 2015. All four segment groups in the northbound direction during the AM peak hour and in the southbound direction during the PM peak hour would still contain segments that operate at impaired LOS E or F. However, the Build Alternative would reduce the number of LOS E and F segments between I-280 and SR 87 in the northbound AM peak and southbound PM peak, compared with No Build (Segment Groups 2 and 3,Tables 2.1.3-5 and 2.1.3-6).

In 2015, in the northbound AM peak hour, general purpose lane travel time between I-280 and SR 17 would decrease by 10.9 minutes compared with No Build (Segment Group 2, Table 2.1.3-7). In the No Build condition, the traffic backups due to two separate bottlenecks (between the South De Anza Boulevard on-ramp and Stevens Creek Boulevard off-ramps, and between the Winchester Boulevard lane drop and the Saratoga Avenue off-ramp) would combine and cause backups as far south as Camden Avenue during the peak hour. With the Build Alternative, the conversion of the existing single HOV lane to two express lanes would significantly decrease congestion in Segment Group 2.

Overall, the Build Alternative would improve general purpose lane travel times through the project corridor during both the northbound AM peak hour (by 14.2 minutes) and the southbound PM peak hour (by 5.1 minutes) compared with No Build (Table 2.1.3-7).

Table 2.1.3-7: Peak Hour Travel Times (Minutes), 2015 No Build and Build

Lane Type	Segment Group	Free Flow[2]	No Build	Build	Build – No Build Difference
AM Northbound					
General Purpose	1. Northern Limit to I-280	4.8	6.7	6.3	-0.4
	2. I-280 to SR 17	7.3	20.3	9.4	-10.9
	3. SR 17 to SR 87	5.0	8.6	5.7	-2.9
	4. SR 87 to Southern Limit	4.7	4.9	4.9	0.0
	Total	*21.8*	*40.5*	*26.3*	*-14.2*
HOV/Express	1. Northern Limit to I-280	4.8	5.2	5.0	-0.2
	2. I-280 to SR 17	7.3	9.3	7.1	-2.2
	3. SR 17 to SR 87	5.0	6.1	5.0	-1.1
	4. SR 87 to Southern Limit	4.7	4.6	4.7	0.1
	Total	*21.8*	*25.2*	*21.8*	*-3.4*
AM Southbound					
General Purpose	1. Northern Limit to I-280	4.8	5.1	5.0	-0.1
	2. I-280 to SR 17	7.3	7.3	7.3	0.0
	3. SR 17 to SR 87	5.0	5.1	5.1	0.0
	4. SR 87 to Southern Limit	4.7	4.9	4.9	-0.1
	Total	*21.8*	*22.4*	*22.3*	*-0.1*
HOV/Express	1. Northern Limit to I-280	4.8	4.9	4.9	0.0
	2. I-280 to SR 17	7.3	7.3	7.3	0.0
	3. SR 17 to SR 87	5.0	5.0	5.0	0.0
	4. SR 87 to Southern Limit	4.7	4.7	4.7	0.0
	Total	*21.8*	*21.9*	*21.9*	*0.0*
PM Northbound					
General Purpose	1. Northern Limit to I-280	4.8	5.3	5.3	0.0
	2. I-280 to SR 17	7.3	7.6	7.7	0.1
	3. SR 17 to SR 87	5.0	5.5	5.5	0.0
	4. SR 87 to Southern Limit	4.7	5.0	5.0	0.0
	Total	*21.8*	*23.4*	*23.5*	*0.1*
HOV/Express	1. Northern Limit to I-280	4.8	4.7	4.7	0.0
	2. I-280 to SR 17	7.3	7.0	7.0	0.0
	3. SR 17 to SR 87	5.0	4.9	4.9	0.0
	4. SR 87 to Southern Limit	4.7	4.5	4.5	0.0
	Total	*21.8*	*21.1*	*21.1*	*0.0*
PM Southbound					
General Purpose	1. Northern Limit to I-280	4.8	11.1	11.2	0.1
	2. I-280 to SR 17	7.3	9.0	8.4	-0.6
	3. SR 17 to SR 87	5.0	10.3	5.9	-4.4
	4. SR 87 to Southern Limit	4.7	5.2	5.0	-0.2
	Total	*21.8*	*35.6*	*30.5*	*-5.1*
HOV/Express	1. Northern Limit to I-280	4.8	6.0	5.0	-1.0
	2. I-280 to SR 17	7.3	7.5	7.3	-0.2
	3. SR 17 to SR 87	5.0	5.7	5.0	-0.7
	4. SR 87 to Southern Limit	4.7	4.5	4.8	0.3
	Total	*21.8*	*23.7*	*22.1*	*-1.6*

Notes:
1. AM peak hour defined as 7:00 to 8:00 AM. PM peak hour defined as 5:00 to 6:00 PM.
2. Free flow travel time is based on an assumed speed of 65 mph. In some cases, speeds may exceed 65 mph producing travel times that are less than free flow.
HOV = high-occupancy vehicle

In the express lanes, 2015 Build Alternative levels of service would remain at LOS C or better in both directions throughout both the AM and PM peak hours, except for two segments where the access zones are forecast to operate at LOS D in the southbound PM peak (Segment Group 1, between the southbound SR 82 on-ramp and the Fremont Avenue off-ramp, and Segment Group 2, between the Saratoga Avenue on-ramp and the Winchester Boulevard off-ramp, Table 2.1.3-6). The access zones are where lane-changing movements for vehicles entering and exiting the express lanes are concentrated. Overall, the express lanes are expected to meet the statutory requirements of 45 mph and LOS C/D (Section 1.2.2.1, under "SR 85 HOV Lanes") during both peak periods and in both directions. The Build Alternative would generally improve conditions compared to the No Build scenario, in which the HOV lane would contain several segments that would operate at impaired LOS D and E.

The Build Alternative would also improve express lane travel times through the four segment groups during both the northbound AM peak hour (by 3.4 minutes) and the southbound PM peak hour (by 1.6 minutes) compared with No Build HOV lane travel times (Table 2.1.3-7).

With the Build Alternative in 2015, total peak hour travel times through the four segment groups in both the northbound and southbound express lanes would remain lower than in the general purpose lanes (Table 2.1.3-7). Express lane travel times through each segment group are projected to range from 0 to 2.2 minutes less than travel times for HOV lanes under No Build, with one exception (Table 2.1.3-7). During the PM peak, the southbound express lane travel time for Segment Group 4 would be 0.3 minute higher than the HOV lane travel time, but only 0.1 minute higher than the free-flow travel time for that segment (Table 2.1.3-7).

Table 2.1.3-8 summarizes the 2015 peak period network performance measure results for the project corridor for the No Build and Build alternatives. The performance measures are as follows:

- Total distance traveled, expressed as vehicles miles traveled (VMT);
- Total travel time, expressed vehicle hours traveled (VHT);
- Total delay, expressed as vehicle hours of delay (VHD);
- Average delay per vehicle, in seconds; and
- Average speed, in mph.

With the project, in the peak direction for each period (northbound AM and southbound PM), average speed would increase, and total delay and average delay per vehicle would decrease. Compared with No Build, the Build Alternative would reduce total delay within the project corridor by 58 percent in the northbound direction during the AM peak period and by 6 percent in the southbound direction during the PM peak period. VMT would increase for Build compared with No Build, because the Build condition would serve more demand. By increasing speed, reducing delay, and serving a higher volume of traffic, the project can reasonably be expected to attract some vehicles that would otherwise divert to local roadways to avoid peak period congestion on SR 85. This could improve peak period conditions on other facilities in the network.

In the off-peak direction in each period (AM southbound and PM northbound), No Build and Build conditions are comparable. This reflects the lack of congestion and generally free-flow speeds in the off-peak direction.

Table 2.1.3-8: 2015 Peak Period Network Performance Measure Comparison

Performance Measure	No Build	Build	Build – No Build Difference	Build – No Build % Difference[2]
AM Northbound				
Total Distance Traveled (VMT) (mi)	359,911	408,928	49,017	14%
Total Travel Time (VHT) (hr)[1]	9,811	7,752	-2,059	-21%
Total Delay (VHD) (hr)	4,603	1,917	-2,686	-58%
Average Delay per Vehicle (sec)	312	127	-185	-59%
Average Speed (mph)	37	53	16	43%
AM Southbound				
Total Distance Traveled (VMT) (mi)	200,617	205,373	4,755	2%
Total Travel Time (VHT) (hr)[1]	3,244	3,311	67	2%
Total Delay (VHD) (hr)	264	261	-3	-1%
Average Delay per Vehicle (sec)	24	24	0	-1%
Average Speed (mph)	62	62	0	0%
PM Northbound				
Total Distance Traveled (VMT) (mi)	344,853	367,092	22,239	6%
Total Travel Time (VHT) (hr)[1]	5,801	6,134	333	6%
Total Delay (VHD) (hr)	806	729	-77	-10%
Average Delay per Vehicle (sec)	43	38	-5	-11%
Average Speed (mph)	59	60	1	1%
PM Southbound				
Total Distance Traveled (VMT) (mi)	527,858	557,672	29,814	6%
Total Travel Time (VHT) (hr)[1]	13,235	13,367	132	1%
Total Delay (VHD) (hr)	5,453	5,143	-310	-6%
Average Delay per Vehicle (sec)	236	218	-18	-8%
Average Speed (mph)	40	42	2	4%

Note:
1. Travel times shown in this table reflect peak period vehicle hours traveled, rather than the peak hour travel times in minutes shown in Table 2.1.3-7.
2. Percentage differences are based on unrounded data and may vary from calculations based on rounded data shown in this table.

US 101

In the 2015 AM peak period (6 AM to 9 AM), conditions on northbound US 101 adjacent to the northern and southern ends of SR 85 would be slightly better with the No Build Alternative than with the Build Alternative. The project would add an average of 12 seconds of delay per vehicle and would decrease average speed by 3 mph compared to the No Build condition. This change would result from the higher volume of traffic that is able to reach US 101 from northbound SR 85, notably in the first hour of the peak period (6 AM to 7 AM). With the No Build Alternative, bottlenecks and congestion on northbound SR 85 would effectively “meter” the volume of traffic that can reach US 101 in Mountain View and Palo Alto. With the Build Alternative, the slight increase in delay time per vehicle on US 101 (12 seconds) would be more than offset by the 59 percent reduction in delay time per vehicle on SR 85 (-185 seconds).

In the southbound direction during the AM peak period, conditions on US 101 adjacent to the northern and southern ends of SR 85 would be similar with both alternatives. The project would add an average of 2 seconds of delay per vehicle compared to the No Build condition, and average speed would decrease by 1 mph. With both alternatives, average speeds would remain just over 50 mph.

In the 2015 PM peak period (3 PM to 7 PM), conditions on northbound US 101 would improve slightly under the Build Alternative. The average delay time per vehicle would decrease by 8.1 seconds, and average speed would increase by 1.8 mph.

In the southbound direction during the PM peak period, conditions on US 101 would be essentially the same with both alternatives, with less than a second of difference in delay time per vehicle and a 0.2 mph increase in speed with the project.

2035 Conditions

SR 85

With the No Build Alternative, most northbound general purpose lane segments between I-280 and SR 87 and about half of the segments between I-280 and US 101 in Mountain View would operate at impaired LOS E or F during the 2035 AM peak hour (Segment Groups 1 through 3, Table 2.1.3-9). Most southbound general purpose lane segments between US 101 in Mountain View and SR 87 and about half of the segments from SR 87 to US 101 in San Jose would operate at impaired LOS E or F during the 2035 PM peak hour (Segment Groups 1 through 4, Table 2.1.3-10).

In the 2035 No Build condition, seven northbound HOV lane segments would also operate at LOS E or F during the AM peak period (in Segment Groups 2 and 3, Table 2.1.3-9). In addition, three southbound HOV lane segments would operate at LOS E or F (in Segment Groups 1 and 2, Table 2.1.3-10). These segments would fail to meet the statutory requirement of LOS C/D for HOV lanes (Section 1.2.2.1, under “SR 85 HOV Lanes”), and some corrective action, independent of the proposed project, would be needed to address the condition.

In the 2035 No Build condition, travel times in all northbound and southbound HOV segments would continue to remain lower than in the corresponding general purpose segments (Table 2.1.3-11). HOV lane travel times through the project corridor are projected to be 13.2 minutes less than the general purpose lanes in the northbound direction in the AM peak hour and 21.1 minutes less in southbound direction in the PM peak hour (Table 2.1.3-11).

Table 2.1.3-9: Peak Hour Travel Conditions, 2035 Northbound No Build and Build

Segment	2035 AM peak hour (7 to 8 AM)				2035 PM peak hour (5 to 6 PM)			
	General Purpose		HOV/Express		General Purpose		HOV/Express	
	No Build	Build[1]	No Build	Build[1]	No Build	Build[1]	No Build	Build[1]
Segment Group 4 (SR 87 to Southern Limit)								
NB and SB Bernal on-ramp	B	A	B	C	B	B	A	B
SB Bernal on-ramp and US 101 SB on-ramp	B	B	B	C	B	C	A	B
US 101 SB on-ramp and Great Oaks on-ramp	C	B	B	C	C	C	A	B
Great Oaks on-ramp and Cottle off-ramp	C	C	B	C	D	D	B	B
Cottle off-ramp and on-ramp	C	C	B	C	C	B	B	B
Cottle on-ramp and Blossom Hill off-ramp	D	D (D)	C	D (C)	D	D (D)	C	B (B)
Blossom Hill off-ramp and EB on-ramp	D	D	C	D	D	D	B	B
Blossom Hill EB on-ramp and WB on-ramp	**E**	**E**	D	D	D	D	B	B
Blossom Hill WB on-ramp and 87 off-ramp	D	D	C	D	C	D	B	B
SR 87 off-ramp and Santa Teresa off-ramp	C	C	C	D	D	D	B	B
Segment Group 3 (SR 17 to SR 87)								
Santa Teresa off-ramp and on-ramp	C	C	C	D	C	C	B	B
Santa Teresa on-ramp and 87 on-ramp	D	**E**	C	D	B	D	C	B
87 on-ramp and Almaden Expy off-ramp	D	C	C	D	C	D	B	B
Almaden Expy off-ramp and NB on-ramp	**F**	D **(E)**	D	D (D)	D	B (C)	B	B (B)
Almaden Expy NB and SB on-ramp	**F**	**F**	**E**	C	**E**	**F**	C	B
SB Almaden Expy on-ramp and Camden off-ramp	**F**	**F**	**E**	C	**E**	D	C	B
Camden off-ramp and on-ramp	**F**	**F**	D	C	D	C	C	B
Camden on-ramp and Union off-ramp	**F**	**F**	**E**	C	C	C	B	B
Union off-ramp and on-ramp	**F**	**F (F)**	**E**	B (C)	D	D (D)	C	A (B)
Union on-ramp and Bascom off-ramp	**F**	D	**F**	B	D	C	B	A
Bascom off-ramp and SR 17 off-ramp	**F**	D	**F**	B	C	C	A	A
SR 17 off-ramp and Bascom on-ramp	**F**	D	D	B	B	B	A	A
Segment Group 2 (I-280 to SR 17)								
Bascom on-ramp and SR 17 on-ramp	**F**	**F**	D	B	C	C	B	A
SR 17 on-ramp and Winchester on-ramp	**F**	**F**	D	B	C	C	B	A
Winchester on-ramp and lane drop	**F**	**F**	D	C	**F**	**F**	C	A
(Express lane access zone only, between Winchester on-ramp and Saratoga off-ramp)		**(F)**		(C)		**(F)**		(C)
Lane drop and Saratoga off-ramp	**F**	**E**	D	C	**F**	D	C	B
Saratoga on-ramp and off-ramp	**F**	C	D	C	C	C	B	B
Saratoga on-ramp and De Anza off-ramp	**F**	D	**E**	C	D	C	B	B
De Anza off-ramp and on-ramp	**F**	C	D	C	C	C	B	B
De Anza on-ramp and Stevens Creek off-ramp	D	C (C)	C	B (B)	D	B (C)	B	B (A)
Stevens Creek off-ramp and 280 off-ramp	C	C	B	C	B	C	A	B
280 off-ramp and 280 SB loop on-ramp	B	B	B	C	B	B	A	B
Segment Group 1 (Northern Limit to I-280)								
280 SB loop on-ramp and 280 NB on-ramp	D	C	B	C	B	C	A	B
280 NB on-ramp and Homestead on-ramp	**F**	**F**	D	C	C	**F**	B	B
Homestead on-ramp and Fremont off-ramp	**F**	**F (F)**	D	C (C)	D	D **(E)**	C	B (B)
Fremont off-ramp and Fremont on-ramp	**F**	**F**	D	C	C	D	B	B
Fremont on-ramp and SR 82 SB off-ramp	**F**	**E**	C	C	C	D	B	B
SR 82 SB off-ramp and SR 82 SB on-ramp	D	D	B	C	C	C	A	B
SR 82 SB/NB on-ramp and SR 237 EB off-ramp	C	D	B	C	B	C	A	B
SR 237 EB off-ramp and EB on-ramp	C	C	B	C	B	C	A	B
SR 237 EB on-ramp and Evelyn off-ramp	C	B	B	C	A	B	A	B
Evelyn off-ramp and Central Expy on-ramp	C	C	B	C	B	B	A	B
Central Expy on-ramp and Moffett off-ramp	**E**	D (C)	C	C (C)	C	D (A)	A	B (B)
Moffett off-ramp and SR 85/US 101 connector	B	B	B	B	B	B	A	C

Notes:
1. For segments that contain access zones where vehicles may enter and/or exit the express lane(s), the LOS in parentheses indicates the level of service for that access movement.
EB = eastbound, Expy = Expressway; NB = northbound, SB = southbound, WB = westbound
Boldfaced LOS have high vehicle densities and impaired traffic flow, as shown in Table 2.1.3-1.

Table 2.1.3-10: Peak Hour Travel Conditions, 2035 Southbound No Build and Build

	2035 AM peak hour (7 to 8 AM)				2035 PM peak hour (5 to 6 PM)			
	General Purpose		HOV/Express		General Purpose		HOV/Express	
Segment	No Build	Build[1]	No Build	Build[1]	No Build	Build[1]	No Build	Build[1]
Segment Group 1 (Northern Limit to I-280)								
SR 85/US 101 connector and Moffett on-ramp	A	A	A	A	**F**	**F**	D	C
Moffett on-ramp and Central Expy off-ramp	B	B (A)	A	A (A)	**F**	**F (F)**	D	C (C)
Central Expy off-ramp and Evelyn on-ramp	B	A	A	A	**F**	**F**	D	C
Evelyn on-ramp and 237 off-ramp	B	B	A	A	**F**	**F**	**F**	C
SR 237 off-ramp and SR 237 on-ramp	B	B	A	A	**F**	**F**	C	C
SR 237 on-ramp and SR 82 off-ramp	B	C	A	A	**F**	**F**	**E**	C
SR 82 off-ramp and on-ramp	C	B	A	A	**F**	**F**	C	C
SR 82 on-ramp and Fremont off-ramp	D	C (C)	B	A (A)	**E**	**F (F)**	C	C **(E)**
Fremont off-ramp and on-ramp	C	C	A	B	**F**	**F**	C	C
Fremont on-ramp and Homestead off-ramp	D	D	A	B	**F**	**E**	C	C
Homestead off-ramp and 280 off-ramp	C	B	A	B	D	C	A	C
Segment Group 2 (I-280 to SR 17)								
280 SB off-ramp and 280 NB on-ramp	A	A	A	B	C	B	A	C
280 NB and 280 SB on-ramp	B	B	B	B	C	C	B	C
280 SB on-ramp and Stevens Creek off-ramp	B	B	A	B	D	D	A	C
Stevens Creek off-ramp and on-ramp	B	B (B)	A	A (A)	D	C (B)	B	C (C)
Stevens Creek on-ramp and lane drop	B	B	A	A	**F**	D	C	D
(Express lane access zone only, between Stevens Creek on-ramp and De Anza off-ramp)		(B)		(A)		(D)		(C)
Lane drop and De Anza off-ramp	C	B	A	A	**F**	**F**	C	C
De Anza off-ramp and on-ramp	B	B	A	A	**F**	C	B	C
De Anza on-ramp and Saratoga off-ramp	C	B	A	A	**F**	**E**	C	C
Saratoga off-ramp and on-ramp	B	B	A	A	**F**	**F**	C	C
Saratoga on-ramp and Winchester off-ramp	C	C (B)	A	A (B)	**F**	**F (F)**	C	C **(F)**
Winchester off-ramp and SR 17 off-ramp	B	B	A	A	**F**	**F**	D	B
SR 17 off-ramp and Bascom off-ramp	B	B	A	A	**F**	**F**	E	B
Segment Group 3 (SR 17 to SR 87)								
Bascom off-ramp and SR 17 on-ramp	B	A	A	A	**F**	**F**	B	B
SR 17 on-ramp and Bascom on-ramp	B	B	A	A	**F**	**F**	B	B
Bascom on-ramp and Union off-ramp	C	B	A	A	**F**	**F**	C	B
Union off-ramp and Union on-ramp	C	B (C)	A	A (A)	**F**	**F (F)**	B	B (D)
Union on-ramp and Camden off-ramp	D	D	A	A	**F**	**F**	B	B
Camden off-ramp and on-ramp	C	B	A	A	**F**	**F**	B	B
Camden on-ramp and Almaden Expy off-ramp	D	D (C)	A	A (A)	**F**	**F (F)**	B	C (C)
Almaden Expy NB and SB off-ramps	C	C	A	B	**F**	**F**	B	C
SB Almaden Expy on-ramp and NB on-ramp	C	B	A	B	**F**	**F**	B	C
Almaden Expy NB on-ramp and SR 87 Off	C	C	A	B	**F**	**F**	C	C
SR 87 Off and Santa Teresa off-ramp	C	B	A	B	**F**	**F**	C	C
Segment Group 4 (SR 87 to Southern Limit)								
Santa Teresa off-ramp and on-ramp	C	C	A	B	**F**	**F**	B	C
Santa Teresa on-ramp and SR87 on-ramp	D	C	A	B	**F**	**F**	B	C
SR 87 on-ramp and Blossom Hill off-ramp	**E**	D	A	B	**F**	**F**	B	C
Blossom Hill off-ramp and WB Blossom Hill on-ramp	D	D	A	B	D	**F**	B	C
Blossom Hill WB and EB on-ramps	D	**E**	A	B	**E**	**F**	B	C
Blossom Hill EB on-ramp and Cottle off-ramp	**E**	D **(E)**	A	B (B)	**F**	**F (F)**	B	C **(F)**
Cottle off-ramp and SB on-ramp	D	D	A	B	C	C	A	B
Cottle SB on-ramp and NB Cottle on-ramp	D	D	A	B	D	C	A	B
NB Cottle on-ramp and Great Oaks off-ramp	**E**	D	A	B	D	D	A	B
Great Oaks and Bernal off-ramp	D	D	A	B	D	C	A	B
South of Bernal off-ramp	C	C	A	B	C	B	A	B

Notes:
1. For segments that contain access zones where vehicles may enter and/or exit the express lane(s), the LOS in parentheses indicates the level of service for that access movement.
EB = eastbound, Expy = Expressway; NB = northbound, SB = southbound, WB = westbound
Boldfaced LOS have high vehicle densities and impaired traffic flow, as shown in Table 2.1.3-1.

Table 2.1.3-11: Peak Hour Travel Times (Minutes), 2035 No Build and Build

Lane Type	Segment Group	Free Flow[2]	No Build	Build	Build – No Build Difference
AM Northbound					
General Purpose	1. Northern Limit to I-280	4.9	7.1	5.9	-1.2
	2. I-280 to SR 17	7.3	17.6	9.7	-7.9
	3. SR 17 to SR 87	5.0	9.9	7.2	-2.7
	4. SR 87 to Southern Limit	4.7	5.1	5.0	-0.1
	Total	*21.9*	*39.7*	*27.8*	*-11.9*
HOV/Express	1. Northern Limit to I-280	4.9	5.4	5.1	-0.3
	2. I-280 to SR 17	7.3	9.5	7.1	-2.4
	3. SR 17 to SR 87	5.0	6.9	5.2	-1.7
	4. SR 87 to Southern Limit	4.7	4.7	4.8	0.1
	Total	*21.9*	*26.5*	*22.2*	*-4.3*
AM Southbound					
General Purpose	1. Northern Limit to I-280	4.9	5.2	5.1	-0.1
	2. I-280 to SR 17	7.3	7.5	7.6	0.1
	3. SR 17 to SR 87	5.0	5.3	5.3	0.0
	4. SR 87 to Southern Limit	4.7	5.1	5.0	-0.1
	Total	*21.9*	*23.1*	*23*	*-0.1*
HOV/Express	1. Northern Limit to I-280	4.9	4.4	4.6	0.2
	2. I-280 to SR 17	7.3	6.8	7.0	0.2
	3. SR 17 to SR 87	5.0	4.6	4.8	0.2
	4. SR 87 to Southern Limit	4.7	4.6	4.8	0.2
	Total	*21.9*	*20.4*	*21.2*	*0.8*
PM Northbound					
General Purpose	1. Northern Limit to I-280	4.8	5.2	5.6	0.4
	2. I-280 to SR 17	7.3	8.3	8.3	0
	3. SR 17 to SR 87	5.0	5.9	5.5	-0.4
	4. SR 87 to Southern Limit	4.7	5.1	5.0	-0.1
	Total	*21.8*	*24.5*	*24.4*	*-0.1*
HOV/Express	1. Northern Limit to I-280	4.8	4.9	5.1	0.2
	2. I-280 to SR 17	7.3	7.3	7.5	0.2
	3. SR 17 to SR 87	5.0	5.1	5.2	0.1
	4. SR 87 to Southern Limit	4.7	4.6	4.8	0.2
	Total	*21.8*	*21.9*	*22.6*	*0.7*
PM Southbound					
General Purpose	1. Northern Limit to I-280	4.8	13.0	7.7	-5.3
	2. I-280 to SR 17	7.3	13.1	11.6	-1.5
	3. SR 17 to SR 87	5.0	13.5	10.8	-2.7
	4. SR 87 to Southern Limit	4.7	6.3	6.4	0.1
	Total	*21.8*	*45.9*	*36.5*	*-9.4*
HOV/Express	1. Northern Limit to I-280	4.8	7.0	5.1	-1.9
	2. I-280 to SR 17	7.3	7.7	7.5	-0.2
	3. SR 17 to SR 87	5.0	5.4	5.5	0.1
	4. SR 87 to Southern Limit	4.7	4.7	5.2	0.5
	Total	*21.8*	*24.8*	*23.3*	*-1.5*

Notes:
1. AM peak hour defined as 7:00 to 8:00 AM. PM peak hour defined as 5:00 to 6:00 PM.
2. Free flow travel time is based on an assumed speed of 65 mph. In some cases, speeds may exceed 65 mph producing travel times that are less than free flow.

HOV = high-occupancy vehicle

As shown in Tables 2.1.3-9 and 2.1.3-10, most northbound and southbound general purpose lane segments would continue to operate at impaired LOS E or F in 2035 with the project, compared with the No Build condition. However, total travel times would decrease compared with No Build: by 11.9 minutes during the northbound AM peak hour, and by 9.4 minutes during the PM peak hour (Table 2.1.3-11).

In the express lanes, the Build Alternative would maintain LOS C/D or better operations in most 2035 AM and PM peak segments, although some segments would operate at LOS E or F and/or have a decrease in level of service compared with No Build (Tables 2.1.3-9 and 2.1.3-10). This reflects a higher density of vehicles in the express lanes than in the HOV lanes. The single northbound HOV lane that would operate at LOS E or F in several segments between SR 87 and SR 17 in the AM peak hour under No Build would become two express lanes that operate at LOS B or C (Segment Group 2, Table 2.1.3-9). In the express lane access zones, where lane-changing movements for vehicles entering and exiting the express lanes are concentrated, one northbound segment in the AM peak hour and five southbound segments in the PM peak hour would operate at LOS D, E, or F (Tables 2.1.3-9 and 2.1.3-10). Overall, however, the express lanes are expected to meet the statutory requirement of 45 mph described in Section 1.2.2.1, under “SR 85 HOV Lanes.”

Travel times in all northbound and southbound express lane segment groups would be lower than in the corresponding general purpose lane segment groups (Table 2.1.3-11). Total travel times for the express lanes are projected to be 5.6 minutes less than the general purpose lanes in the northbound direction in the AM peak hour and 13.2 minutes less in the southbound direction in the PM peak hour (Table 2.1.3-11). With the Build Alternative, express lane travel times would also be slightly lower than No Build HOV lane travel times during the northbound AM peak hour (4.3 minutes less) and the southbound PM peak hour (1.5 minutes less; Table 2.1.3-11).

Table 2.1.3-12 summarizes the 2035 peak period network performance measure results for the complete project corridor with the No Build and Build alternatives. The network performance measures are the same as those described above for Table 2.1.3-8.

Table 2.1.3-12: 2035 Peak Period Network Performance Measure Comparison

Performance Measure	No Build	Build	Build – No Build Difference	Build – No Build % Difference[2]
AM Northbound				
Total Distance Traveled (VMT) (mi)	367,024	418,602	51,578	14%
Total Travel Time (VHT) (hr)[1]	12,400	9,287	-3,113	-25%
Total Delay (VHD) (hr)	7,097	3,318	-3,779	-53%
Average Delay per Vehicle (sec)	463	212	-251	-54%
Average Speed (mph)	30	45	15	52%
AM Southbound				
Total Distance Traveled (VMT) (mi)	260,794	278,199	17,405	5%
Total Travel Time (VHT) (hr)[1]	4,485	4,663	178	3%
Total Delay (VHD) (hr)	593	562	-31	-4%
Average Delay per Vehicle (sec)	44	40	-4	-5%
Average Speed (mph)	58	60	2	2%
PM Northbound				
Total Distance Traveled (VMT) (mi)	398,216	436,357	38,140	10%
Total Travel Time (VHT) (hr)[1]	7,853	8,460	607	8%
Total Delay (VHD) (hr)	2,095	2,031	-64	-3%
Average Delay per Vehicle (sec)	102	92	-9	-9%
Average Speed (mph)	51	52	1	2%
PM Southbound				
Total Distance Traveled (VMT) (mi)	520,663	557,778	37,114	7%
Total Travel Time (VHT) (hr)[1]	21,830	18,340	-3,491	-16%
Total Delay (VHD) (hr)	14,168	10,119	-4,049	-29%
Average Delay per Vehicle (sec)	597	416	-181	-30%
Average Speed (mph)	24	31	7	27%

Note:
1. Travel times shown in this table reflect peak period vehicle hours traveled, rather than the peak hour travel times in minutes shown in Table 2.1.3-11.
2. Percentage differences are based on unrounded data and may vary from calculations based on rounded data shown in this table.

As with the 2015 scenario, the proposed project would improve traffic conditions in the northbound direction in the AM peak compared with No Build, reducing total delay by 53 percent and increasing speed by 52 percent. In the southbound direction during the PM peak period, the Build condition would reduce total delay by 29 percent and increase speed by 27 percent. VMT with the project would increase by 14 percent in the northbound AM peak and 7 percent in the southbound PM peak compared to No Build. As with 2015, the additional demand can be expected to include some vehicles that would otherwise divert to local roadways to avoid peak period congestion on SR 85, theoretically improving conditions elsewhere in the network.

In the off-peak direction in each period (AM southbound and PM northbound), No Build and Build conditions are comparable. This reflects the lack of congestion and generally free-flow speeds in the off-peak direction.

US 101

In the 2035 AM peak period (6 AM to 9 AM), conditions on northbound US 101 adjacent to the northern and southern ends of SR 85 would improve slightly with the Build Alternative. The project would reduce delay per vehicle by 21 seconds compared to the No Build condition, and average speed would increase by 1 mph. This is because the travel demand on northbound US 101 in Mountain View would be slightly lower as a result of some vehicles shifting to SR 85 to use the express lanes. In addition, by 2035, the US 101 Express Lanes Project will have converted the HOV-only direct connectors between SR 85 and US 101 in Mountain View to express lane direct connectors, and the HOV lanes on US 101 adjacent to SR 85 to express lanes. The vehicles entering northbound US 101 from SR 85 via the HOV/express connector rather than the general purpose lane connector would further reduce congestion on US 101, most notably in the last hour of the peak period.

In the southbound direction during the 2035 AM peak period, conditions on US 101 adjacent to the northern and southern ends of SR 85 would be essentially the same with both alternatives.

In the 2035 PM peak period (3 PM to 7 PM), conditions on northbound US 101 would be similar for both alternatives. The Build Alternative would reduce the average delay time per vehicle by 0.2 seconds and decrease the average speed by 3.1 mph; however, the average speed for both alternatives would be above 55 mph.

In the southbound direction during the PM peak period, conditions on US 101 would deteriorate very slightly with the Build Alternative, with an increase of 6.8 seconds of delay time per vehicle and a 0.4 mph decrease in speed.

Impact Summary

The proposed project would serve greater demand and generally improve traffic operations within the project limits. In the express lanes, levels of service would remain at LOS C/D or better in most 2035 AM and PM peak segments, although some segments would operate at LOS E or F and/or would have a decrease in level of service compared with No Build. In the general purpose lanes, peak hour travel times would improve compared with the No Build condition. No adverse effects on traffic operations within the project corridor will occur.

Project construction would require full or partial lane and shoulder closures to allow for utility work, restriping, and installation of overhead signs. The closures could result in short-term, temporary impacts during project construction. The project includes preparation of a TMP to minimize traffic disruptions from project construction. The TMP will provide for public outreach to inform local agencies and the public of the times and locations of upcoming construction, construction signs in and approaching the project area, and incident management for traffic control in the vicinity of construction activities. With the TMP, no substantial adverse construction impacts are anticipated.

All of the improvements that will be constructed by the project will comply with the applicable provisions of the ADA.

2.1.3.3 Avoidance, Minimization and/or Mitigation Measures

Because the project is not expected to result in adverse traffic impacts, no avoidance, minimization, and/or mitigation measures are proposed.

2.1.4 Visual/Aesthetics

This section addresses the visual setting of the project area as described in the *Visual Impact Assessment* (URS 2013b) and the *Supplement to the Visual Impact Assessment* (URS 2013c) completed for the proposed project in May 2013 and September 2013, respectively.

2.1.4.1 Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 USC 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic,* natural, scenic and historic environmental qualities." (CA Public Resources Code Section 21001[b]).

2.1.4.2 Affected Environment

According to the Department's California Scenic Highway Mapping System, SR 85 in the project corridor is not designated or eligible for designation as a state scenic highway (Caltrans 2007a). SR 85 is identified as a Scenic Urban Corridor in the City of San Jose General Plan (San Jose 2011b), but is not identified as a scenic highway or scenic corridor in any of the general plans that apply to the project area (Santa Clara County, Campbell, Saratoga, Los Altos, Sunnyvale, Mountain View and Los Gatos).

The segments of US 101 in the northern and southern portions of the project corridor are also not designated or eligible for designation as a state scenic highway (Caltrans 2007a). However, the Santa Clara County General Plan identifies the South Valley Freeway (US 101 from the SR 85/US 101 interchange to Gilroy) as a County Scenic Highway and proposes it to be added to *the California Master Plan of Scenic Highways Eligible for Official Scenic Highway Designation* (County of Santa Clara 1994). In addition, the City of San Jose General Plan designates the segment of US 101 between Metcalf Road and Bailey Avenue in the project limits as a Rural Scenic Corridor. The City of San Jose General Plan states that "development along designated Rural Scenic Corridors [should preserve] significant views of the Valley and mountains, especially in, or adjacent to Coyote Valley, the Diablo Range, the Silver Creek Hills, the Santa Teresa Ridge and the Santa Cruz Mountains" (City of San Jose 2011, Policy CD-9.3).

The portion of US 101 between just north of San Antonio Road and south of Oregon Expressway is bordered on the east by Palo Alto Baylands Park and marsh areas of San Francisco Bay. The Bay Conservation and Development Commission has established design guidelines for roads along the Bay shoreline (including marshlands).

The Department has classified most of the project corridor (along both SR 85 and US 101) as Landscaped Freeway, a designation that is used to control the placement of outdoor advertising displays in landscaped areas adjacent to freeways (California Business and Professions Code Section 5440; Caltrans 2011c). The eight portions on SR 85 classified as Landscaped Freeway total approximately 22.35 miles, and the five portions on US 101 total approximately 5.08 miles, for a grand total of 27.43 miles of the 33.7-mile project limits.

No scenic resources as defined by the California Environmental Quality Act (CEQA) exist along the project corridor. According to the City of San Jose General Plan, "The City of San Jose has many scenic resources which include the broad sweep of the Santa Clara Valley, the hills and mountains which frame the Valley floor, the baylands and the urban skyline itself, particularly high-rise development" (City of San Jose 2011).

Scenic Quality of SR 85

Most of the SR 85 corridor is bordered by dense suburban and urban development. Development along the freeway includes commercial and industrial buildings, residential communities, shopping centers, parking lots, hospitals, and schools. Freeway facilities including sound walls and embankments, local street and railroad overcrossings, major interchange structures, pedestrian overcrossings, and sign gantries and cantilever structures dominate the viewshed along the corridor. Along with typical freeway signs, SR 85 has four large electronic message signs used to display commute time and emergency alert information. Infrastructure along the corridor includes overhead utility lines (both parallel and perpendicular to the freeway), high-voltage transmission towers, telephone poles, and VTA light rail tracks and overhead cables.

Views of the development along SR 85 are largely shielded by sound walls, high berms or embankments, trees, or a combination of those features. Sound walls are present along approximately 20 miles of the 24.1-mile SR 85 corridor. Between the Cottle Road interchange in San Jose and the northern terminus of SR 85, the longest freeway segment without sound walls is approximately 0.25 mile. South of the Cottle Road interchange, there are two longer segments without sound walls – 1 mile on the northbound side and 0.75 mile on the southbound side.

The elevation of SR 85 in relation to surrounding development varies from at-grade (particularly north of I-280 and south of SR 87; Exhibit A), to elevated by up to approximately 25 feet (where it crosses major interchanges such as Almaden Expressway; Exhibit B), to depressed (below grade) by as much as approximately 25 feet (in many segments between I-280 and SR 87; Exhibit C). Through Los Gatos and Saratoga, SR 85 is entirely depressed below the grade of surrounding development. Where SR 85 is below grade, it is intersected by local street overcrossings and bordered by combinations of slopes, landscaping, retaining walls, and sound walls. At the I-280 interchange, SR 85 crosses over I-280 on an elevated interchange with freeway-to-freeway direct ramp connectors. Exhibits D through J provide additional views of the SR 85 corridor, from south to north.

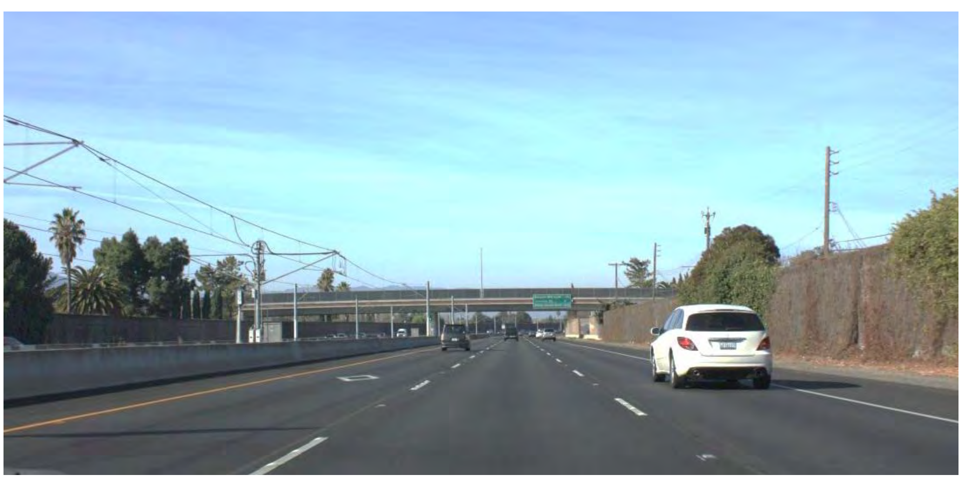

Exhibit A. At-grade section of SR 85, viewed from northbound SR 85 east of Blossom Hill Road interchange in San Jose. VTA light rail tracks and overhead lines are in the median, and sound walls border the freeway.

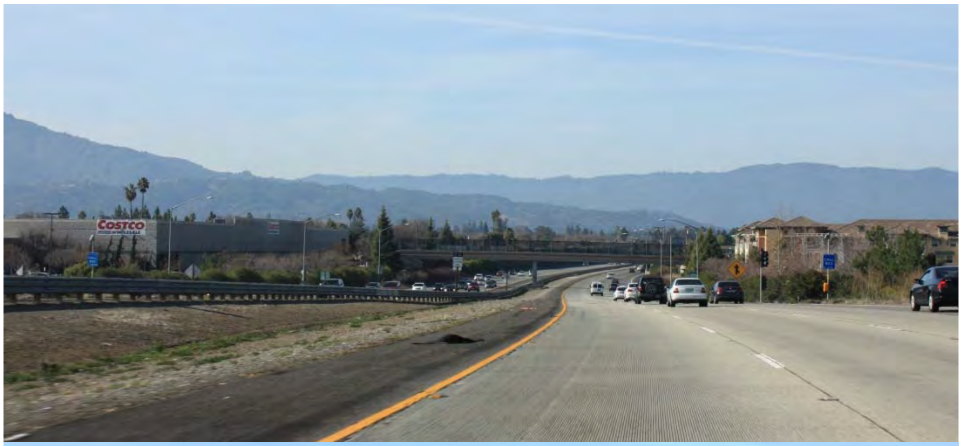

Exhibit B. Elevated section of SR 85, northbound direction, viewed from just west of Almaden Expressway interchange in San Jose.

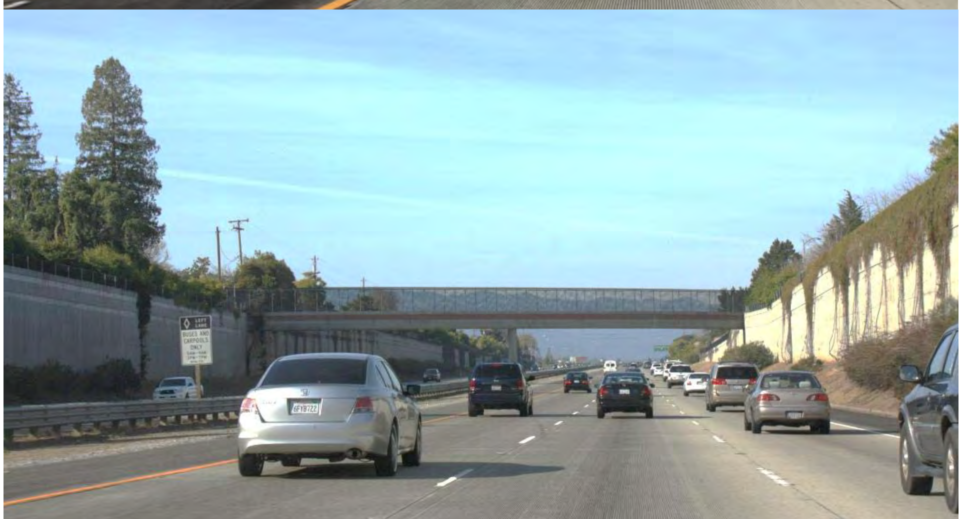

Exhibit C. Depressed section of SR 85, viewed from northbound SR 85 west of Camden Avenue in San Jose.

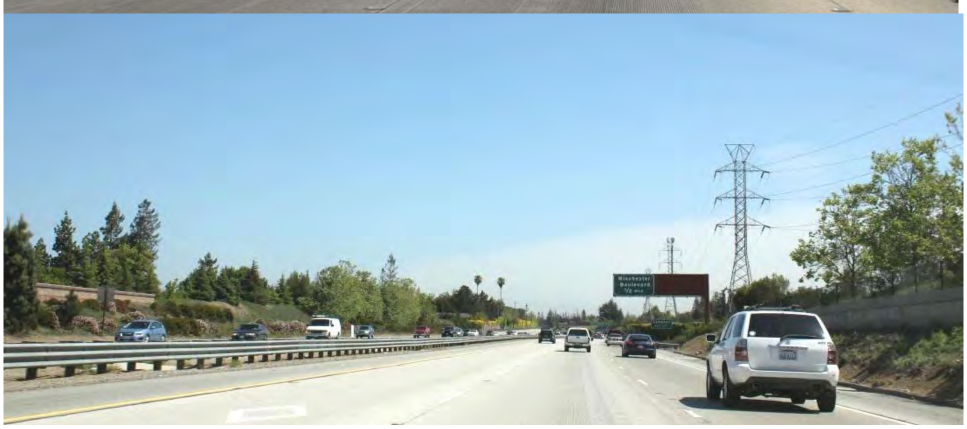

Exhibit D. Southbound SR 85 in Los Gatos, approaching Winchester Boulevard. Freeway has landscaped side slopes on both sides, bordered by sound walls. Transmission line corridor on right side of right-of-way.

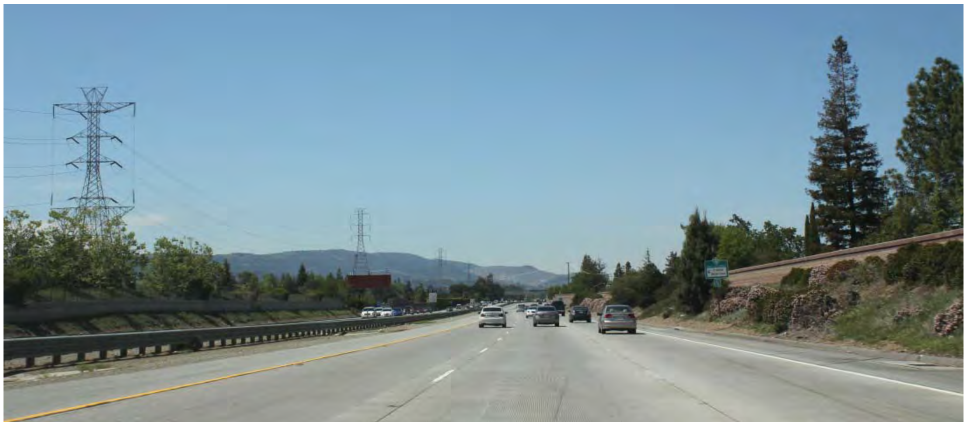

Exhibit E. Northbound SR 85 in Los Gatos approaching the Pollard Road overcrossing.

Exhibit F. Northbound SR 85 in Campbell at the Saratoga city limit, at the Quito Road undercrossing.

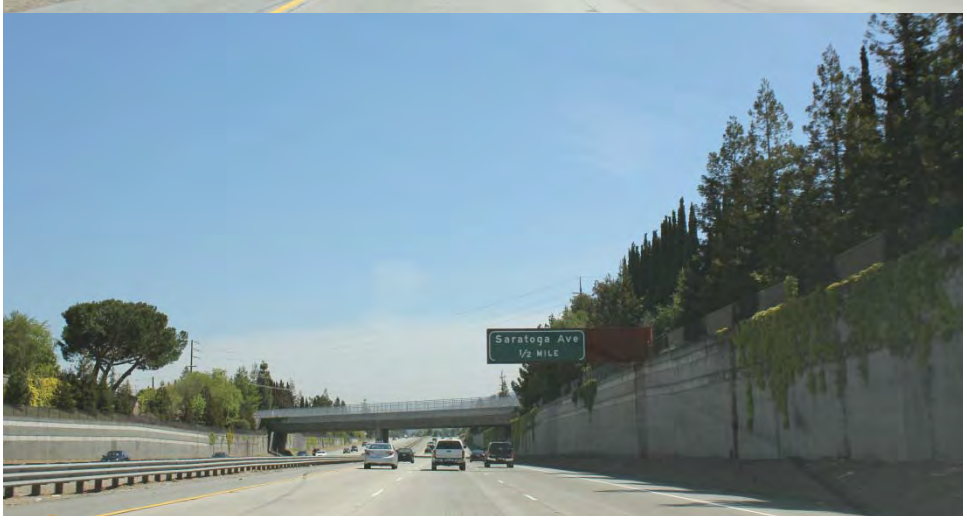

Exhibit G. Southbound SR 85 in Saratoga just north of Cox Avenue underpass, approaching Saratoga Avenue exit.

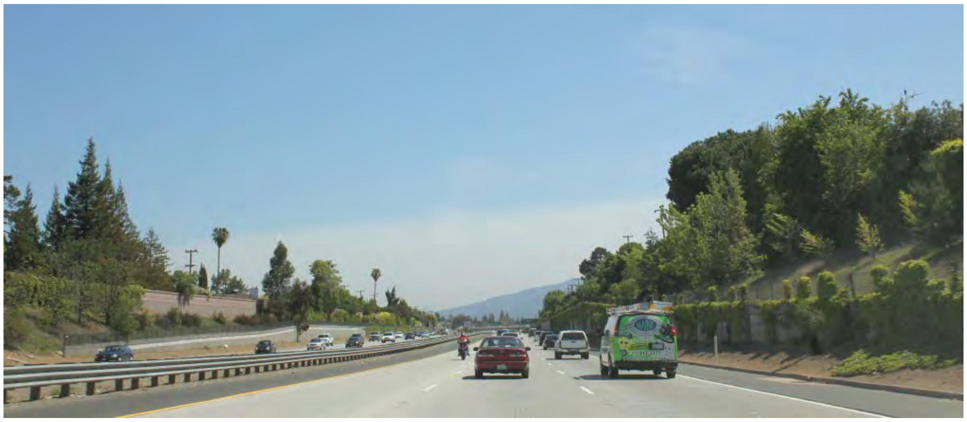

Exhibit H. Southbound SR 85 in Cupertino, just north of De Anza Boulevard.

Exhibit I. Northbound SR 85 in Cupertino, at McClellan Road overcrossing approaching Stevens Creek Boulevard.

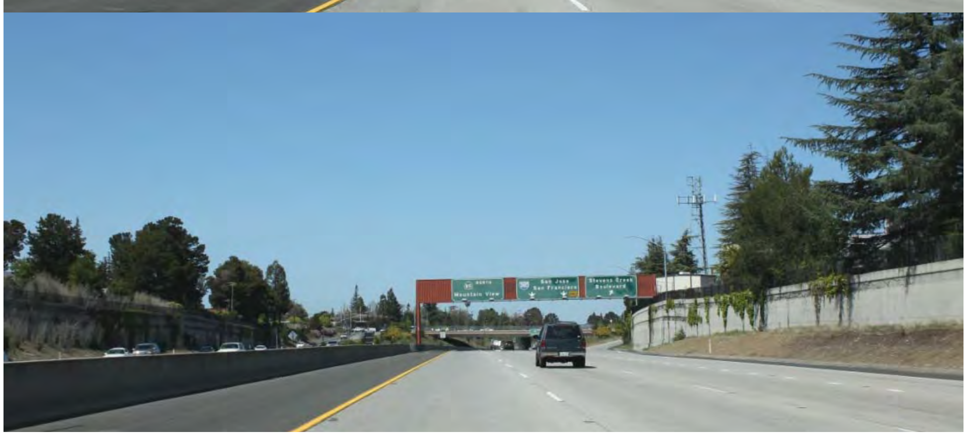

Exhibit J. Northbound SR 85 in Cupertino, at the Stevens Creek Boulevard off-ramp.

Depending on the location, the SR 85 median contains a metal barrier with sparse ruderal disturbed vegetation, pavement with a concrete median barrier, or VTA light rail tracks and related facilities. The VTA tracks, overhead cables, and three light rail stations (Cottle, Snell, and Blossom Hill stations) occupy approximately 3 miles of median in the southern segment of the project corridor. Shoulder vegetation primarily consists of ruderal California annual grasses and landscaping (nonnative shrubs and horticultural trees, including redwoods). Lighting is present in approximately 460 locations along the 24.1-mile SR 85 corridor and adjacent streets, VTA light rail stops, and parking lots.

The SR 85 corridor has moderate visual quality. Motorists on SR 85 generally observe sound walls (which in some locations are covered in ivy or other vegetation), retaining walls, mature trees and other landscaping, berms and embankments, overhead utilities, and multistory development. Along some portions of the corridor, particularly on elevated sections of SR 85, motorists have uncluttered, high-quality views to the west and northwest of the west valley hills and the Santa Cruz Mountains, and to the southeast of the foothills of the Mount Hamilton Range (a portion of the Diablo Range). In the southernmost segment of the corridor, from the SR 85/US 101 interchange to the Cottle Road interchange, undeveloped lots and businesses with large parking lots border the freeway, and relatively clear views are available of the Santa Teresa foothills to the west.

Scenic Quality of US 101

The following summarizes the existing setting from south to north. US 101 between the SR 85/US 101 interchange in San Jose and the southern project limit at Bailey Avenue is in an area of grassland and rolling hills, with residential development to the east of US 101 for the first mile south of the interchange. The 50-acre Pacific Gas and Electric (PG&E) Metcalf Substation lies immediately to the west of US 101 approximately midway between the SR 85/US 101 interchange and the southern project limit. The substation contains several tall high-voltage transmission towers bearing lines that connect with similar towers west of the freeway and east of the substation. These facilities and the overhead lines dominate the viewshed for approximately 1.5 miles of this 3.3-mile segment of US 101 (Exhibit K).

No sound walls are present along US 101 in San Jose within the project limits. The median is mostly paved with a concrete median barrier. From just north of Metcalf Road to the southern project limit, the median contains ruderal disturbed vegetation. On northbound US 101, two overhead sign gantries (one is shown in Exhibit L) spanning the northbound lanes are prominent to viewers on and around those segments. Motorists on this portion of the corridor observe high-voltage transmission towers and overhead lines, grassland and trees, and residential development to the east of US 101. In some locations, the Coyote Parkway lakes are visible to the west, along with views of the Santa Teresa Hills. The portion of US 101 in the southern project corridor has moderate visual quality.

Exhibit K. Northbound US 101 north of Bailey Avenue in southern San Jose. The PG&E Metcalf Substation is just west (left) of the southbound lanes.

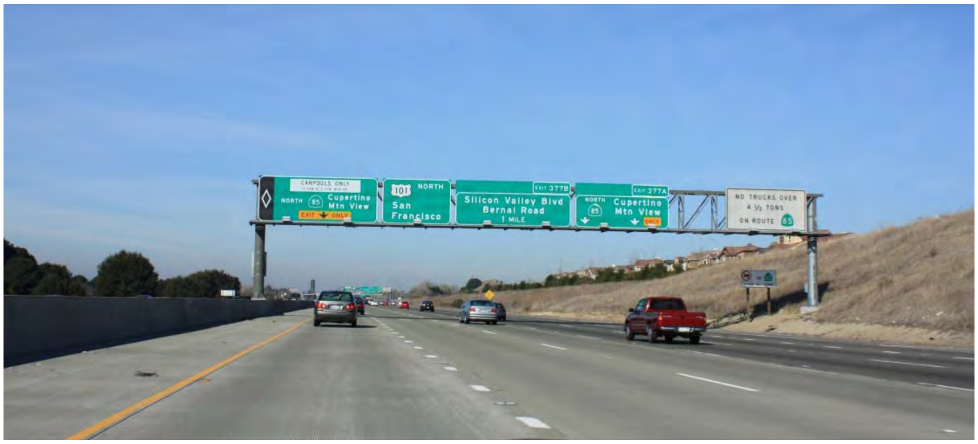

Exhibit L. Northbound US 101 south of SR 85 interchange in southern San Jose, with a gantry (a structure that spans the roadway and is supported by posts on both sides) in the foreground and residential development to the east (center and right side of photo).

The majority of US 101 from the SR 85/US 101 interchange in Mountain View to the northern project limit at Oregon Expressway in Palo Alto is bordered by commercial and industrial facilities and dense residential development. Sound walls, chain link fences, and low concrete walls are present along very short segments of US 101; for the most part, tall trees and other vegetation border the roadway and block surrounding views (Exhibit M). The median is paved and has a concrete or metal median barrier, depending on the location. Motorists primarily observe tall vegetation and development along the corridor. Portions of the corridor have views of the foothills of the Santa Cruz Mountains and the Mount Hamilton Range to the west, southwest, and east. US 101 between just north of San Antonio Road and south of the Oregon Expressway is bordered on the east by Palo Alto Baylands Park and marsh areas of San Francisco Bay (Exhibit N); however, views of this area are mostly blocked by tall vegetation east of the freeway. The US 101 corridor from the SR 85/US 101 interchange in Mountain View to Oregon Expressway in Palo Alto has low to moderate visual quality.

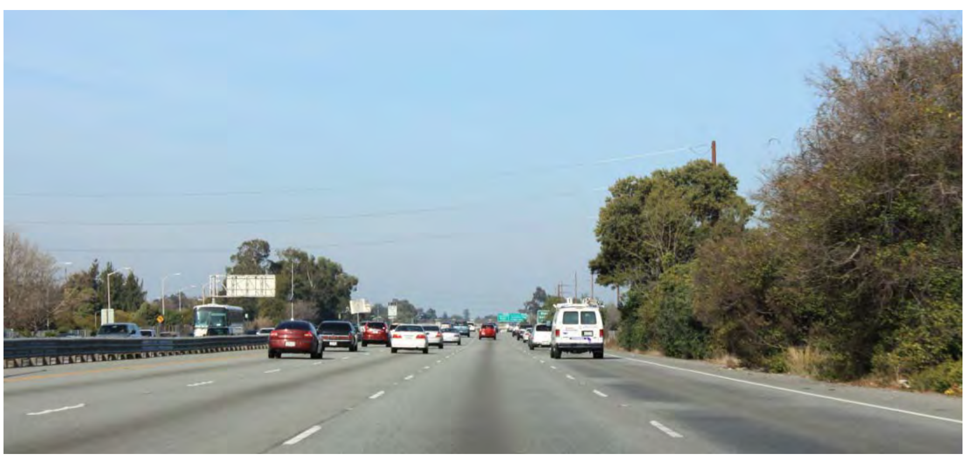

Exhibit M. Northbound US 101 south of Embarcadero Road in Palo Alto.

Exhibit N. Northbound US 101 north of San Antonio Road; Palo Alto Baylands Park to the east (right side of photo).

2.1.4.3 Environmental Consequences

Project Changes to the Visual Environment

The project would change the appearance of SR 85 and US 101 through pavement, retaining wall, and barrier work; vegetation removal; SR 85 bridge widening; and the installation of project signs, toll structures, monitoring equipment, and lighting. No new sound walls or changes to existing sound walls are currently proposed. These project activities are described further below.

Pavement, Retaining Wall, and Barrier Work

The existing HOV lanes would be converted to express lanes on SR 85, on the US 101/SR 85 HOV-only direct connector in San Jose, and on the segment of US 101 from south of the SR 85/US 101 interchange in San Jose to Metcalf Road. As noted in Chapter 1, a second express lane would be added in the median of SR 85 between SR 87 and I-280. The express lanes would be separated from the general purpose lanes by a striped 2-foot-wide buffer. The existing HOV-only direct connector would become an express lane direct connector. The striped buffer between the express lanes and the general purpose lanes would be more visually prominent than the existing striping between the HOV lanes and the general purpose lanes.

Design modifications to revise the proposed express lane access to continuous or open access—like the existing SR 85 HOV lane—will be considered during detailed project design (see Section 1.3.1.1). If, during detailed project design, the access configuration is changed to continuous or open access (see Section 1.3.1.1), the express lanes would be separated from the general purpose lanes with dashed stripes like those used for the existing HOV lanes. Striped buffers would be necessary in some short segments as needed to maintain traffic safety, but overall, the striping would appear substantially the same as it does now.

In the segments of SR 85 between US 101 in San Jose and SR 87 and between I-280 and US 101 in Mountain View, the 2-foot-wide buffer would be created by reducing the width of the express lane and the inside general purpose lane from 12 feet to 11 feet. In the segment of SR 85 between SR 87 and I-280, where the median width is approximately 46 feet, pavement widening would be conducted in the median to accommodate the second express lane. The median would be paved where needed and the existing thrie-beam barrier would be replaced with a Type 60 concrete barrier. Sections of the median of SR 85 are already paved and have a concrete barrier separating the northbound and southbound lanes.

An auxiliary lane would be added to a 1.1-mile segment of northbound SR 85 between the existing South De Anza Boulevard northbound on-ramp and Stevens Creek Boulevard northbound off-ramp. The existing pavement would be widened by up to 14 feet to the outside (northeast). To accommodate the auxiliary lane, sections of the existing abutments at South Stelling Road and McClellan Road overcrossings adjacent to northbound SR 85 would be removed and replaced by new retaining walls to support the embankments behind them. Exhibit I shows the existing freeway from the northbound direction, approaching the McClellan Road overcrossing.

The 1.1-mile segment of northbound SR 85 where the auxiliary lane is proposed is up to 25 feet lower in elevation than surrounding development. In the majority of this segment, retaining walls extend along the toe of the slope by approximately 14 feet beyond the northbound shoulder, and sound walls exist at the top of the slope along the edge of the right-of-way. Widening for the proposed auxiliary lane would occur in the area between the northbound shoulder and the retaining walls or toe of the slope. The new retaining walls at the South Stelling Road and McClellan Road overcrossings would replace existing slope areas adjacent to northbound SR 85. The embankment slopes shown in Exhibit I would be excavated beneath the overcrossings, and retaining walls would be constructed to accommodate the auxiliary lane. When completed, the areas where existing slopes would be replaced with retaining walls would look similar to the area along northbound SR 85 shown in Exhibit O. The existing retaining walls would not be affected.

Exhibit O. Northbound SR 85 about midway between the De Anza Boulevard on-ramp and the South Stelling Road overcrossing.

The project corridor already contains striping and areas with paved medians, concrete median barriers, and retaining walls. When completed, the restriping, pavement widening, construction of retaining walls, and median changes would be visually compatible with the existing freeway corridor. The project components would represent a low level of change to the existing environment.

Vegetation Removal

Pavement widening would permanently remove less than 0.2 acre of ruderal California annual grassland in the median of northbound SR 85 just west of Almaden Expressway (URS 2013c).

Where the auxiliary lane is proposed on a 1.1-mile segment of northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard, approximately 0.3 acre of landscaped shrubs between the retaining walls or toe of the slope and the northbound shoulder would be removed. Ornamental landscaping between the retaining walls and sound walls in this segment would not be affected by the auxiliary lane addition. In some places, landscaping is sparse or absent.

The removal of less than 0.2 acre of ruderal California annual grassland and approximately 0.3 acre of landscaped shrubs would represent a low level of change to the existing environment.

SR 85 Bridge Widening

The project would close the existing spaces between the separate northbound and southbound SR 85 bridges over Almaden Expressway (northbound side only), Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue, as well as at the San Tomas Aquino Creek and Saratoga Creek crossings. The existing spaces would be closed by installing new bridge decking in the median.

At each bridge location, the bridge decks would likely be extended in width from the existing structures using precast, prestressed concrete beams and supported by new abutments on either end to free-span the roads or creeks underneath. Table 2.1.4-1 lists the existing bridge dimensions and the proposed width of inside widening at each location.

Table 2.1.4-1: Proposed SR 85 Bridge Widening Locations and Dimensions

Bridge Location	Existing Bridge Dimensions (feet; approximate)	Proposed Inside Widening (feet; approximate)
Almaden Expressway (Northbound only)	237 x 83 (width varies) (NB)	12
Camden Avenue	208 x 60 (NB) 204 x 90–113 (varies) (SB)	45
Oka Road	97 x 62 (average) (NB) 102 x 60 (average) (SB)	33
Pollard Road	183 x 60 (NB) 196 x 60 (SB)	23
Saratoga Avenue	192 x 60 (NB) 190 x 60 (SB)	23
San Tomas Aquino Creek	105 x 60 (both NB and SB)	23
Saratoga Creek	100 x 56 (both NB and SB)	23

NB = northbound, SB = southbound

As shown in Table 2.1.4-1, the proposed inside widening ranges from 12 to 45 feet and is approximately 23 feet in most locations. No new bridge supports are proposed to be added in the roadway medians or in the creeks underneath the bridges. No dewatering or water diversion is proposed at the creek crossings; the bridge widening work would be conducted from the banks or the existing freeway median areas.

The bridges that cross Almaden Expressway, Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue are in areas where existing transportation facilities (roadways, bridges, and embankments) dominate the immediate viewshed. At San Tomas Aquino and Saratoga creeks, most views of the proposed inside widening would be obstructed from surrounding areas by the bridges themselves, dense trees and other riparian vegetation, or existing sound walls (see Exhibits P and Q). At Saratoga Creek, two trees (an arroyo willow with multiple trunks of less than 6 inches in diameter at breast height [dbh] and a big leaf maple with a dbh of 8 inches) may need to be removed from the creek banks between the northbound and southbound bridges to allow for abutment work. The trees are not identified as heritage trees (City of Saratoga 2013); however, the big leaf maple qualifies as a protected tree under Saratoga City Code Section 15-50.050, requiring a tree removal permit (City of Saratoga 2003). The proposed bridge work and potential tree removal would represent a low level of change to the visual setting.

Exhibit P. San Tomas Aquino Creek Bridge downstream of SR 85 bridges (looking north/upstream).

Exhibit Q. SR 85 bridges over Saratoga Creek (from northbound SR 85 on-ramp west of Saratoga Avenue).

Project Signs and Tolling Equipment

Signs. The project would install new overhead and barrier-mounted signs, including dynamic message signs (DMS). The overhead signs would be installed in the median on cantilever structures supported on piles. Trenching would be conducted along the outside edge of pavement for installation of conduits to provide power and communications to the signs and tolling equipment.

Approximately 15 sets of signs would be installed over the 33.7-mile project corridor. In the southbound direction, express lane signs would begin on SR 85 just north of the Moffett Boulevard interchange and end on US 101 just north of Metcalf Road in southern San Jose. In the northbound direction, express lane signs would begin on US 101 just north of the Bailey Avenue interchange in southern San Jose and end on SR 85 just south of Moffett Boulevard.

In some locations, the express lane signs would replace existing signs or be added to existing sign structures, but most would be at new locations along SR 85. The exact number and locations of these features will be determined during the project design phase in coordination with the toll system design.

In general, each set of access zones for the express lanes would have the following signs:

- "Express lane entrance 1 mile," with a separate sign panel mounted on the same structure for local exits served by the upcoming access zone.
- Express lane entrance toll, with the current toll rate shown in a DMS panel for single-occupant vehicle use of the express lanes (see Exhibit R, below).
- "Express lane entrance" (see Exhibit S, below), with a separate sign panel mounted on the same structure for local exits served by the upcoming access zone (see Exhibit L, below).
- FasTrak or HOV +2 only (see Exhibit T, below).

The overhead signs would be mounted on support structures (poles) in the median, and the tops of the signs would be approximately 26 feet in height. New signs would be centered over the median, extended toward the right over the express lanes (as shown in Exhibit R), or a combination (one sign extended over the express lanes, with one or more smaller signs mounted directly on the pole, such as in Exhibit R, below).

Exhibit R. Representative view of an entrance/toll sign with DMS and mast-arm luminaire (from I-680 southbound express lanes in Fremont).

Exhibit S. Representative view of an express lane entrance sign (from I-680 southbound express lanes in Fremont).

Exhibit T. Sample express lane exit sign, left, and FasTrak or HOV +2 only

Smaller signs would also be mounted on the median barrier. The signs would be the same as or similar to existing HOV lane signs but in different locations. Some existing HOV lane signs would be removed.

SR 85 and the segment of US 101 south of the SR 85/US 101 interchange in San Jose already contain overhead signs, including electronic message signs and gantry structures with multiple signs. Most of the existing signs are on the right side of the freeway. In contrast, the express lane signs would be near the median. The following table summarizes the existing and proposed overhead signs by jurisdiction, in both directions of travel.

Table 2.1.4-2: Existing and Proposed Overhead Signs by Jurisdiction

City	Existing Overhead Sign Structures	Proposed (New) Overhead Sign Structures[1]
San Jose	46	21 [2]
Los Gatos	8	3
Campbell	2	2
Saratoga	7	1
Cupertino	11	9
Sunnyvale	4	1
Los Altos	0	0
Mountain View	13	6

1. This count represents new sign structures. Some structures may have more than one sign attached.
2. In one location, a new sign structure may not be needed because the sign could be placed on an existing structure.

No project signs are proposed in the segment of US 101 north of the SR 85/US 101 interchanges in Mountain View and San Jose. Therefore, these project features would not change the existing visual environment in that segment.

SR 85 and the segment of US 101 south of the SR 85/US 101 interchange in San Jose also contain infrastructure such as VTA light rail facilities and overhead utility lines. The addition of overhead signs would represent a low to moderate overall level of change to the existing environment.

Tolling and Monitoring Equipment. The project would install approximately 15 new toll collection antennas in the median on cantilever structures supported on piles (see Exhibit U, below). Like the overhead signs, the toll structures would also be approximately 26 feet in height. FasTrak electronic tolling system equipment mounted on the cantilever arms would communicate with the FasTrak toll tags in single-occupant vehicles in the express lanes to record and charge for trips. The toll structures would have a relatively slender profile and represent a low level of change to the existing environment.

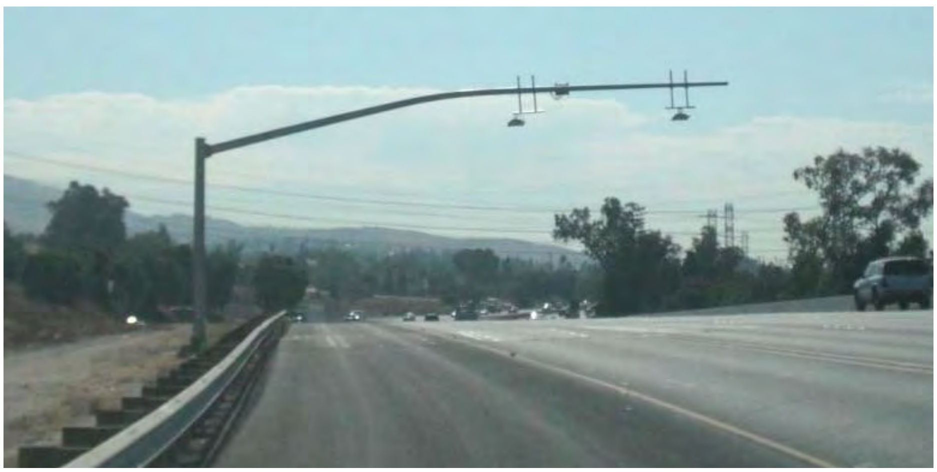

Exhibit U. Representative view of a toll structure (from I-680 southbound express lanes in Fremont).

SR 85 and the segment of US 101 south of the SR 85/US 101 interchange in San Jose already contain overhead apparatus such as signs, including electronic message signs and gantry structures with multiple signs, as well as other infrastructure such as VTA light rail facilities and overhead utility lines. The addition of toll structures would represent a low level of change to the existing environment in these segments.

No toll structures are proposed in the segments of US 101 north of the SR 85/US 101 interchanges in Mountain View and San Jose.

Traffic Operations Systems (TOS) equipment such as traffic monitoring stations, Closed Circuit Television cameras, cabinets, and controllers would be installed along the outside edge of pavement within the existing right-of-way. The specific locations of these features would be developed during final project design. The equipment would be small in scale and consistent with a freeway facility and the existing visual character of the project corridor.

Lighting

Mast-arm luminaires[7] would be mounted on the concrete median barrier along each of the approximately 15 express lane access zones on SR 85. At each access zone, approximately seven luminaires would be placed in the median over a distance of 2,000 feet (one luminaire every 250 to 400 feet). The number of luminaires would increase if the access zone is longer than 2,000 feet, to maintain a spacing of one luminaire every 250 to 400 feet.

Lighting would be added to each of the approximately 15 toll structures in the median of SR 85 as well as on project-related overhead signs. Lighting on toll structures would be mounted on a mast arm that would be approximately 10 to 15 feet above the mast arm shown in Exhibit U, above. A representative light fixture on an overhead sign is shown in Exhibit R.

Mast-arm luminaires could also be mounted on the concrete median barrier every 250 to 400 feet along SR 85 between approximately Almaden Expressway and the Samaritan Place pedestrian overcrossing (PM 6.0 to PM 10.0) and between approximately De Anza Boulevard/Saratoga Sunnyvale Road and Fremont Avenue (PM 16.0 to PM 20.0).

The actual spacing and number of lights in the project corridor would be determined during detailed project design in coordination with Caltrans Traffic Safety. No additional lighting is proposed on US 101 south of the SR 85/US 101 interchange in San Jose (between PM 23.1 and 28.6) or north of the SR 85/US 101 interchange in Mountain View (between PM 47.9 and 52.0)

The maximum height of the luminaires and other light fixtures would be 35 to 40 feet. In some locations, the luminaires would be double mast arm to provide illumination to both directions of SR 85. All light fixtures would have light-emitting diodes (LEDs) configured at the minimum necessary number of bulbs, optimal mounting height, mast-arm length, and angle to restrict light to the freeway right-of-way. Shields on the fixtures to prevent light trespass to adjacent properties would be considered during the detailed design phase.

The luminaires and other light fixtures would have nonreflective surfaces. The proposed luminaires would have a slender profile and would be visually compatible with those in the existing freeway corridor. SR 85 in the project limits already contains lighting in approximately 460 locations along and just outside of the freeway, and adjacent commercial and other land uses have nighttime illumination. Project lighting would introduce a moderate level of change to the existing environment.

Project Impacts

This section evaluates how the project-related changes described above would affect viewers in the project vicinity: motorists on SR 85 and US 101, viewers adjacent to the project corridor (including at residences), and viewers in more distant areas. Project construction is estimated at 1.5 years in total; however, construction activities in any given location would be short term, lasting for a period of several days to a few weeks.

Effects on views outside of the project corridor are described below by project component. The effects of project illumination are addressed under “Light and Glare,” below.

[7] A luminaire is a light fixture that is mounted to a pole, either directly or on a cantilever arm (referred to as a mast arm).

Pavement, Retaining Wall, and Barrier Work

Motorists. Lane restriping, pavement widening, retaining wall construction, and median barrier replacement would be primarily noticeable to motorists during the construction period, when construction equipment and vehicles are present and work is in progress.

Once completed, these project elements would be consistent with views of existing pavement, retaining walls, and median barriers in the freeway corridor. The lane striping, particularly for the 2-foot-wide buffers, would be more visually prominent than the current striping but would remain consistent with views in the corridor. Motorists would not be highly sensitive to these changes.

Viewers adjacent to the project corridor and in more distant areas. Construction activities would be visible outside of the SR 85 corridor primarily in areas without sound walls and/or vegetative shielding and in locations where the upper stories of residences and other buildings have views of SR 85. As described above, views of construction equipment, vehicles, and activities would be short term. When completed, the pavement, retaining wall, and barrier work will be consistent with existing views in the corridor. Viewers adjacent to SR 85 and in more distant areas would not be highly sensitive to these changes.

Impact summary. These project components would represent a low level of change to the existing visual setting, and construction would be visible for no more than a few weeks in any given location. No substantial adverse effects to scenic vistas, scenic resources, or visual quality in or around the project corridor would occur.

Vegetation Removal

Motorists. The project would remove less than 0.2 acre of ruderal California annual grassland in the median of northbound SR 85 just west of Almaden Expressway and approximately 0.3 acre of landscaped shrubs on the northbound side of SR 85 between South De Anza Boulevard and Stevens Creek Boulevard. This kind of vegetation has small visual mass compared to other existing vegetation in the corridor, such as the mature trees that border much of SR 85. This project activity would be primarily noticeable to motorists during the period of several days to a few weeks when the removal work is in progress. When completed, the removal of this small-scale vegetation would be minimally noticeable to motorists on SR 85. Motorists would not be highly sensitive to project-related vegetation removal.

Viewers adjacent to the project corridor. Vegetation removal would be visible outside of the SR 85 corridor primarily in areas without sound walls and/or vegetative shielding and in locations where the upper stories of residences and other buildings have views of SR 85. This project activity would be primarily noticeable to viewers adjacent to SR 85 during the period of several days to a few weeks when the removal work is in progress. The 0.2 acre of ruderal California annual grassland and 0.3 acre of landscaped shrubs have small visual mass compared to other existing vegetation in the corridor, and removal would not have substantial adverse effects on views of the median of northbound SR 85 just west of Almaden Expressway or of the northbound side of SR 85 between South De Anza Boulevard and Stevens Creek Boulevard. Viewers adjacent to SR 85 would not be highly sensitive to project-related vegetation removal.

As part of the construction of abutments and new bridge decking for the bridge widening locations along SR 85, small amounts of landscaped and ruderal vegetation may need to be removed from embankments between existing northbound and southbound bridge abutments, and two trees may need to be removed from Saratoga Creek. The loss of small amounts of vegetation in these areas would not substantially affect the visual quality of these areas for viewers adjacent to the project corridor.

Viewers in more distant areas. The proposed vegetation removal would not be of sufficient duration or scale to be visible to viewers that are not directly adjacent to SR 85.

Impact summary. The removal of less than 0.2 acre of ruderal California annual grassland in the median of northbound SR 85 just west of Almaden Expressway and approximately 0.3 acre of landscaped shrubs on the northbound side of SR 85 between South De Anza Boulevard and Stevens Creek Boulevard would not result in an adverse visual impact. The entire project corridor within the state right-of-way contains approximately 140 acres of naturally occurring vegetation (including 71 acres of ruderal California annual grassland) and 383 acres of landscaped vegetation (URS 2013d). The area along the northbound side of SR 85 between South De Anza Boulevard and Stevens Creek Boulevard contains approximately 3 acres of landscaped vegetation. This project activity would not affect scenic vistas, scenic resources, or visual quality in or around the project corridor.

In accordance with Caltrans policy, landscaping and irrigation that is damaged or removed during project construction would be replaced in kind. In the 1.1-mile auxiliary lane segment of northbound SR 85, replacement landscaping and irrigation would be considered between the existing retaining walls and sound walls in areas where landscaping is now either sparse or absent. Detailed landscape and irrigation replacement plans would be developed during final project design. The landscaping plan will include a tree planting ratio of 1:1 and the use of native species where possible.

SR 85 Bridge Widening

Motorists. The project would close the existing gaps between the northbound and southbound bridges on SR 85 at Almaden Expressway (northbound side only), Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue, as well as at the San Tomas Aquino Creek and Saratoga Creek crossings. The proposed bridge work would be visible to motorists on SR 85 both during and after construction but would not substantially change the visual quality in those areas. Foreground views of the bridge widening areas from SR 85 would be fleeting at freeway speeds. Motorists would not be highly sensitive to the views of the widened bridges.

Viewers adjacent to the project corridor. Widening the SR 85 bridges would not substantially change the visual quality in those areas for viewers on the streets beneath the bridges, in areas surrounding the creek channels, or other areas with views of the bridge crossings. Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue are depressed below the grade of the surrounding development at the bridge crossing locations; therefore, the bridge work would not be highly visible to nearby viewers except for those approaching or passing under the bridge crossings, either during or after construction. The bridge crossings at Almaden Expressway, Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue are in areas that are already dominated by views of transportation facilities. The proposed bridge widening would not degrade views for people approaching or passing under the bridges.

There is no public access to San Tomas Aquino Creek at the SR 85 crossing, and views of the bridge widening toward the median would be largely obstructed from surrounding residential development by the existing northbound and southbound bridge decks and side walls. Although a public recreation trail (Joe’s Trail at Saratoga De Anza) crosses over Saratoga Creek approximately 200 feet southwest of SR 85, trees and other vegetation would block most views of the bridge work. The proposed bridge widening would not degrade views near the bridges over creek crossings.

By closing the existing gaps between northbound and southbound SR 85 bridges, the project would decrease natural light on short segments of the local streets and sidewalks directly under SR 85. Except for Oka Road, the areas surrounding the bridge widening locations are relatively free of tall buildings and other overhead structures that cast substantial shadows or obstruct natural light. A total of six overhead structures (the northbound and southbound SR 85 bridges and four SR 17/SR 85 connector ramps) cross Oka Road within approximately 0.12 mile. The project would contribute to the loss of natural light from overhead structures in this area. However, this segment of Oka Road does not have features such as benches or parks that encourage people to linger and where natural light is beneficial. Overall, the visual change that would result from closing the bridge gaps would be minor and consistent with similar freeway crossings in the local and regional area. The loss of small areas of natural light from bridge widening would not affect viewers on or above the grade of SR 85 and would not substantially degrade views for those on the local streets below the bridge crossings.

The bridge widening areas are in the median of SR 85, where the viewshed is already dominated by transportation facilities or obstructed by existing walls or vegetation. Therefore, viewers adjacent to SR 85 would not be highly sensitive to the views of the widened bridges.

Viewers in more distant areas. The bridges would be widened toward the median rather than toward the outer edges of the freeway. Therefore, these project changes would not be highly visible (if at all) in long-range views on SR 85 or to viewers outside of the SR 85 corridor.

Impact summary. As the proposed bridge work would represent a low level of change to the visual setting and viewers would not be highly sensitive to the change, no adverse impacts are expected. This project activity would not affect scenic vistas, scenic resources, or visual quality in or around the project corridor.

Signs, Tolling Equipment, and Lighting

Overhead signs, toll structures and monitoring equipment, and luminaires and other light fixtures are considered together in this discussion because they are similar structures in terms of height, and in the case of overhead signs, visual mass. This discussion focuses on the luminaire structures rather than the light they produce. The effects of project lighting are addressed in the “Light and Glare” section, below.

The proposed roadside TOS equipment and median barrier-mounted signs would be small in scale and consistent with the corridor’s existing visual character; therefore, they will not be discussed further.

Motorists. During the day, the overhead signs, toll structures, and luminaires would be visible in the foreground of motorists’ distant views of Santa Teresa Hills to the west, the Mount Hamilton Range to the southeast, and the west valley hillsides (foothills of the Santa Cruz Mountains) to the west and northwest. Views of the project features would be short in duration for motorists moving at freeway speeds. During the night, when distant views of the hills are less visible, the overhead signs, toll structures, and luminaires would not conflict with or obstruct motorists' views.

SR 85 and the segment of US 101 south of the SR 85/US 101 interchange in San Jose already contain overhead signs, including electronic message signs and gantry structures with multiple signs. The proposed overhead signs, toll structures, and luminaires would be consistent with the visual context of the existing freeway setting and with existing signs in the corridor and in Santa Clara County. Mast-arm luminaires and other types of light fixtures are already present along the SR 85 corridor. Existing views of areas outside of the freeways would not be noticeably impaired or blocked for motorists. Motorists' sensitivity to these changes would be low to moderate.

Viewers adjacent to the project corridor and in more distant locations. The majority of the project signs and toll structures (an estimated 9 of 15 sets) and luminaires would be on SR 85 between I-280 and SR 87, where large sections of roadway are as much as 25 feet lower in elevation than surrounding development and bordered by berms or embankments topped by sound walls. In many such sections (such as between east of Camden Avenue and west of Union Avenue, and west of SR 17), the height differential would fully or partially block views of the signs, toll structures, and luminaires to observers outside of the freeway corridor. In other depressed sections (such as east of the SR 17 interchange), the upper stories of homes and other development along the freeway could have views of the tops of signs, toll structures, and luminaires and other light fixtures. The signs, toll structures, and luminaires would also be visible to viewers at various land uses adjacent to both sides of SR 85 and US 101 in locations where the freeway corridor is not shielded by sound walls, trees, or development.

For perspective, Exhibit V shows the same express lane entrance sign previously shown in Exhibit S but in the context of other signs and surrounding development. Exhibits S and V are representative views of existing express lanes signs at the Washington Boulevard exit on southbound I-680 in Fremont. As shown in Exhibit V, the express lane sign (in white and green) is of the same or similar height and size as the other existing overhead signs (which are all green).

Exhibit V. A second perspective of the representative view of the I-680 southbound express lanes in Fremont. This photo shows the same median-mounted express lane sign (green and white) in the context of other similar size and height directional freeway information and exit signs (all green).

The perspective in Exhibit V shows that for some adjacent viewers, such as at the house that is just visible on the right side of the photograph, views of the express lane sign are likely blocked by trees. However, if this perspective was from an upper-story residential window directly adjacent to the right-of-way on the other side of the freeway, it would be clearly visible. The sign would increase visual clutter in mid-range views, particularly if other existing signs are nearby, as shown in Exhibit V.

The sensitivity of viewers to these project features would depend on their distance from and viewing angle of the project corridor, as well as the degree to which the signs, toll structures, and luminaires are shielded or blocked by topography, sound walls, trees, or other development. In most locations, where views of these project features would be shielded or blocked, viewers adjacent to SR 85 would have low sensitivity to the signs, toll structures, and luminaires. Partial views of these project features would be noticeable but not highly conspicuous or intrusive, and would not substantially change the visual quality of the setting.

In locations where these project features would have greater visibility, viewers are likely to have moderate sensitivity, particularly to the overhead signs because they have larger visual mass than the toll structures or luminaires. The signs would not enhance but would not wholly detract from views of the freeway corridor because they are visually compatible with existing freeway features. As the signs would be in the median, they would be as far as practicable from nearby sensitive viewers. The scale of the signs would be relatively small in the context of the overall viewshed and would not block long-range views of the hills and ridgelines to the west, northwest, and southeast. The toll structures and luminaires would have slender profiles that would not obstruct views and would be minimally visible from a distance.

The SR 85 corridor is also visible to viewers in more distant areas such as the hills east of US 101 in San Jose. Project signs would be visible in some long-range views, depending on viewer location, and would be consistent with the corridor's existing visual character. The toll structures and luminaires would be minimally visible from a distance.

SR 85 is identified as a scenic urban corridor in the City of San Jose General Plan (San Jose 2011). The General Plan does not set forth specific goals or policies for scenic urban corridors, although Policy CD-10.7 states that the city will work with Caltrans and VTA to ensure that freeways "are maintained and enhanced to include a high standard of design, cleanliness, and landscaping to create a consistent and attractive visual quality." The project signs, toll structures, and luminaires and other light fixtures would not conflict with Policy CD-10.7 or other City of San Jose General Plan goals for SR 85.

The segment of US 101 south of the SR 85/US 101 interchange in southern San Jose has been designated as a County Scenic Highway (southward to Gilroy; County of Santa Clara 1994) and a City of San Jose Rural Scenic Corridor (from Metcalf Road to Bailey Avenue; City of San Jose 2008). The viewshed of approximately 1.5 mile of this 3.3-mile segment is dominated by high-voltage transmission towers and lines on both sides of the freeway (Exhibit K), and particularly by the PG&E Metcalf Substation immediately west of US 101. Northbound US 101 in that segment contains prominent roadway signs, including two sign gantries that span the northbound lanes, one of which is shown in Exhibit L. Southbound US 101 contains an exit sign for the existing double HOV lane connector from SR 85, which would be replaced with an exit sign for the express lane facility. The modification of existing signs or addition of a small number of signs in this area would not substantially affect the visual quality of this segment. No luminaires or other light fixtures are proposed in this segment of US 101. The project signs and toll structures would not conflict with Santa Clara County General Plan or City of San Jose General Plan scenic preservation goals for this segment of US 101.

No project signs, toll structures, or luminaires and other light fixtures are proposed in the segment of US 101 to the north of the SR 85/US 101 interchanges in southern San Jose or in Mountain View. Therefore, these features would not affect the visual quality of US 101 in those areas or conflict with shoreline or inland coastal resources or Bay Conservation and Development Commission visual guidelines for roads along the Bay shoreline.

Impact summary. The project signs, toll structures, or luminaires would represent a low to moderate level of change to the visual setting, and viewer sensitivity would range from low to moderate, depending on the location. These project features are not expected to result in substantial adverse impacts to scenic vistas, scenic resources, or visual quality in or around the project corridor.

Light and Glare

Motorists. The DMS and project lighting would not adversely affect motorists on SR 85 or on US 101 south of the SR 85/US 101 interchange in San Jose. Additional lighting would increase visibility of roadway and traffic conditions, which would benefit motorists by improving safety.

Viewers adjacent to the project corridor. The DMS and project lighting would be visible to viewers at the various land uses adjacent to both sides of the project corridor in locations where the freeway corridor is not shielded by sound walls, trees, tall embankments, or development. Viewers at commercial, industrial, and community land uses would not be sensitive to changes in nighttime lighting in the project corridor because activities at these land uses occur primarily during daytime hours.

Viewers at residential land uses could be sensitive to changes in nighttime lighting in the project corridor. The sensitivity of viewers would depend on their distance from and viewing angle of the project corridor, as well as the degree to which the DMS and luminaires are shielded or blocked by topography, sound walls, trees, or other development. In most locations, where views of these project features would be shielded or blocked, viewers adjacent to SR 85 would have low sensitivity. In locations where these project features would have greater visibility, viewers would have moderate sensitivity.

Project lighting from the DMS and luminaires would not be expected to result in daytime or nighttime glare or light intrusion to residences adjacent to the project corridor for the following reasons:

- The DMS components of the signs would have sensors that automatically adjust the brightness of the toll cost numbers to ambient light conditions, so that the light-emitting diode (LED) components are no brighter than needed for motorist visibility at any time.
- Lighting for non-DMS signs would be activated by photocell sensors and would have a fixed level of brightness. Signs listing upcoming exits and distances, as well as other roadway signs that do not direct motorist actions, are not required to be illuminated unless the signs are illegible without fixed lighting.

- The proposed luminaires and other light fixtures would have LEDs configured at the minimum necessary illumination level and optimal angle to restrict light to the freeway right-of-way. Shields on the fixtures to prevent light trespass to surrounding properties would be considered during the detailed design phase. The proposed luminaires would be the same or similar to those used by the Department on Dumbarton Bridge and approved for use on other roadways. LED fixtures minimize light trespass, uplighting (i.e., urban sky glow), and reflected light from the roadway compared with high-pressure sodium fixtures (Leotek 2013).

  The distance of the light spread by an LED fixture similar to the type proposed for this project ranges from 50 to 80 feet in front of the fixture and from 20 to 50 feet behind the fixture, depending on configuration and shielding (ALR 2013). The extent of the light spread by LED fixtures would remain within the freeway right-of-way. In addition, the distance and pattern of the light distribution would be controlled by the number of LED bulbs, mounting height, mast-arm length, shielding, and angle of the fixture as part of project design.

- The DMS and other signs and the luminaires would be placed in the median, as far as practicable from nearby sensitive viewers.

Viewers in more distant areas. The project corridor is also visible to viewers in more distant areas such as the hills east of US 101 in San Jose. Viewers at these types of locations could be sensitive to changes in nighttime lighting in and along the project corridor. As the lighting would be designed to avoid trespass beyond the freeway, adverse impacts to viewers in these locations are not anticipated.

Impact summary. Illumination from the DMS and project lighting would represent a moderate level of change to the visual setting, and viewer sensitivity would range from low to moderate, depending on the location. However, daytime or nighttime glare or light intrusion is not anticipated outside of the freeway corridor. Signs would be illuminated as needed for motorist visibility and safety, and would not result in inappropriate intensities of light and glare. LED luminaires minimize direct uplighting and reflected light from the roadway compared with high-pressure sodium luminaires, and would not contribute appreciably to urban sky glow. Nighttime lighting from the luminaires and other fixtures would be confined to the SR 85 right-of-way, with minimal glare or trespass affecting surrounding residences and other properties. Lighting associated with the overhead signage and luminaires is not expected to result in light trespass, surface brightness, or glare to motorists, adjacent residents, or other viewers along the project corridor. No substantial adverse changes to scenic vistas, scenic resources, or visual quality in or around the project corridor would occur from light trespass, glare, or surface brightness.

2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures

As the project is not expected to result in visual impacts, no avoidance, minimization, and/or mitigation measures are proposed.

2.1.5 Cultural Resources

The following section is based on information from the *Archaeological Survey Report* (ASR; URS 2013e), *Historic Property Survey Report* (HPSR; URS 2013f), *Extended Phase I Study* (URS 2013g), and *Environmentally Sensitive Area Action Plan* (URS 2013h) completed for the proposed project in June 2013.

2.1.5.1 Regulatory Setting

The term “cultural resources” as used in this document refers to all “built environment” resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations [CFR] 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, the Federal Highway Administration (FHWA), State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the Advisory Council’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA’s responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

The Archaeological Resources Protection Act (ARPA) applies when a project may involve archaeological resources located on federal or tribal land. The ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties.

Historical resources are considered under the California Environmental Quality Act (CEQA) as well as CA Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way.

2.1.5.2 Affected Environment

The study areas for cultural resources investigations are referred to as Areas of Potential Effects (APEs). The archaeological APE is limited to the SR 85 and US 101 Department right-of-ways and project limits. The APE represents the maximum extent of project-related activities for the proposed undertaking. The APE includes all areas that could be permanently or temporarily affected by the proposed project, including for construction staging and laydown.

The vertical APE extends to a maximum of 50 feet below ground surface at bridge widening locations, 25 feet below ground surface at overhead sign locations and 12 feet below ground surface at toll structure locations. The remaining construction activities (trenching, bioswales, pavement installation, and retaining wall foundations) have a maximum vertical APE of 5 feet below ground surface.

The architectural APE, which typically includes any adjacent parcels with buildings or structures that could be affected by a project, is the same as the archaeological APE because the proposed project is entirely within the Department right-of-way, would not affect buildings or structures, and does not propose new sound walls.

Records and Archival Review

A cultural resources records search was conducted by the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS), at California State University, Sonoma, for the APE and a 1-mile radius. Reports for previous studies were reviewed for the APE and a 0.25-mile radius. Other standard cultural resource inventories and references were also reviewed. There are 21 cultural resources within the APE.

No additional sites have been identified that would qualify as historical resources for purposes of CEQA.

Native American Consultation

The Native American Heritage Commission (NAHC) was contacted on October 27, 2011, to request a search of the Sacred Lands File for cultural resources of significance to Native Americans within or near the APE. The NAHC responded on November 2, 2011, that no sacred lands were identified in the project APE. The NAHC provided a list of Native Americans who may have concerns about the project or knowledge of cultural resources in the area. Letters or e-mails requesting comments and concerns about the project were sent to each individual on the list in November 2011, and follow-up e-mails and calls were placed. Three responses were received. Representatives of the Amah Mutsun Tribal Band and the Trina Marine Ruano Family expressed concern about the archaeological sensitivity of the area and asked that a Native American monitor be present during construction activities. A representative of the Ohlone Indian Tribe requested more information about project activities and asked if a Native American monitor would be recommended.

The same individuals were contacted by e-mail and postal mail in March 2012 regarding a change in the project APE, and again by e-mail in August 2012 regarding the plan to conduct subsurface testing. A representative of the Ohlone Indian Tribe inquired if a Native American monitor would be present during subsurface testing, and how that monitor would be selected. The Caltrans Office of Cultural Resources responded to the inquiry. No further inquiries were made.

The final cultural reports were sent to the tribes/individuals on the NAHC contact list as well.

Field Survey Results

A substantial portion of the APE is paved and/or has been previously surveyed. Accessible portions of the archaeological APE were surveyed by archaeologists in November 2011 and May

2012. All of the recorded sites within the APE were examined. No previously unrecorded archaeological sites were identified in the APE as a result of the surface survey. No cultural resources were identified.

Potential for Presence of Buried Resources

The project would require subsurface disturbance in the form of overhead sign and toll structure equipment installation, TOS equipment installation, bridge deck widening, and utility trenching. Previous studies and project vicinity geomorphology were used to develop a model of weighted sensitivity to assess the APE's likelihood to contain buried archaeological deposits. The model revealed that the APE contains areas of high or very high sensitivity for buried archaeological resources.

Because the APE contains archaeologically sensitive areas, subsurface geoarchaeological explorations were undertaken as a good-faith effort to identify obscured or buried archaeological resources that could be affected by project construction. No cultural resources were found during the subsurface testing.

2.1.5.3 Environmental Consequences

No construction activities would take place in any of the previously determined eligible and unevaluated sites, and no surface deposits related to the sites were identified during the field surveys. Therefore, the cultural resources finding for this project is No Adverse Effect with Standard Conditions – Environmentally Sensitive Areas (ESAs). The Department submitted the cultural resources studies to the SHPO for notification purposes in June 2013.

The project would not cause a substantial adverse change to a historical or archaeological resource as defined by CEQA, or affect or use any Section 4(f) historic resource.

2.1.5.4 Avoidance, Minimization and/or Mitigation Measures

To ensure avoidance of all previously determined eligible and unevaluated sites, the sites will be designated as ESAs for the duration of the project in accordance with the requirements set forth in the *Environmentally Sensitive Area Action Plan* (URS 2013h). The requirements include delineating ESAs on all project plans, conducting a preconstruction meeting with construction personnel to ensure that ESAs are properly understood, and coordinating/monitoring ESA installation by the contractor. In addition, an archaeologist will conduct field reviews of the ESAs to ensure that they remain intact and are not compromised.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the District Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

The following discussion is based on the *Location Hydraulic Study Report* (WRECO 2013a) for the proposed project, which was completed in March 2013.

2.2.1.1 Regulatory Setting

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

2.2.1.2 Affected Environment

The proposed project crosses a total of 18 waterways, one of which, Stevens Creek, is crossed in four locations for a total of 21 crossings. The total watersheds of the 18 waterways are approximately 450 square miles (WRECO 2013a). Waterways (or creeks, streams, and river crossings) within the project limits include Matadero Creek, Adobe Creek, Permanente Creek, Stevens Creek, Permanente Diversion, Regnart Creek, Calabazas Creek, Rodeo Creek, Saratoga Creek, Vasona Creek, San Tomas Aquino Creek, Smith Creek, Smith Creek (East Channel), Los Gatos Creek, Ross Creek, Guadalupe River, Canoas Creek, and Coyote Creek.

Twenty areas of the project corridor are in Federal Emergency Management Agency (FEMA) delineated floodplains. These areas are shown in Figures 2.2.1-1 through 2.2.1-3.

Several areas of potential flooding also exist along SR 85 within the project limits. FEMA Flood Insurance Rate Maps (FIRMs) show large portions of the cities of Mountain View and Saratoga as within Flood Hazard Zone X, which typically represents shallow flooding of less than a foot. These areas include significant portions of SR 85 and may be a source of traffic disruption.

There are also floodplains at San Tomas Aquino Creek, Vasona Creek, and two of the Stevens Creek crossings. At these floodplains, information is not available to predict whether flooding would disrupt freeway traffic.

Portions of US 101 at the northern end of the project fall within the 1 percent annual chance floodplain.[8] Zone AE, a 100-year floodplain caused by high tides from San Francisco Bay, covers northbound and southbound US 101 from the Embarcadero Road interchange to the Rengstorff Avenue interchange. The Embarcadero Road, Oregon Expressway, San Antonio Road, Rengstorff Avenue, and Old Middlefield Way interchanges could have areas of traffic disruption because the streets in question could be inundated during the 1 percent annual chance flood event.

2.2.1.3 Environmental Consequences

Longitudinal Encroachment

As defined by FHWA, a longitudinal encroachment is an action within the limits of the base floodplain that is longitudinal to the normal direction of the floodplain. The project does not constitute a longitudinal encroachment of the base floodplain. With the exception of portions of Stevens Creek and Coyote Creek, the project would be perpendicular to all creek crossings. Stevens Creek runs parallel to SR 85, and Coyote Creek runs parallel to US 101 within the project limits. No widening is proposed in the vicinity of either of these creeks. The project would not cause longitudinal encroachments into the base floodplain.

Risks of the Action

Of the 20 floodplains, 12 are outside of areas of roadway widening or re-grading and therefore would not be affected by the project: a tidal floodplain at Matadero and Adobe Creeks; the crossings of Permanente Creek, Stevens Creek (all four locations), Permanente Diversion, Canoas Creek, and Coyote Creek; and three other floodplain areas along Coyote Creek. Of the remaining eight floodplains, three are at bridges that would not be widened as part of this project: Calabazas Creek, Los Gatos Creek, and Guadalupe River. The Saratoga Creek and San Tomas Aquino Creek floodplains are at bridges that would be widened as part of this project. The remaining three floodplains are at cross culverts where all widening would take place in the median. These culverts are at the crossings of Rodeo, Vasona, and Ross creeks. Rodeo and Ross creeks are known to be contained within the culvert at their respective crossings, while water surface elevations at the Vasona Creek crossing are not known. The work on SR 85 over Rodeo, Ross, and Vasona Creeks consists of paving the existing dirt median, placing concrete median barriers, and replacing the existing inside shoulder with new structural section. These activities would not affect the box culverts or creeks. No overhead signs, toll structures, or luminaires would be installed at the culvert crossings.

[8] The 1 percent annual chance floodplain is also referred to as the 100-year floodplain or base floodplain.

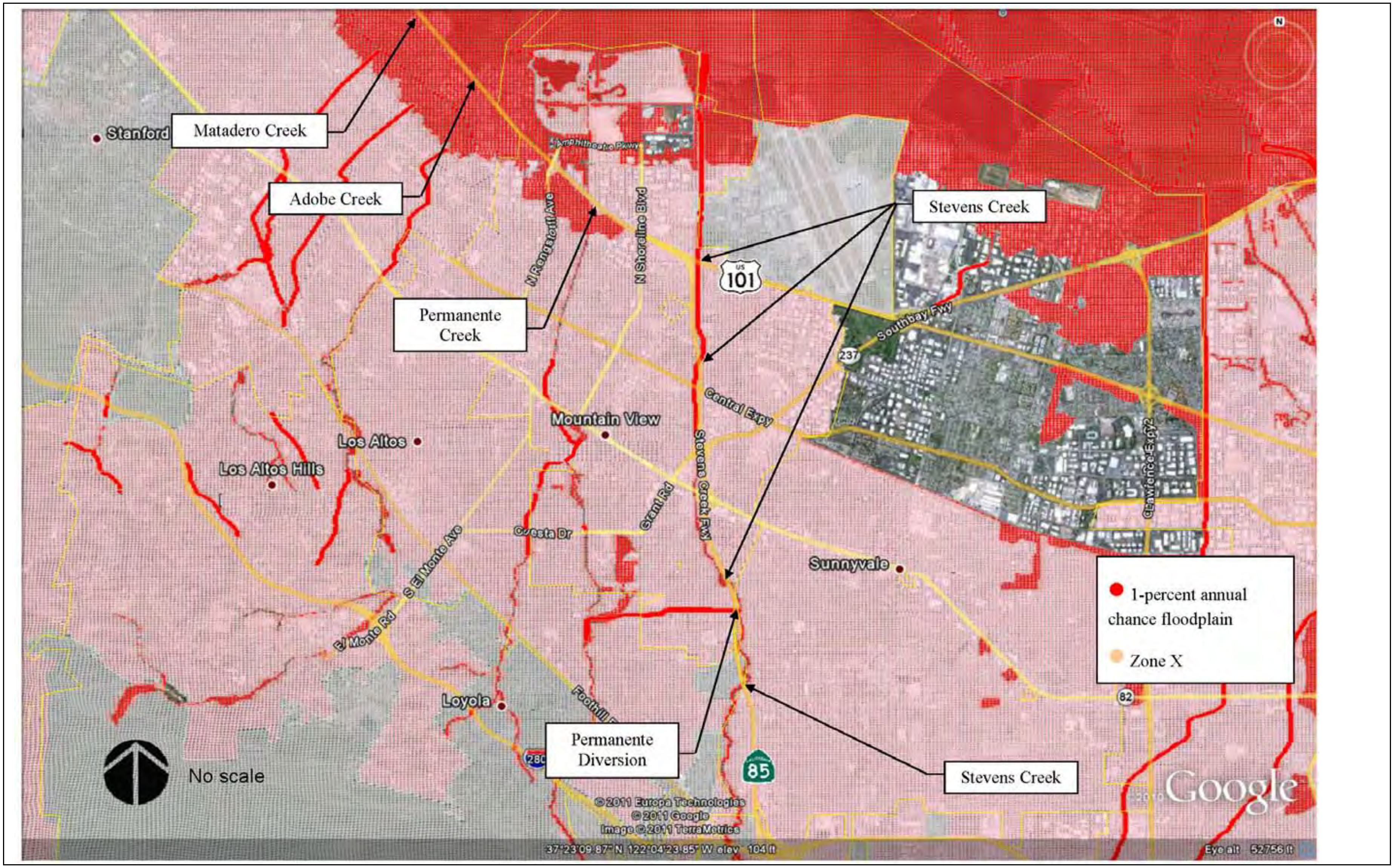

Figure 2.2.1-1: Waterways and Floodplains in the Project Area (Figure 1 of 3)

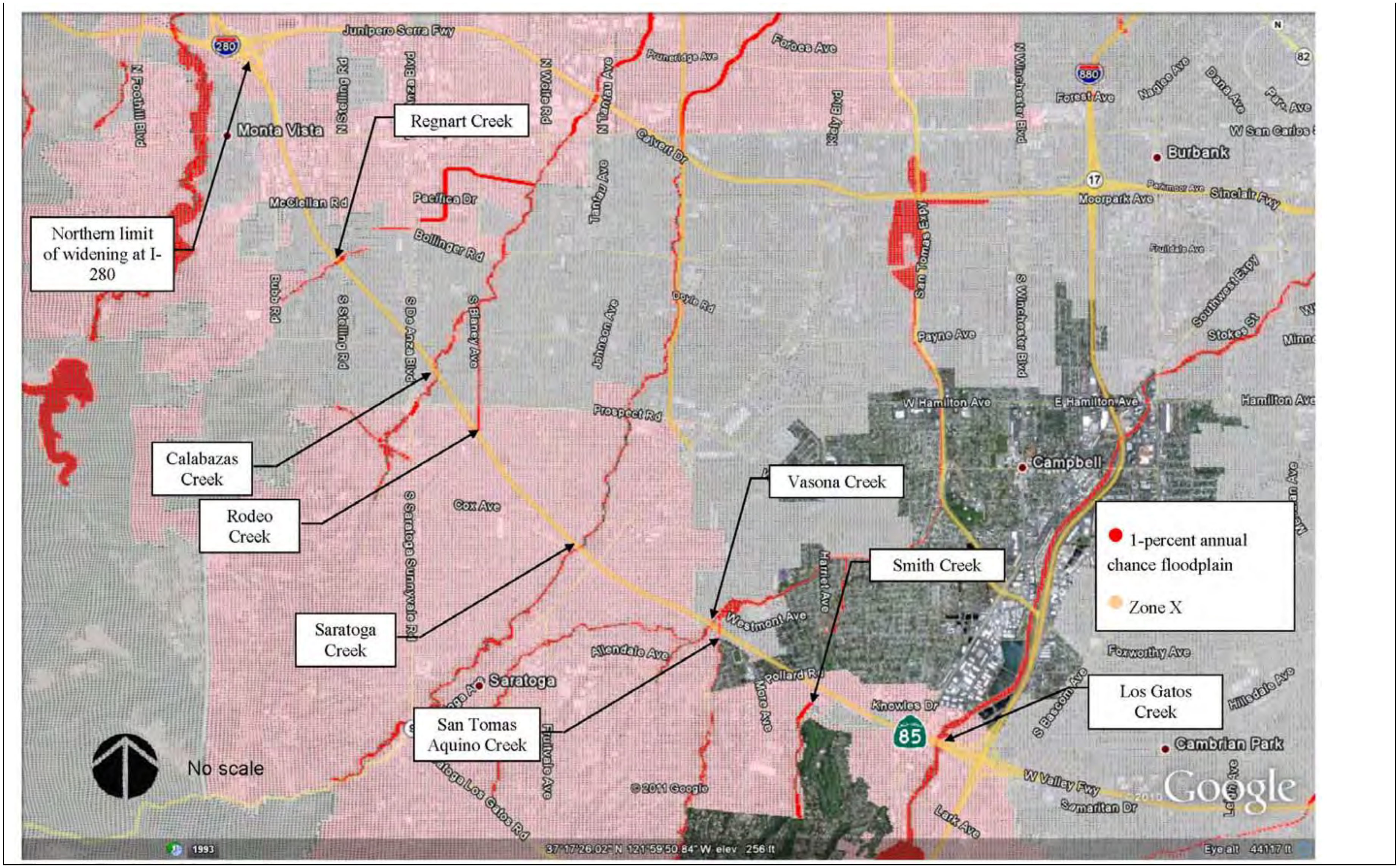

Figure 2.2.1-2: Waterways and Floodplains in the Project Area (Figure 2 of 3)

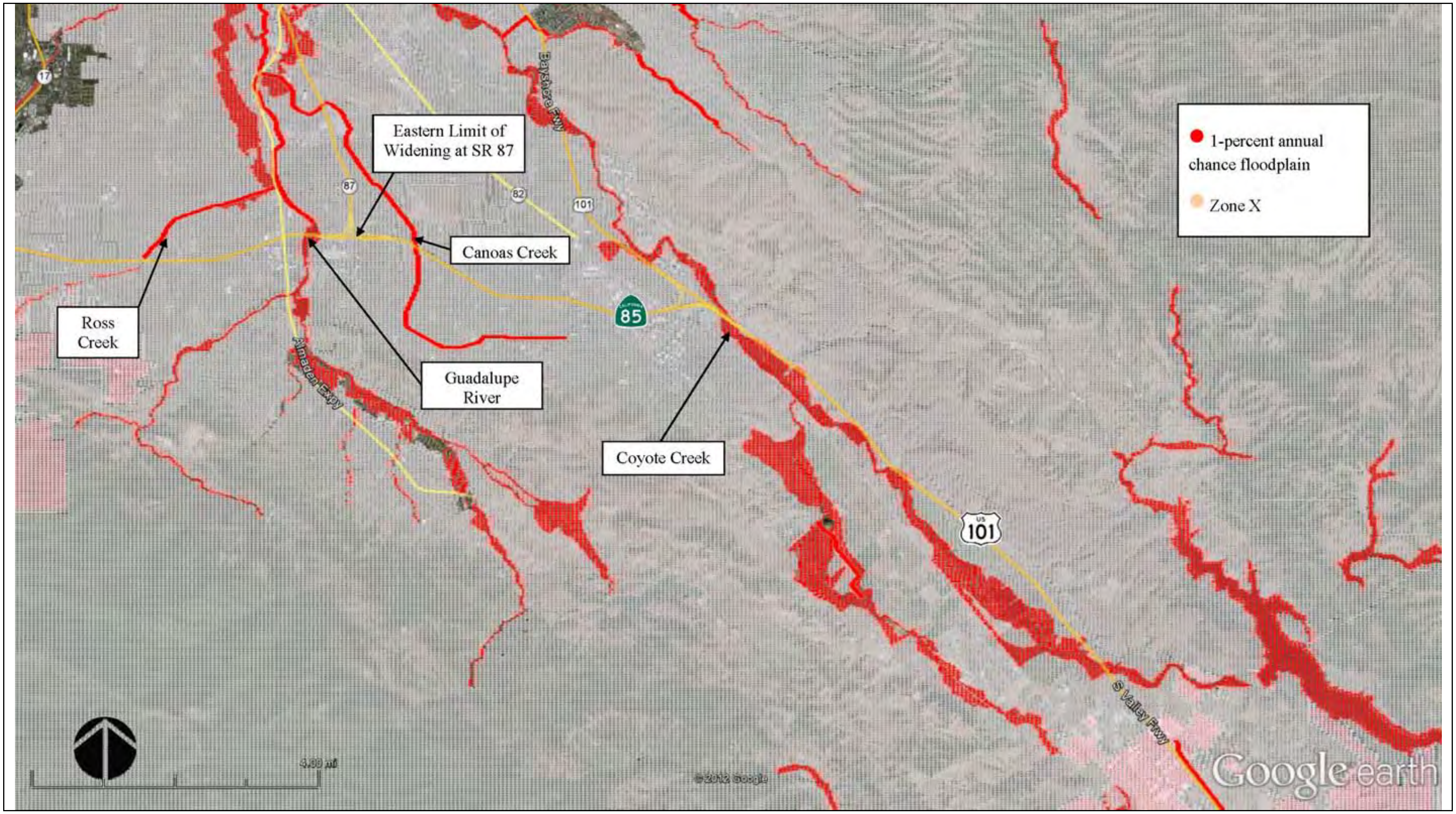

Figure 2.2.1-3: Waterways and Floodplains in the Project Area (Figure 3 of 3)

The project would increase the amount of impervious surfaces by 40.1 acres along SR 85 between I-280 and SR 87 as a result of median widening and the addition of an auxiliary lane between South De Anza Boulevard and Stevens Creek Boulevard. The average increase in roadway runoff, however, would be minimal compared to the overall watershed drainage areas for the creeks (0.01 percent) (WRECO 2013a). The project would not result in substantial increases in water surface elevations. The reworked impervious area would be 27.4 acres. The project would provide permanent storm water treatment for 100 percent of the net added and reworked impervious area, equal to 67.5 acres. The detailed evaluation of best management practices (BMPs), selection of BMP types, and BMP locations and treatment areas will be further refined during detailed project design (WRECO 2013c).

The project would maintain the existing roadway profile. The effects to the floodplain would be minimal because of the relatively minor increases in impervious area compared to the total watershed areas.

Natural and Beneficial Floodplain Values

Various areas within the project limits have natural and beneficial floodplain values. These areas include waters of the U.S., potential wetlands, and varying types of riparian forest. None of the areas listed as being potential waters of the U.S. or wetlands would be affected. Work would occur along the banks and riparian corridors of San Tomas Aquino and Saratoga creeks for bridge widening, but no in-water work is proposed. The project would not adversely affect natural and beneficial floodplain values.

Incompatible Floodplain Development

This project would not support incompatible floodplain development. The project would not create new access to developed or undeveloped land.

2.2.1.4 Avoidance, Minimization and/or Mitigation Measures

The proposed project has been designed to avoid and minimize encroachments and impacts to the maximum extent practicable. With implementation of the avoidance and minimization measures described in Section 2.2.2.4 and 2.3.2.4, the project would avoid impacts on natural and beneficial floodplain values. Measures to address the minor increase in impervious surfaces that would result from the project are described in Section 2.2.2.4. No additional avoidance, minimization, and/or mitigation measures are required.

2.2.2 Water Quality and Storm Water Runoff

This section is based on the *Water Quality Study Report* (WRECO 2013b), which was completed in May 2013. Hydrology and floodplains are discussed in Section 2.2.1.

2.2.2.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source[9] unlawful unless

[9] A point source is any discrete conveyance such as a pipe or a man-made ditch.

the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections are:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the USACE’s Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s (U.S. EPA’s) Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[10] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just Waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

[10] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department’s MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit has basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the state to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ) as amended by 2010-0014 DWQ, adopted on November 16, 2010, became effective on February 14, 2011. The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP).[11] In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the California Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

[11] The Storm Water Pollution Prevention Plan (SWPPP) is a document that addresses water pollution control for construction projects. The SWPPP describes potential sources of storm water pollution, discusses activities associated with construction, and identifies Best Management Practices (BMPs) to reduce storm water pollution.

Regional and Local Requirements

The agencies in Santa Clara County have formed a countywide program known as the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) to assist with compliance with their permit requirements. SCVURPPP is an association of 13 cities and towns in Santa Clara Valley, Santa Clara County, and the SCVWD that share a common NPDES permit issued by the San Francisco Bay RWQCB to discharge storm water to South San Francisco Bay.

2.2.2.2 Affected Environment

Water resources in the Santa Clara Valley include both surface and groundwater features and supplies. Surface water includes local reservoirs and imported water from statewide reservoirs, the California Water Project, and federal Central Valley Project. Groundwater resources derive from rainfall as well as recharge from the surface water sources.

Surface Water Resources

As described in Section 2.2.1.2, the project corridor crosses 18 waterways, one of which, Stevens Creek, is crossed four times. Surface waters in the project corridor consist of Matadero Creek, Adobe Creek, Permanente Creek, Stevens Creek, Permanente Diversion, Regnart Creek, Calabazas Creek, Rodeo Creek, Saratoga Creek, Vasona Creek, San Tomas Aquino Creek, Smith Creek, Smith Creek (East Channel), Los Gatos Creek, Ross Creek, Guadalupe River, Canoas Creek, and Coyote Creek.

The 2010 Integrated Report (Clean Water Act Section 303[d] List / 305[b] Report) lists Matadero Creek, Permanente Creek, Stevens Creek, Calabazas Creek, Saratoga Creek, Los Gatos Creek, Guadalupe River, Coyote Creek, and San Francisco Bay South as impaired water bodies. These water bodies are subject to TMDL requirements that limit the amount of a given pollutant that a water body can receive without violating water quality standards and designated uses. Table 2.2.2-1 shows the list of pollutants, pollutant sources, and proposed or approved TMDL dates for each water body.

Table 2.2.2-1: Surface Water Quality in the Project Corridor

Stream Name	303(d) Listed Pollutant	Potential Source	TMDL Completion Date
Matadero Creek	Diazinon	Urban runoff/storm sewers	2007
	Trash	Illegal dumping, Urban Runoff/Storm Sewers	2021
Permanente Creek	Diazinon	Urban runoff/storm sewers	2007
	Selenium (Total)	Source unknown	2021
	Toxicity	Source unknown	2021
	Trash	Illegal dumping, Urban Runoff/Storm Sewers	2021
Stevens Creek	Diazinon	Urban runoff/storm sewers	2007
	Temperature, Water	Channelization, Habitat modification, removal of riparian vegetation	2021
	Toxicity	Source unknown	2019
	Trash	Illegal dumping, Urban Runoff/Storm Sewers	2021
Calabazas Creek	Diazinon	Urban runoff/storm sewers	2007

Table 2.2.2-1: Surface Water Quality in the Project Corridor, continued

Stream Name	303(d) Listed Pollutant	Potential Source	TMDL Completion Date
Saratoga Creek	Diazinon	Urban runoff/storm sewers	2007
	Trash	Illegal dumping, Urban Runoff/Storm Sewers	2021
Los Gatos Creek	Diazinon	Urban runoff/storm sewers	2007
Guadalupe River	Diazinon	Urban runoff/storm sewers	2007
	Mercury	Mine tailings	2008
	Trash	Illegal dumping, Urban Runoff/Storm Sewers	2021
Coyote Creek	Diazinon	Source unknown	2007
	Trash	Illegal dumping, Urban Runoff/Storm Sewers	2021
San Francisco Bay, South	Chlordane	Nonpoint source	2013
	Dichlorodiphenyltrichloroethane (DDT)	Nonpoint source	2013
	Dieldrin	Nonpoint source	2013
	Dioxin Compounds (including 2,3,7,8-TCDD)	Atmospheric deposition	2019
	Furan Compounds	Atmospheric deposition	2019
	Invasive Species	Ballast water	2019
	Mercury	Atmospheric deposition, industrial point sources, municipal point sources, natural sources, nonpoint source, resource extraction	2008
	Polychlorinated biphenyls (PCBs)	Unknown nonpoint source	2008
	PCBs (dioxin-like)	Unknown nonpoint source	2008
	Selenium	Domestic Use of Ground Water	2019

The project corridor is in an area susceptible to hydromodification.[12] The channels that are lined or do not have any added impervious area due to the proposed project are considered exempt from hydromodification susceptibility. The remaining channels are considered susceptible and would be analyzed in detail during the design phase of the project.

Groundwater Resources

The proposed project is in the Santa Clara Valley Sub-basin of the San Francisco Bay Hydrologic Region. The sub-basin is bordered by the Diablo Range on the east and the Santa Cruz Mountains on the west. The SCVWD operates several percolation ponds for recharging groundwater facilities. The channels in the project area that have off-stream recharge facilities are Stevens Creek, Los Gatos Creek, Vasona Creek, Guadalupe River, and Coyote Creek.

Groundwater depths vary considerably over the project corridor, from as little as 3 feet below ground surface at North Shoreline Boulevard (northwest of the US 101/SR 85 interchange in Mountain View) to depths where groundwater was not encountered within

[12] Hydrograph modification (commonly known as hydromodification) is the alteration of natural stream hydrology by human activity. For example, an increase in impervious area can decrease infiltration and increase storm water runoff, which in turn can increase downstream erosion to unlined channels.

100 feet below ground surface (multiple locations, primarily on SR 85). The section of SR 85 between SR 17 and SR 87 generally had the deepest groundwater of the locations studied. A groundwater study was performed within the SR 85 corridor based on historic boring data, as-built information, and current topography and geologic information. The study found that groundwater was encountered from 23 feet to 78 feet below ground surface at elevations 119 feet to 196 feet.

The SCVWD manages the groundwater basin that underlies Santa Clara Valley to ensure that sufficient water is present to enable the owners of wells to withdraw the water they need without causing land subsidence. Various measures are implemented by the SCVWD to protect the quality of groundwater. There are about 6,700 registered public and private supply wells located in Santa Clara County. Private wells are responsible for only 1 to 2 percent of total withdrawals from the groundwater basin underlying Santa Clara Valley.

According to the Urban Water Management Plan (SCVWD 2010), the overall groundwater quality in Santa Clara County is very good, and water quality objectives are achieved in most wells. The SCVWD monitors groundwater quality to assess current conditions and identify trends or areas of special concern. Wells are monitored for major ions, such as calcium and sodium, nutrients such as nitrate, and trace elements such as iron. Wells are also monitored for human-made contaminants, such as organic solvents.

2.2.2.3 Environmental Consequences

Short-Term (Construction) Impacts

During construction, the Build Alternative has the potential for temporary water quality impacts from grading activities and vegetation removal, which can increase erosion. Untreated storm water runoff from the project may transport pollutants to nearby creeks and storm drains. Storm water runoff drains into the creeks listed in Section 2.2.2.3 and eventually discharges to lower South San Francisco Bay. Generally, as the DSAs increase, the potential for temporary water quality impacts also increases.

The proposed project has an estimated DSA of 75.4 acres. Based on the preliminary calculated area, the project has the potential for water quality impacts during construction. Fueling or maintenance of construction vehicles could take place within the project area during construction, so accidental spills or releases of fuels, oils, or other potentially toxic materials could occur. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or surface water bodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

Project excavation work would mostly consist of roadbed construction for the new express lanes and abutment construction for widened bridges. Preliminary geotechnical information indicates that there is a low risk for groundwater to be encountered except if installing foundations for overhead signs, toll structures, abutment construction for SR 85 bridge widening, or other excavation that would extend below the seasonal high water table.

The project proposes to widen the SR 85 bridges over Saratoga and San Tomas Aquino creeks by closing the gap between the northbound and southbound bridges, as described in Section 1.3.1.9. Construction would be conducted from the bridge decks and creek banks, in the riparian zone but above the ordinary high water mark.[13] No temporary creek diversions would be necessary.

Project construction activities such as vegetation removal could cause temporary impacts to riparian habitat in the project area. Potential temporary impacts would be avoided or minimized with the implementation of the BMPs described in Sections 2.2.2.4 and 2.3.2.4.

Long-Term (Permanent) Impacts

Street and highway storm water runoff has the potential to affect receiving water quality. The nature of these impacts depends on the uses and flow rate or volume of the receiving water, rainfall characteristics, and street or highway characteristics. Heavy metals associated with vehicle tire and brake wear, oil and grease, and exhaust emissions are the primary pollutants associated with transportation corridors.

Generally, highway storm water runoff has the following pollutants: total suspended solids, nitrate nitrogen, total Kjeldahl nitrogen, phosphorous, ortho-phosphate, copper, lead and zinc (Caltrans 2003). Some sources of these pollutants are natural erosion, phosphorus from tree leaves, combustion products from fossil fuels, and the wearing of brake pads and tires. The No Build Alternative could have permanent water quality impacts due to continuing congestion, and subsequently a greater deposition of particulates from exhaust and heavy metals from braking. There are no known existing treatment BMPs along SR 85 within the project limits to treat roadway runoff; therefore, the water quality of the receiving water bodies would still be affected by highway runoff without the project.

The project would increase impervious area and therefore potentially increase the volume and velocity of storm water flow to receiving water bodies, and increase the pollutants in the storm water, referred to as pollutant loading. The added impervious area is directly related to the potential permanent water quality impacts and is estimated to be approximately 40.14 acres. Storm water runoff from the project drains into creek crossings beneath SR 85. It also drains into nearby storm drain systems, which ultimately discharge into San Francisco Bay. Storm water runoff volumes and velocities from the project area are expected to increase with the implementation of the project due to the increase in impervious surfaces.

The increase in storm water runoff volume will potentially increase export of pollutants to receiving waters both in quantity and speed of the delivery. The project treatment and hydromodification strategy is to maximize and promote infiltration and metering or detain flows prior to discharge to a receiving waterbody or to an MS4. The use of treatment BMPs will help to minimize or avoid the export of pollutants of concern to receiving waters. The threshold for treatment of more than 1 acre of new and reworked pavement could be considered as a threshold for significance. The use of treatment BMPs (detention and infiltration) will help to minimize or avoid the export of pollutants of concern to groundwater resources, considering the relatively low groundwater levels within the project area. In addition, groundwater resources in the area do not represent a “sole source aquifer”

[13] The USACE defines the ordinary high water mark as “the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 CFR 328.3[e]). The ordinary high water mark is used in the identification of waters of the United States, which are discussed further in Section 2.3.2.

(meaning that groundwater is not the only source of domestic water), and groundwater is treated prior to municipal use.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

The project would avoid ESAs in or adjacent to the project limits. The proposed ESAs include designated biological habitat and wetlands and other waters of the U.S. and the state. Measures would be employed to prevent construction material or debris from entering surface waters or their channels. BMPs for erosion control would be implemented and in place prior to, during, and after construction in order to ensure that no silt or sediment enters surface waters. To avoid storm water impacts, the project would be phased to minimize soil-disturbing work during rain events. Avoidance, minimization, and mitigation measures for wetlands and other waters of the U.S. are discussed in Section 2.3.2.4. Measures for minimal impacts to waters of the state at San Tomas Aquino and Saratoga creeks are discussed in Section 2.3.1.3.

The project has the potential to encounter groundwater during installation of foundations for overhead signs, toll structures, bridge abutments, or other excavation that extends below the seasonal high water table. Early discussion will be initiated with the Department’s Branch of Water Pollution Control regarding the handling and disposal of this water. Project-specific WDRs may be required from the RWQCB if substantial dewatering is needed.

The Department would require its contractors to implement a SWPPP to comply with the conditions of the Department’s NPDES permit and to address the temporary water quality impacts resulting from the construction activities associated with this project. The SWPPP will describe potential sources of storm water pollution, discuss activities associated with construction, and identify BMPs to reduce storm water pollution. The SWPPP will also be in compliance with the goals and restrictions identified in the San Francisco Bay RWQCB’s Basin Plan. Standard Special Provision (SSP) 07-345 will be included in the PS&E to address the preparation of the SWPPP document and the implementation of the SWPPP during construction.

In addition, permanent erosion control BMPs would be addressed as part of project design. Feasible short-term (construction) and long-term (permanent) BMPs for the project are described below.

Short-Term (Construction) BMPs

Adverse impacts can occur during construction-related activities. Soil erosion, especially during heavy rainfall, can increase the suspended solids, dissolved solids, and organic pollutants in storm water runoff generated within the project area. Potential temporary impacts to water quality can be prevented or minimized by implementing standard BMPs recommended for a particular construction activity.

Erosion control measures will be applied to all exposed areas during construction, including the trapping of sediments within the construction area through the placing of barriers, such as silt fences, at the perimeter of downstream drainage point or through the construction of temporary detention basins. The project will also implement other methods of minimizing erosion impacts, including hydromulching (spraying mulch mixed with liquid to help it adhere to the ground) and/or limiting the amount and length of exposure of graded soil.

Approved erosion control BMPs are described in the Department's Project Planning and Design Guide (2010). Temporary erosion control and water quality measures will be defined in detail in the Erosion Control and Water Pollution Control design sheets prepared for the project, which will also include the specifications for the SWPPP. Temporary control BMPs would be necessary for the project to comply with the CGP and the Statewide Permit and will be detailed during the Plans, Specifications and Estimates (PS&E) phase. Table 2.2.2-2 lists the suggested minimum measures that would be considered. Furthermore, during construction, the contractor would be required to detail in the SWPPP the actual in-field implementation of BMPs, plus amend the SWPPP as necessary to match field conditions and phasing of the project.

Table 2.2.2-2: Minimum Requirements for Temporary BMPs

Category	Minimum Requirements
Soil Stabilization	Move In/Move Out (Temporary Erosion Control)
	Temporary Cover
	Temporary Fence (Type ESA)
Sediment Control	Temporary Fiber Rolls
	Temporary Silt Fence
	Temporary Gravel Bag Berm
	Temporary Check Dams
	Temporary Drainage Inlet Protection
Tracking Control	Temporary Construction Entrances/Exits
	Street Sweeping
Non-Storm Water Management	All other anticipated non-storm water management measures are covered under the Job Site Management.
Waste Management and Materials Pollution Control	Temporary Concrete Washout Facilities
	All other anticipated waste management and materials pollution control measures are covered under Job Site Management.
Job Site Management	Spill prevention and control, materials management, stockpile management, waste management, hazardous waste management, contaminated soil, concrete waste, sanitary and septic waste and liquid waste.
	Water control and conservation, illegal connection and discharge detection and reporting, vehicle and equipment cleaning, vehicle and equipment fueling and maintenance, material and equipment used over water, structure removal over or adjacent to water, paving, sealing, saw cutting and grinding operations, thermoplastic striping and pavement markers, concrete curing and concrete finishing.
	Training of employees and subcontractors, and proper selection, deployment and maintenance of construction site BMPs.
Sampling and Monitoring	Sampling and monitoring during a qualified storm event.

Long-Term (Permanent) BMPs

The project will increase impervious area and therefore potentially increase the volume and velocity of storm water to receiving waters. To comply with the Statewide Permit (Order No. 99-06 DWQ), the Department would take measures to reduce, to the maximum extent practicable, pollutant loadings from the facility once construction is complete. The permit stipulates that permanent measures that control pollutant discharges must be considered and implemented for all new or reconstructed facilities. Permanent control measures located within the Department's right-of-way reduce pollutants in storm water runoff from the roadway. These measures reduce the suspended particulate loads, and thus pollutants associated with the particulates, from entering waterways. The measures would be incorporated into the final engineering design or landscape design of the project and would take into account expected runoff from the roadway. In addition, the NPDES permit also stipulated that an operation and maintenance program be implemented for permanent control measures. This category of water quality control measures can be identified as including both design pollution prevention and treatment BMPs.

The following design pollution prevention BMPs are proposed for this project:

- Permanent erosion control measures applied to all new or exposed slopes in consideration of downstream effects;
- Proper design of drainage facilities to handle concentrated flows;
- Slope and surface protection systems; and
- Preservation of existing vegetation.

Based on preliminary treatment analysis, the feasible treatment BMPs for the project are biofiltration strips, infiltration devices, Austin sand filters, and detention devices. The proposed project is a major reconstruction project that directly or indirectly discharges to a surface water body and creates more than 1 acre of impervious surfaces, thus treatment BMPs are being considered.

Potential treatment BMP locations are limited due to the following site conditions: side slopes in cut, steep slopes, retaining/sound walls, and vector control considerations. As such, the treatment of all newly created impervious areas is not currently feasible without further design efforts. Further detailed drainage and storm water design efforts will be made during the design phase to achieve the required treatment of impervious area.

In addition to treatment BMPs, the project would incorporate BMPs to maintain or restore pre-project hydrology to the levels that would satisfy hydromodification requirements per the SCVURPPP. The measures could include structural measures, such as underground detention, and nonstructural measures, through the modification of proposed treatment BMPs to accommodate flow and volume control. The proposed measures must be designed to show that runoff discharge rates and durations match the pre-project discharge rates and durations from 10 percent of the pre-project 2-year peak flows up through the pre-project 10-year peak flows. The post-project discharge rates should not exceed the pre-project rates by more than 10 percent for more than 10 percent of the record duration. For the outfalls susceptible to hydromodification impacts, an increase in impervious surface area can be evaluated using computer modeling, such as the Bay Area Hydrology Model, and by evaluating a watershed for cumulative effects from impervious surface and pollutant runoff. Computer modeling would be performed during the project design phase when detailed survey information becomes available.

2.2.3 Geology/Soils/Seismic/Topography

The following discussion is based on the *Preliminary Geotechnical Report* (URS 2011a) and the *Supplement to Preliminary Geotechnical Report* (URS 2013i) for the proposed project, which were completed in June 2011 and February 2013, respectively.

2.2.3.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department’s Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using the Department’s Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department’s Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

2.2.3.2 Affected Environment

Site Geology

The project corridor is on the western margin of the Santa Clara Valley within the San Francisco Bay block, in the central portion of the Coast Ranges geomorphic province of California. Northwest-to-southeast-trending valleys and ridges characterize the regional morphology of the Coast Ranges geomorphic province. These topographic features are controlled by folds and faults that resulted from the collision of the Farallon and North American plates and subsequent predominantly strike-slip faulting along the San Andreas fault system between the Pacific and North American plates. The San Francisco Bay block is a relatively stable, seismic block bounded by the San Andreas and the Hayward faults to the west and east, respectively.

The project corridor is south of San Francisco Bay. The profile along the project corridor varies from depressed sections as low as 39 feet below surrounding development to embankments as high as 27 feet. The project corridor is underlain predominantly by thick, unconsolidated, interbedded alluvial and fluvial deposits of clay, silt, sand and gravel. Bay mud deposits are present at the northern end of the alignment along US 101 in the vicinity of Adobe Creek. Fluvial sand, gravel and clay deposits are present along the banks and man-made channel of Coyote Creek and along several other drainages crossed by the alignment including the Guadalupe River, Los Gatos Creek, Saratoga Creek, Stevens Creek and Adobe Creek. Bedrock is exposed near the surface in the southeastern portion of the project along US 101.

Geologic Hazards

Surface Fault Rupture

The closest active faults to the project corridor are the San Andreas, Silver Creek, Cascade and Monte Vista faults (Caltrans 2007b). The San Andreas and Monte Vista-Shannon faults are located 4.4 miles and 0.3 miles, respectively, southwest of the SR 85 corridor between SR 17 and I-280. The Monte Vista-Shannon fault crosses the corridor between Winchester Boulevard and SR 17, and between Leigh Avenue and Camden Intersections. The Silver Creek fault is located approximately 1.9 miles northeast of the southernmost portion of the project corridor. The Cascade fault is located approximately 1.4 miles southwest of the southernmost portion of the project corridor and crosses the corridor between Camden Avenue and Almaden Expressway.

The California Geological Survey (2000) has produced maps showing Alquist-Priolo Earthquake Fault Zones[14] along faults that pose a potential surface faulting hazard. The project corridor is not in the vicinity of any Alquist-Priolo Earthquake Fault Zones. Although the corridor crosses the Monte Vista and Cascade faults, the preponderance of available geologic data indicate the most recent episode of ground surface rupture predated Holocene time and may have been pre-Late Pleistocene. The likelihood of ground surface rupture on these faults is considered low. Therefore, surface rupture due to faulting is not expected to occur in the project corridor.

Earthquake Shaking

The intensity of the ground shaking depends on the size of the earthquake, the distance of the epicenter from the site, the direction that the earthquake propagates along the fault, and the site geologic conditions. The short distance to the San Andreas fault and other more distant active faults creates a high risk for ground shaking from fault movement. The San Andreas fault is the largest active fault in California and was responsible for the largest known earthquake in Northern California, the 1906 moment magnitude (M)[15] 7.9 San Francisco earthquake (Wallace 1990). The San Andreas fault also produced the 1989 M 6.9 Loma Prieta earthquake (USGS 2012a). The overall probability of an M 6.7 or greater earthquake in the Greater Bay Area in the next 30 years is 63 percent; for the San Andreas fault, the probability is 21 percent (USGS 2012b).

[14] Earthquake Fault Zones are mapped regulatory zones around active faults. Municipalities cannot permit the construction of most types of structures for human occupancy over active faults in mapped Earthquake Fault Zones.
[15] Moment magnitude is a measure of the total amount of energy of an earthquake, considering (among other factors) the area of a fault's rupture surface and the distance the earth moves along the fault. Each whole-number increase (e.g., 4.8 to 5.8 to 6.8) represents a tenfold increase in the size of the ground motion.

In the Bay Area, the main trace of the San Andreas fault forms a linear depression along the Peninsula, occupied by the Crystal Springs and San Andreas Lake reservoirs. In the project corridor, the fault would have a peak bedrock acceleration of 0.6 g.[16]

Liquefaction and Lateral Spreading

Liquefaction is a process by which water-saturated sediment temporarily loses strength and acts as a fluid. This condition is caused by cyclic loading during earthquake shaking. The soil type most susceptible to liquefaction is loose, cohesionless, granular soil below the water table and within about 50 feet of the ground surface. Liquefaction can result in loss of foundation support and settlement of overlaying structures, ground subsidence and translation due to lateral spreading, lurch cracking, and differential settlement of affected deposits. Lateral spreading occurs when a layer liquefies at depth and causes horizontal movement of displacement of the overburden mass toward a free face such as a stream bank or excavation, or toward and open body of water.

In a regional study of the nine-county San Francisco Bay Area region for the U.S. Geological Survey (USGS), Witter et al. (2006) mapped the liquefaction susceptibility of the site soils in the project vicinity. The Association of Bay Area Governments published a liquefaction susceptibility map in 2004 based on mapping in the USGS Open File Report by Knudsen et al. (2000).

The maps generally show the following types of liquefaction susceptibility in the project corridor:

- Moderate – from the SR 85/US 101 interchange in southern San Jose to west of Almaden Expressway interchange;
- Low – from west of Almaden Expressway interchange to the I-280 interchange; and
- Moderate – from the I-280 interchange to the SR 85/US 101 interchange in Mountain View.

High to very high liquefaction susceptibility was mapped along short reaches of the corridor within younger fluvial deposits where larger drainages such as Coyote Creek, Guadalupe River, Los Gatos Creek, Saratoga Creek and Stevens Creek are located. Very high liquefaction susceptibility has been mapped along US 101 between San Antonio Road and Oregon Expressway where the corridor is underlain by Bay mud deposits. All SR 85 bridge widening locations have low liquefaction potential, except for Oka Road and Saratoga Creek, where the liquefaction susceptibility is moderate and high, respectively.

Subsidence and Settlement

Subsidence is a gradual settling or sudden sinking of the ground surface. Subsidence typically occurs as a result of subsurface fluid extraction (such as groundwater or petroleum) or compression of soft, geologically young sediments. Groundwater extraction for high-volume municipal and agricultural use has the potential to cause future ground subsidence in the region. No known areas of subsidence are present in the area. No active

[16] g = Acceleration due to earth's gravity, a measure of how hard the ground shakes in a specific geographical area. 0.6g would be associated with a severe earthquake.

petroleum wells are present within miles of the project corridor (California Division of Oil, Gas, and Geothermal Resources 2001). In addition, there was no reported subsidence in the vicinity of a groundwater extraction system installed for mitigating subsurface contamination at a former IBM facility on Cottle Road in San Jose.

Settlement can occur quickly when soil is loaded by a structure or by the placement of fill on top of soil; and it can also occur when soil pore pressures, increased by vertical loading, gradually dissipate over time. The clayey fill soils and Bay mud found in the vicinity of the project corridor range from very soft to stiff and are subject to settlement due to loading.

Groundwater Depth

The subsurface conditions along the majority of the corridor consist of dense sand and gravels with interbeds of stiff clays and silts, and groundwater levels at locations other than creek crossings are generally more than 30 feet in depth.

2.2.3.3 Environmental Consequences

The project corridor is not in the vicinity of any Alquist-Priolo Earthquake Fault Zones. The project corridor crosses two mapped faults (the Monte Vista Shannon and Cascade faults); however, the likelihood of ground surface rupture on these faults is considered low. The proposed project would not increase the exposure of people or structures to potential substantial adverse effects from fault rupture.

The proposed project is in a seismically active area and has a reasonably high potential to experience strong earthquake shaking in the future. The potential exists for people or structures to be exposed to substantial adverse effects from seismic ground shaking. The project would not add new bridges or ramp structures to SR 85 or US 101; however, seven bridges on SR 85 would be widened as described in Section 1.3.1.9. Project-related structures would be limited to overhead signs, toll structures, and lighting. Standard Department design measures would avoid or minimize the potential for adverse seismic effects to project-related structures. The risk for people or structures to be adversely affected from seismic ground shaking would be the same with the existing condition and the No Build Alternative.

Maps indicate that soils in the project corridor generally have a low to moderate potential for liquefaction. In areas around large drainages and along US 101 between San Antonio Road and Oregon Expressway, liquefaction susceptibility was mapped as high to very high.

Standard foundations of single cast-in-drilled-hole (CIDH) piles are considered feasible to support overhead signs and toll structures. Some of the proposed locations of overhead signs could encounter groundwater within standard plan pile depths, requiring site-specific considerations during final design.

At the north end of the project, between approximately El Camino Real and Oregon Expressway, layers of soft to stiff, silty clay have been identified from ground surface to depths of 20 to 30 feet below ground surface. Groundwater was measured in this area at depths ranging from about 3 to 28 feet. These locations may also require site-specific design measures to provide adequate stability for foundations for signs or other piles.

The existing embankments at the abutments of the South Stelling Road and McClellan Road overcrossings adjacent to northbound SR 85 would be replaced with retaining walls to accommodate the proposed auxiliary lane between South De Anza Boulevard and Stevens Creek Boulevard. Standard retaining walls would be feasible to support embankment cuts. A temporary shoring wall would be required at both the Stelling Road and McClellan Road overcrossings unless a tieback wall is used.

Depending on the proposed bridge widening location, driven or CIDH piles would be feasible for pile foundations, and spread footings or driven piles would be feasible for abutments.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

The Department's design and construction guidelines incorporate engineering standards that address seismic risks. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions (liquefaction, settlement, and corrosion). No further measures are needed to address seismic risks.

Additional geotechnical subsurface and design investigations will be performed during the final project design and engineering phase. The investigations will include site-specific evaluation of subsurface conditions, including the potential for liquefaction and lateral spreading, at the location of proposed foundation features.

2.2.4 Paleontology

This section summarizes the *Paleontological Identification Report* (PIR; URS 2012c), *Paleontological Evaluation Report and Mitigation Plan* (PER/PMP; URS 2012d), and *Supplement to the Paleontological Evaluation Report and Mitigation Plan* (URS 2013j) prepared for the proposed project, which were completed in January 2012, October 2012, and March 2013, respectively.

2.2.4.1 Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects. The following laws apply to this project:

- 23 Code of Federal Regulations (CFR) 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.
- 23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.
- Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

2.2.4.2 Affected Environment

The project area is mapped as containing Mesozoic igneous and metamorphic rocks, overlain by the Pliocene/Pleistocene Santa Clara Formation, which is overlain by Pleistocene and Holocene alluvial sediments (Dibblee 1973; Helley et al. 1994). Generally, the northern half of the project corridor crosses surficial Holocene deposits. The southern half of the project corridor crosses surface exposures of the igneous and metamorphic rocks, the Santa Clara Formation, and both Pleistocene alluvium and Holocene units.

Extensive geological borings in the Santa Clara Valley indicate that fluvial deposits including the Santa Clara Formation and both Pleistocene and Holocene alluvium have a combined depth of approximately 330 to 1,315 feet (100 to 400 meters) below the surface (Stanley et al. 2002:14, 20). Deeper formations are not discussed as the maximum potential project impact is 50 feet below the surface.

The Department uses a three-part scale to characterize paleontological sensitivity, consisting of no potential, low potential, and high potential (Caltrans 2012b). The scale generally correlates with the likelihood for a geologic unit to contain significant vertebrate, invertebrate, or plant fossils. The probability of finding significant fossils in a project area can be broadly predicted from previous records of fossils recovered from the geologic units in and/or adjacent to the study area. In most cases, decisions about how to best manage paleontological resources must be based on these categories of sensitivity, because the presence or absence of paleontological resources cannot be known until construction excavation is under way.

Research conducted for the PER/PMP (URS 2012d) indicates that Pleistocene alluvial fan deposits and the Pliocene/Pleistocene Santa Clara Formation have yielded invertebrate and vertebrate fossil finds. However, an archival records search conducted by the University of California Museum of Paleontology (UCMP) indicated that none of the fossils were found in or within 1 mile of the project corridor. No fossil finds are known from any other formations in the project corridor.

Based on these results, the Pleistocene alluvial fan deposits and the Santa Clara Formation are ranked as high sensitivity according to the Department scale. All other formations in the project corridor are ranked as low.

2.2.4.3 Environmental Consequences

Road widening, grading and trenching may encounter Pleistocene alluvial fan deposits and the Santa Clara Formation where those geologic units are exposed at or near the surface. Grading and trenching have the potential to reveal fossils or fossil assemblages. Full-time paleontological monitoring will be performed during grading and trenching in these areas.

Drilling and pile driving for various project components may potentially encounter Pleistocene alluvial fan deposits and the Santa Clara Formation where those units are overlain by more recent sediments of unknown depths. Drilling would be conducted using truck-mounted rotary drills. This type of tool may rotate out fossil bones or other materials, but the specimens will lack context, depth/elevation, formation identification, and other elements that are critical to demonstrating scientific significance. Therefore, the potential to recover fossils that meet significance criteria is low. A paleontologist should be on call to respond if a fossil is recovered from drilling and to perform subsequent work to determine whether it can be identified and meets significance criteria.

Significant impacts to paleontological resources are not anticipated since grading, trenching, and drilling will disturb a relatively small area within sensitive formations. Monitoring and, if necessary, fossil recovery, identification, and curation will be performed in accordance with the PER/PMP. No other project components have the potential to affect paleontological resources.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

As noted in Section 2.2.4.2, the presence or absence of paleontological resources usually cannot be known until project construction is under way. Due to the presence of sensitive geologic formations within the project limits, a Paleontological Mitigation Plan (URS 2012d) was prepared to address potential discoveries during project construction.

Implementation of the following resource stewardship measures would avoid potential impacts to sensitive paleontological resources, if present.

- Include Caltrans Standard Specification 14-7.02, which states:

  If paleontological resources are discovered at the job site, do not disturb the material and immediately:

  1. Stop all work within a 60-foot radius of the discovery
  2. Protect the area
  3. Notify the Engineer

  The Department investigates and modifies the dimensions of the protected area if necessary. Do not move paleontological resources or take them from the job site. Do not resume work within the specified radius of the discovery until authorized.

- Include a specification in the construction contract stating that paleontological monitoring will occur in accordance with the Paleontological Mitigation Plan, which details where and when monitoring is required.
- Update and finalize the Paleontological Mitigation Plan once project design is nearly complete. The final plan will be implemented during construction.

The above measures would reduce potential impacts to paleontological resources by allowing for the recovery of fossil remains and associated specimen data and corresponding geologic and geographic site data that otherwise might be lost.

The estimated cost of paleontological monitoring and tasks related to fossil recovery, processing, and curation is approximately $21,000. No permits are anticipated to be needed for monitoring or fossil recovery.

2.2.5 Hazardous Waste/Materials

The following discussion is based on the *Initial Site Assessment* (ISA; URS 2011b) and the *Supplement to the Final Initial Site Assessment* (URS 2013k) for the proposed project, which were completed in March 2011 and March 2013, respectively.

2.2.5.1 Regulatory Setting

Hazardous materials including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage, and disposal of hazardous materials, substances and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as “Superfund”, is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992;
- Clean Water Act;
- Clean Air Act;
- Safe Drinking Water Act;
- Occupational Safety and Health Act (OSHA);
- Atomic Energy Act;
- Toxic Substances Control Act (TSCA); and
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires clean up of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean up contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

2.2.5.2 Affected Environment

The *Initial Site Assessment* (URS 2011b) for the proposed project included the following:

- An Environmental Data Resources, Inc. (EDR) environmental information database search for known potential hazardous materials sites, including underground storage tanks (USTs); landfills; hazardous waste generation, treatment, storage, and disposal facilities; and subsurface contamination within a study area that included the entire project corridor and extended up to 1 mile from the project area (the right-of-way and adjacent areas within the project limits);
- A review of several existing initial site assessments that address portions of the study area (project area plus a 1-mile radius);
- A site reconnaissance of the project area and surrounding area conducted from points of public access, including freeways and adjacent ramps, and a drive-by survey of the surrounding and adjacent properties;
- A review of historical aerial photographs, Google Earth, and topographic maps covering the project area; and
- A review of available files from the Envirostor and Geotracker databases maintained by the California Department of Toxic Substances Control (DTSC) and San Francisco Bay RWQCB to obtain additional information on sites identified in the EDR report that are within or near the project area.

The purpose of the assessment was to review available information on the study area to identify potential risks and determine whether soil, groundwater, or other testing is needed.

In February 2013, the Envirostar and Geotracker databases were reviewed for a second time to confirm no new sites could reasonably be suspected of causing groundwater or soil contamination at the bridge widening locations.

2.2.5.3 Environmental Consequences

The assessment did not identify any potential hazardous materials sites within the project area. Five potential hazardous materials sites have been reported outside, but within 1 mile, of the project area. These sites include a PG&E substation and industrial and commercial properties. Based on a review of existing data, additional investigation is recommended if dewatering is planned downgradient of these properties (based on the direction of groundwater flow) or near the SR 85/US 101 interchange in Mountain View. The five sites for which additional investigation is recommended are described in Table 2.2.5-1.

The records report that corrective actions including groundwater treatment and soil cleanup have been conducted or are ongoing at most of the hazardous materials sites identified adjacent to the project limits, and natural remediation may have occurred since previous remediation actions. However, the risk of encountering contamination from these sites during project construction remains medium to high.

In addition to the facilities and sites listed above, construction activities could increase risk of exposure to airborne contaminants from materials in roadway structures and surface soils. Thermoplastic paint used for roadway striping in the project limits, particularly yellow paint, may contain high levels of lead. Soils adjacent to SR 85 and US 101 may contain naturally occurring asbestos or pesticides from previous agricultural land uses, and some of these areas may experience soil disturbance as part of the project. Vehicle tire and brake wear, oil, grease, and exhaust from vehicular traffic on SR 85 and US 101 and other roads within the project area may have contaminated surface soils in the immediate vicinity with aerially deposited lead (ADL) and other heavy metals. Exposure to airborne contaminants from these materials could affect safety and health.

Gasoline, diesel fuel, oil, and lubricants for construction equipment are typically used, handled, and stored by contractors on roadway construction projects. In all construction projects, there is a potential for the accidental release of fuels or lubricants from construction equipment or vehicles. No specific risks related to such a release have been identified for the proposed project. Contractors are required to handle hazardous materials in accordance with applicable laws, including health and safety requirements. No acutely hazardous materials would be used or stored within the project limits during project construction.

The project would not create a significant new hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. During construction, some lane closures could be required, but full freeway closures are not expected to be necessary; therefore, substantial impacts to emergency response or evacuation would be avoided.

Table 2.2.5-1: Potential Hazardous Materials Sites

Owner or Occupant/Address	Description	Further Investigation Recommended
1A - Teledyne Semiconductors Inc. 1300 Terra Bella Avenue, Mountain View, CA 94043 **1B - Spectra-Physics Inc.** 1250 West Middlefield Road, Mountain View, CA 94042	Manufactured semiconductors since 1962; RWQCB (lead); NPL site. The site has used a variety of toxic chemicals, primarily chlorinated organic solvents that have contaminated groundwater. Investigation in June 1984 revealed that contaminants had migrated to the north and had affected approximately 50 private domestic wells. Teledyne is planning on pumping the contaminated groundwater in the upper aquifer to the surface for subsequent treatment. The Teledyne NPL site is being managed in conjunction with the Spectra-Physics NPL site, as the contaminant plumes have merged.	If dewatering is planned downgradient of this property (to be determined during final design phase), groundwater samples should be collected to evaluate whether the known VOC releases would affect project construction activities.

Table 2.2.5-1: Potential Hazardous Materials Sites, continued

Owner or Occupant/Address	Description	Further Investigation Recommended
2A - Intel Corporation 365 Middlefield Road, Mountain View, CA 94040	**Intel Site:** RWQCB (lead); VOCS (TCE, DCE, and vinyl chloride) have been detected in soil and shallow groundwater at the site and in shallow groundwater downgradient of the site. Since 1982, Intel has been pumping groundwater and treating it by carbon adsorption. This is part of the Middlefield, Ellis, Whisman (MEW) Study Area joint NPL cleanup site. Site believed to be currently occupied by Opcode, World Energy Labs, and Skywatch Energy.	If dewatering is planned downgradient of these properties or near the SR 85/US 101 interchange (to be determined during final design phase), groundwater samples should be collected to evaluate whether the known VOC releases would affect project construction activities.
2B – Former Vector Control Yard Site 750 Moffett Blvd., Mountain View, CA 94043	**Former Vector Control Yard Site:** Previous investigations suggest that VOCs may have been spread to the interchange of SR 85/US 101 via utility corridors. Investigations suggest a potential source is the MEW plume.	
2C – Siemens/ Sobrato 455 East Middlefield Road, Mountain View, CA	**Siemens/Sobrato:** This is part of the MEW Study Area joint NPL cleanup site. Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	
2D – **Raytheon Company** 350 Ellis Street, Mountain View	**Raytheon Company:** This is part of the MEW joint NPL cleanup site. Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	
2E – NEC Electronics 501 Ellis Street, Mountain View	**NEC Electronics:** This is part of the MEW Study Area joint NPL cleanup site. Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	
2F – General Semiconductor /Mitsubishi Silicon America, formerly Siltec 405 National Avenue, Mountain View	**General Semiconductor /Mitsubishi Silicon America, formerly Siltec:** This is part of the MEW Study Area joint NPL cleanup site. Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	
2G – Fairchild Semiconductor 464 Ellis Street, Mountain View	**Fairchild Semiconductor:** This is part of the MEW Study Area joint NPL cleanup site. Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	
Valley Oil Company 785 Yuba Drive, Mountain View, CA	Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	If dewatering is planned downgradient of this property (to be determined during final design phase), groundwater samples should be collected to evaluate whether the known petroleum and/or VOC releases would affect project construction activities.

Table 2.2.5-1: Potential Hazardous Materials Sites, continued

Owner or Occupant/Address	Description	Further Investigation Recommended
Montwood Corporation 1615 Plymouth Street, Mountain View	Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	If dewatering is planned downgradient of this property (to be determined during final design phase), groundwater samples should be collected to evaluate whether the known petroleum and/or VOC releases would affect project construction activities.
Printex Facility (CTS Printex) 1911 Plymouth Street, Mountain View	Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	If dewatering is planned downgradient of this property (to be determined during final design phase), groundwater samples should be collected to evaluate whether the known petroleum and/or VOC releases would affect project construction activities.
Peery & Arrillaga 1098 Alta Avenue, Mountain View	Potential presence of petroleum hydrocarbons and VOCs in soil and/or groundwater.	If dewatering is planned downgradient of this property (to be determined during final design phase), groundwater samples should be collected to evaluate whether the known petroleum and/or VOC releases would affect project construction activities.
Conoco Phillips #6080 21530 Stevens Creek Blvd., Cupertino, CA 95014	Preliminary site assessment underway; leaking underground storage tank. Site believed to be currently occupied by a Union 76 gas station (Conoco Philips).	If dewatering is planned downgradient of this property (to be determined during final design phase), groundwater samples should be collected to evaluate whether the known petroleum and/or VOC releases would affect project construction activities.
Caltrans Maintenance Yard Intersection of Bernal Road and SR 85	Caltrans maintenance yard where vehicle fueling and maintenance operations may take place.	If dewatering is planned downgradient of this property (to be determined during final design phase), groundwater samples should be collected to evaluate whether the potential petroleum and/or VOC releases would affect project construction activities.
PG&E Substation Intersection of Metcalf Road and US 101	Large PG&E substation.	If dewatering is planned downgradient of this property (to be determined during final design phase), groundwater samples should be collected to evaluate whether potential releases would affect project construction activities.

Notes: DCE=dichloroethylene; MEW = Middlefield, Ellis, Whisman; NPL= National Priorities List; RWQCB=California Regional Water Quality Control Board; TCE= trichloroethylene; VOCs = volatile organic compounds

2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures

Further investigation of the sites identified in Table 2.2.5-1 is recommended due to the potential presence of petroleum hydrocarbons, solvents, and ADL in soil and/or groundwater. The following measures would be included in the project to identify the presence and extent of potential hazardous materials.

- For project excavations that extend to groundwater, groundwater sampling, analysis, and characterization would take place before construction commences. Treatment and disposal options for extracted groundwater would be determined prior to any dewatering of excavations.

- If soil excavation is planned near properties where petroleum hydrocarbons or chlorinated compounds may be present, the soil and groundwater would be sampled, tested, and characterized.
- Where surface soils will be excavated, they should be sampled and tested for lead, pesticides, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs).
- Soil sampling for naturally occurring asbestos should be performed at several locations throughout the project site from deeper soil samples associated with bridge widening and the placement of signs.
- Soil sampling for ADL is recommended at interchanges only along SR 85 between I-280 and US 101 in southern San Jose, and where surface soils will be excavated elsewhere along US 101 and SR 85, such as at bridge widening locations.
- Contaminated soil, groundwater, and other hazardous materials would be properly characterized and disposed of at an appropriate facility per applicable regulations.

The costs for sampling, testing, special handling, and disposal of potentially hazardous materials are unknown at this stage of preliminary design and environmental review. It is estimated that sampling and analysis could take 4 to 6 weeks, and costs could range from $200,000 to $300,000 or more depending on the number of samples collected, the laboratory analyses used, and quantity of material that requires special disposal. The costs for special handling, if required, of contaminated materials that have to be removed would be estimated during final design.

2.2.6 Air Quality

This section summarizes the *Air Quality Impact Assessment* and *Mobile Source Air Toxics* technical reports (URS 2013l, m) completed for the project in October 2013.

2.2.6.1 Regulatory Setting

The Federal Clean Air Act, as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the U.S. Environmental Protection Agency (U.S. EPA) and California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter, which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to environmental analysis, a parallel "Conformity" requirement under the Federal Clean Air Act also applies.

Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming—level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide, nitrogen dioxide, ozone, particulate matter, and in some areas (although not in California) sulfur dioxide. California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except sulfur dioxide, and also has a nonattainment area for lead; however, lead is not currently required by the Federal Clean Air Act to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years for the RTP) and 4 years (for the TIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization, Federal Highway Administration (FHWA), and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the Federal Clean Air Act. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a "hot-spot" analysis if an area is "nonattainment" or "maintenance" for carbon monoxide and/or particulate matter. A region is "nonattainment" if one or more of the monitoring stations in the region measures a violation of the relevant standard and the U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA and are then called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the "hot-spot"-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

2.2.6.2 Affected Environment

The project corridor is in the San Francisco Bay Area Air Basin, which does not attain federal standards for ozone and fine particulate matter ($PM_{2.5}$). For the state standards, which are more stringent than the federal, the region does not attain the ozone, $PM_{2.5}$, or inhalable particulate matter (PM_{10}) standards. Table 2.2.6-1 shows the applicable standards and attainment status of criteria pollutants in the project area.

Due to its topographic diversity, the meteorology and climate of the Bay Area is often described in terms of different subregions and their microclimates. The proposed project is in the Santa Clara Valley subregion, as defined by the Bay Area Air Quality Management District (BAAQMD).

Table 2.2.6-1: State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]	
		Concentration	Attainment Status	Concentration[3]	Attainment Status
Ozone (O_3)	8 Hour	0.070 ppm ($137\ \mu g/m^3$)	N[9]	0.075 ppm ($157\ \mu g/m^3$)	N[4]
	1 Hour	0.09 ppm ($180\ \mu g/m^3$)	N		See Footnote 5
Carbon Monoxide (CO)	8 Hour	9.0 ppm ($10\ mg/m^3$)	A	9 ppm ($10\ mg/m^3$)	A[6]
	1 Hour	20 ppm ($23\ mg/m^3$)	A	35 ppm ($40\ mg/m^3$)	A
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm ($339\ \mu g/m^3$)	A	0.100 ppm (see Footnote 11)	U
	Annual Arithmetic Mean	0.030 ppm ($57\ \mu g/m^3$)	NA	0.053 ppm ($100\ \mu g/m^3$)	A
Sulfur Dioxide (SO_2) (see Footnote 12)	24 Hour	0.04 ppm ($105\ \mu g/m^3$)	A	0.14 ppm ($365\ \mu g/m^3$)	A
	1 Hour	0.25 ppm ($655\ \mu g/m^3$)	A	0.075 ppm ($196\ \mu g/m^3$)	A
	Annual Arithmetic Mean	NA	NA	0.030 ppm ($80\ \mu g/m^3$)	A
Particulate Matter (PM_{10})	Annual Arithmetic Mean	$20\ \mu g/m^3$	N[7]	NA	NA
	24 Hour	$50\ \mu g/m^3$	N	$150\ \mu g/m^3$	U
Particulate Matter - Fine ($PM_{2.5}$)	Annual Arithmetic Mean	$12\ \mu g/m^3$	N[7]	$12\ \mu g/m^3$	A
	24 Hour	NA	NA	$35\ \mu g/m^3$ (see Footnote 10)	N
Sulfates	24 Hour	$25\ \mu g/m^3$	A	NA	NA
Lead (see Footnote 13)	Calendar Quarter	NA	NA	$1.5\ \mu g/m^3$	A
	30 Day Average	$1.5\ \mu g/m^3$	NA	NA	A
	Rolling 3 Month Average	NA	NA	$0.15\ \mu g/m^3$	See Footnote 14
Hydrogen Sulfide	1 Hour	0.03 ppm ($42\ \mu g/m^3$)	U	NA	NA
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm ($26\ \mu g/m^3$)	NIA	NA	NA
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST)	See Footnote 8	U	NA	NA

Source: BAAQMD. 2013. Air Quality Standards and Attainment Status. Available at http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm .
U.S. EPA. 2013 National Ambient Air Quality Standards. Available at http://www.epa.gov/air/criteria.html
Notes: A=Attainment, N=Nonattainment, NIA= No Information Available, U=Unclassified; mg/m^3=milligrams per cubic meter; ppm=parts per million; $\mu g/m^3$=micrograms per cubic meter, NA=Not Applicable, PST=Pacific Standard Time

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.

2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th-highest daily concentrations is 0.075 ppm or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than $150\ \mu g/m^3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than $35\ \mu g/m^3$. Except for the National particulate standards, annual standards are met if the annual average falls below the standard at every site. The National annual standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

3. National air quality standards are set by U.S. EPA at levels determined to be protective of public health with an adequate margin of safety.

4. Final designations effective July 20, 2012.

5. The National 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.

6. In April 1998, the Bay Area was redesignated to attainment for the National 8-hour carbon monoxide standard.

7. In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

Table 2.2.6-1: State and National Ambient Air Quality Standards, continued

8. Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

9. The 8-hour State ozone standard was approved by CARB on April 28, 2005, and became effective on May 17, 2006.

10. U.S. EPA lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m^3 to 35 µg/m^3 in 2006. U.S. EPA designated the Bay Area as nonattainment of the PM2.5 standard on October 8, 2009. The effective date of the designation is December 14, 2009 and the Air District has 3 years to develop a plan, called a State Implementation Plan (SIP), that demonstrates the Bay Area will achieve the revised standard by December 14, 2014. The SIP for the new PM2.5 standard must be submitted to the U.S. EPA by December 14, 2012.

11. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

12. On June 2, 2010, the U.S. EPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO2 NAAQS however must continue to be used until 1 year following U.S. EPA initial designations of the new 1-hour SO2 NAAQS. U.S. EPA expects to designate areas by June 2012.

13. ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.

14. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

The Santa Clara Valley is bordered by San Francisco Bay to the north and by mountains to the east, south, and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are 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. Further inland, where the moderating effect of the Bay is not as strong, temperature extremes are greater. For example, in San Martin, 27 miles south of the San Jose International Airport, temperatures can be more than 10 degrees warmer on summer afternoons and more than 10 degrees cooler on winter nights than mean temperatures in the valley.

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 is 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 and are associated mostly with winter storms.

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air, and mountains surrounding the valley combine to promote ozone formation. In addition to 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 northwesterly winds in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of CO and particulate matter.

2.2.6.3 Environmental Consequences

Air quality issues relate to a range of different pollutants. The evaluation of air quality impacts addressed in this section focuses on the project's conformity with the regional air quality framework and the project's potential to result in an adverse impact to the region's compliance with the relevant standards.

Regional Air Quality Conformity

The proposed project is listed in the 2013 *Plan Bay Area* financially constrained Regional Transportation Plan (ABAG and MTC 2013, RTP ID 240439), which was found to conform by MTC on July 18, 2013, and FHWA and FTA made a regional conformity determination on August 12, 2013. The project is also included in MTC's financially constrained 2013 Transportation Improvement Program (MTC 2013, page S3-239, TIP ID SCL090030). The MTC's 2013 Transportation Improvement Program was determined to conform by FHWA and FTA on August 12, 2013. The design concept and scope of the proposed project is consistent with the project description in the 2013 RTP, the 2013 TIP, and the open to traffic assumptions of the MTC's regional emissions analysis. As such, the project is in conformity with the SIP and will not otherwise interfere with timely implementation of any Transportation Control Measures in the applicable SIP.

Permanent Impacts

Evaluation of Potential for Traffic-Related CO Impacts

Traffic-related CO effects were evaluated to determine whether the project would cause or contribute to any new localized CO violations. The CO impacts analysis followed the procedures in *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol; Garza, Graney, and Sperling 1997).

A modeling analysis for CO impacts was completed for two locations along SR 85 for both the Build and No Build Alternatives using the traffic volumes obtained from the traffic analysis (URS 2012a). The California Line Source (CALINE4) model was used for the analysis, following the guidelines contained in Appendix B of the CO Protocol.

The highest, most conservative traffic volume during the AM and PM peak hours at these locations was used in the model. Other locations that would be potentially affected by the proposed project are not expected to experience CO concentrations higher than the highest predicted among these two locations. The assumptions used in the hot-spot analysis are consistent with those used in the regional emissions analysis.

Table 2.2.6-2 summarizes the 2015 and 2035 traffic volumes at the most congested segments evaluated in the traffic analysis (URS 2012a). Peak-hour travel demand volumes are presented as they represent the worst-case traffic conditions.

Table 2.2.6-2: Traffic Volumes at Most Congested Sections, No Build and Build Alternatives

Year	Segments	Volume per hour	
		No Build	Build
2015	AM: SR 85 between Union on-ramp and Bascom off-ramp	7,145	8,083
	PM: SR 85 between Saratoga on-ramp and Winchester off-ramp	6,409	7,820
2035	AM: SR 85 between Union on-ramp and Bascom off-ramp	7,720	8,510
	PM: SR 85 between Saratoga on-ramp and Winchester off-ramp	6,738	7,472

Notes:
AM = peak AM hour travel volumes (7 AM to 8 AM)
PM = peak PM hour travel volumes (5 PM to 6 PM)

Emission factors for the vehicles were obtained by running the EMFAC2011 model for Santa Clara County. Background CO concentrations were added to the CALINE4 modeled concentration increases to generate total CO concentrations. Table 2.2.6-3 presents the worst-case CO concentrations for the No Build and Build Alternatives.

Table 2.2.6-3: CALINE4 CO Modeling Results for No Build and Build Alternatives, Including Background

Year	Segment	No Build Alternative		Build Alternative	
		CO 1-hour Concentration (ppm)	CO 8-hour Concentration (ppm)	CO 1-hour Concentration (ppm)	CO 8-hour Concentration (ppm)
2015	AM: SR 85 between Union on-ramp and Bascom off-ramp	4.30	3.37	3.80	3.02
	PM: SR 85 between Saratoga on-ramp and Winchester off-ramp	3.50	2.81	4.00	3.16
2035	AM: SR 85 between Union on-ramp and Bascom off-ramp	3.40	2.74	3.10	2.53
	PM: SR 85 between Saratoga on-ramp and Winchester off-ramp	3.40	2.74	3.40	2.74

Notes:
1. NAAQS for 1-hour CO is 35 ppm and CAAQS for 1-hour CO is 20 ppm. NAAQS and CAAQS for 8-hour CO is 9 ppm.
2. 1-hour and 8-hour background concentrations were obtained from San Jose – Jackson Street station (158 E Jackson St, San Jose CA 95112).
3. 1-hour background concentration was recorded in 2010 - 2012 and was found to be 2.6 ppm.
4. 8-hour background concentration was recorded in 2010 -2012 and was found to be 2.18 ppm.
5. A persistence factor of 0.7 was used to convert 1-hour CO concentration to 8-hour CO concentration.

A project is considered to have significant impacts if it results in CO concentrations that exceed the 1 hour average State standard of 20 ppm, the 1 hour average Federal standard of 35 ppm and/or the 8 hour average standard of 9.0 ppm. As shown in Table 2.2.6-3, the maximum predicted concentrations (including background) at the selected segments are below these standards for both alternatives. These results support the conclusion that the proposed project will not cause or contribute to any new localized CO violations, or increase the frequency of an existing CO violation, through at least the project study year and RTP planning year of 2035.

Particulate Matter "Hot Spot" Analysis

A qualitative particulate matter hot spot analysis is required for transportation projects that are funded or approved by the FHWA or the FTA and are in Federal nonattainment or maintenance areas for particulate matter less than 10 micrometers in diameter (PM_{10}) or particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$). This project is unclassified for the Federal PM_{10} standards, so a qualitative PM_{10} hot spot analysis is not required for project-level conformity purposes.

The U.S. EPA designated the San Francisco Bay Area Air Basin as a Federal nonattainment area for the 35 $\mu g/m^3$ $PM_{2.5}$ standard, effective December 14, 2009. A $PM_{2.5}$ hot spot analysis is required for any project that is determined to be a Project of Air Quality Concern as defined in Title 40 CFR Part 93.

In October 2011, VTA, as the project sponsor, initiated consultation with the Air Quality Conformity Task Force by submitting a Project Assessment Form for $PM_{2.5}$ Interagency Consultation. On October 27, 2011, the Task Force determined that the project is not a Project of Air Quality Concern.[17] A $PM_{2.5}$ hot spot analysis is not required for this project. The project will conform to the SIP, including the localized impact analysis conducted with interagency consultation required by 40 CFR 93.116 and 93.123.

During the public review and comment period for the IS/EA, public comments were requested regarding the information in the Project Assessment Form for $PM_{2.5}$ Interagency Consultation and the Task Force's determination (Appendix C). No comments were provided on these items. A separate announcement to request public comment on the $PM_{2.5}$ determination was published in the *Mercury News* on February 18, 2015. The public comment period closed on March 5, 2015. Comments on $PM_{2.5}$ conformity are shown in Volume 2, Appendix H, Section H.7, along with responses. FHWA concurrence on project-level conformity was received April 14, 2015 (see Appendix C).

Ozone

The BAAQMD adopted the 2010 Clean Air Plan to plan for and achieve compliance with the federal and state ozone standards. This project will not interfere with the strategy and will provide transportation benefits that reduce pollutant emissions, including precursors to the formation of ozone, by improving traffic operations and efficiency. This project is included in the Bay Area region's RTP, which has undergone regional evaluation for conformity with federal air quality standards, including ozone.

Mobile Source Air Toxics

In addition to the criteria air pollutants for which standards exist, the U.S. EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources. Mobile source air toxics (MSATs) are a subset of the air toxics defined by

[17] After the 2011 consultation, the project limits on US 101 in San Jose were changed, and an auxiliary lane was added to the proposed project on northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard. The Task Force was informed about the project limit change as part of consultation on TIP Amendment 11-25 in May 2012, and the auxiliary lane as part of consultation on the 2013 TIP in February 2013. The project status remains not a project of air quality concern.

the Clean Air Act. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or impurities in oil or gasoline.

This section includes a basic quantitative analysis of the likely MSAT emission impacts of the proposed project. Available technical tools do not enable prediction of the project-specific health impacts of the emission changes associated with the No Build and Build alternatives. Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of the proposed project.

US 101 in the Palo Alto/Mountain View segment of the project limits already has traffic volumes exceeding 150,000 Annual Average Daily Traffic (AADT), and SR 85 is projected to have volumes exceeding 150,000 by 2035. The project would convert the existing HOV lanes on SR 85 and the portion of US 101 south of the SR 85/US 101 interchange in San Jose to an express lanes facility. Therefore, a quantitative MSAT analysis was performed using the Department's program CT-EMFAC5. The purpose of the quantitative analysis was to identify and compare the potential differences among the priority MSAT emissions from the project alternatives. CT-EMFAC5 is a California-specific analysis tool for modeling MSAT emissions using the latest version of the California Mobile Source Emission and Inventory model, EMFAC20011.

To perform the CT-EMFAC5 modeling, composite emission factors for the project were obtained for Santa Clara County, using 2007 as the analysis year for existing conditions, 2015 for opening year and 2035 for design year. Total AM and PM peak period traffic data for existing conditions (2007), the projected opening year (2015) and the design year (2035) as well as the VMT distribution by speed were obtained from CDM Smith. Based on these input parameters, CT-EMFAC5 was used to estimate diesel particulate matter (DPM), benzene, acrolein, acetaldehyde, formaldehyde, 1,3-butadiene, naphthalene, and polycyclic organic matter (POM) emissions.

For the Build and No Build alternatives, the CT-EMFAC5 modeling indicated the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT) if other variables such as fleet mix remain the same. The estimated VMT in the local area for the Build Alternative would be slightly higher because it includes an additional, or second, express lane for part of the project corridor. However, the project would not increase truck traffic or truck emissions because large trucks are prohibited on SR 85 between US 101 and I-280—more than 18 miles of the 24.1-mile SR 85 corridor—and the express lanes facility would not be open to trucks.

The CT-EMFAC5 modeling results show that overall, MSAT emissions with the project would increase by 3 to 6 percent compared with the No Build Alternative (Table 2.2.6-4).

For the Build Alternative in the opening year (2015), emissions would increase by 2 percent for DPM and POM; 3 percent for formaldehyde, butadiene, acrolein and acetaldehyde; and 4 percent for benzene and naphthalene. For the Build Alternative in the design year (2035), emissions would increase by 5 percent for DPM, butadiene, and acrolein; 6 percent for formaldehyde, acetaldehyde, and POM; and 7 percent for benzene and naphthalene compared with the No Build Alternative. The results from the model runs show that the project would not have a substantial increase in MSAT emissions.

Table 2.2.6-4: MSAT Emissions for Existing Conditions and 2015/2035 No Build and Build Alternatives

	DPM	Formaldehdye	Butadiene	Benzene	Acrolein	Acetaldehyde	Naphthalene	POM
2007 Existing	0.02759	0.01060	0.00167	0.01198	0.00037	0.00408	0.00072	0.00019

	DPM	Formaldehdye	Butadiene	Benzene	Acrolein	Acetaldehyde	Naphthalene	POM
2015 No Build	0.00832	0.00474	0.00077	0.00606	0.00017	0.00178	0.00037	0.00007
2015 Build	0.00846	0.00486	0.00079	0.00633	0.00018	0.00183	0.00038	0.00007
2015 % difference between Build and No Build	2%	3%	3%	4%	3%	3%	4%	2%
2035 No Build	0.00598	0.00303	0.00037	0.00331	0.00008	0.00124	0.00033	0.00006
2035 Build	0.00631	0.00321	0.00039	0.00355	0.00008	0.00131	0.00035	0.00007
2035 % difference between Build and No Build	5%	6%	5%	7%	5%	6%	7%	6%

DPM = diesel particulate matter; POM = polycyclic organic matter

Compared to existing conditions, MSAT emissions with the Build Alternative would be 47 to 69 percent lower in 2015, and 52 to 77 percent lower in 2035. Therefore, the project is not expected to affect sensitive receptors near the SR 85 corridor.

Emissions would be lower for both alternatives in the opening year (2015) and design year (2035) as compared to existing conditions as a result of U.S. EPA's national control programs, which are projected to reduce MSAT emissions by 72 percent by 2020. The magnitude of the U.S. EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

Naturally Occurring Asbestos and Structural Asbestos

Soils adjacent to SR 85 and US 101 within the project limits may contain naturally occurring asbestos (California Department of Conservation 2000). No project activities would disturb structures that potentially contain asbestos.

Construction Impacts

The construction period for this project is estimated at approximately 1.5 years. Because construction will not last for more than 5 years at one general location, construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

Construction is a source of dust emissions that can have temporary impacts on local air quality (i.e., exceedances of the state air quality standards for PM_{10} and $PM_{2.5}$). Construction emissions would result from heavy equipment use and off-road equipment and vehicle traffic. No significant earthmoving or cut and fill operations are anticipated with this project. Dust emissions would vary from day to day depending on the level of activity, the specific operations, and the prevailing weather.

Combustion emissions (NO_x, ROG, PM_{10} and CO) from construction equipment may also create a temporary impact on local air quality. Such equipment is typically diesel-fueled and can contribute NO_x, PM_{10}, and $PM_{2.5}$ emissions during the construction period.

Although construction activities are considered to be typically short-term or temporary in duration, BAAQMD requires projects to quantify their construction emissions and compare the total daily average emissions to significance thresholds. The proposed project would involve standard construction techniques and require large-scale construction equipment and labor-intensive activities. General site activities and the duration of activity would include:

- Site preparation (clearing/grubbing) and mobilization of equipment and temporary construction facilities to the site;
- Structural section construction;
- Drainage feature construction;
- Barrier construction;
- Striping;
- Electrical component construction; and
- Demobilization of equipment and temporary facilities.

If daily average emissions of construction-related criteria air pollutants or precursors would not exceed any of the construction significance thresholds, the project would result in a less-than-significant impact to air quality. If daily average emissions of construction-related criteria air pollutants or precursors would exceed any applicable significance thresholds, the proposed project would result in a significant impact to air quality and would require mitigation measures for emission reductions (BAAQMD 2011). Standard construction air quality control measures are described in Section 2.2.6.4.

Construction activities would result in short-term emissions of other criteria pollutants and toxic air contaminants from equipment exhaust. Average daily exhaust emissions from construction activities vary depending on the number and type of equipment used. The primary pollutants associated with exhaust emissions from construction equipment are ozone precursors (ROG and NO_x), CO, $PM_{10,}$ and $PM_{2.5}$.

The expected emissions resulting from project construction were analyzed using the Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model (Version 7.1.4) with conservative assumptions regarding the duration and scope of construction.[18] As shown in Table 2.2.6-5, the project's construction-related emissions would be below the BAAQMD CEQA thresholds of significance for construction-related activities. Since the daily average emissions of construction-related criteria air pollutants or precursors would not exceed any applicable threshold of significance listed, the project would not result in a significant cumulative impact.

Table 2.2.6-5: Construction-Related Emission Estimates for the Build Alternative

	ROG	NOx	CO	PM_{10} Dust	PM_{10} Exhaust	$PM_{2.5}$ Dust	$PM_{2.5}$ Exhaust	CO_2
Construction (lbs/day)	4.9	41.7	30.4	55.6	2.2	11.6	1.9	5,904
BAAQMD CEQA Threshold (lbs/day)	54	54	NA	BMP	82	BMP	54	NA

BMP: The BAAQMD Adopted Air Quality CEQA Thresholds of Significance (May 2011) do not establish numerical thresholds for certain types of emissions; rather, they call for implementing Best Management Practices (BMPs) as control measures. Control measures are presented in Section 2.2.6.4.
NA: Not available.

Climate Change

Climate change is analyzed at the end of this chapter. Neither the United States Environmental Protection Agency (U.S. EPA) nor Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders on climate change, the issue is addressed in a separate California Environmental Quality Act (CEQA) discussion at the end of this chapter and may be used to inform the National Environmental Policy Act (NEPA) decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours traveled.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

The Department's Special Provisions and Standard Specifications will include the requirement to minimize or eliminate dust through the application of water or dust

[18] The Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model is the standard model used to estimate construction emissions for San Francisco Bay Area roadway projects in state right-of-way.

palliatives. Control measures will be implemented as specified in Standard Specifications, Section 14-9.01 “Air Pollution Control” and Section 14-9.02 “Dust Control.” Temporary construction-related impacts to air quality will be avoided or minimized through implementation of the following measures:

- Water all active construction areas daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
- Pave, apply water daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets adjacent to active construction areas daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (nontoxic) soil binders to exposed stockpiles (dirt, sand, etc.)
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures at active construction areas to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

In addition, pollutant emissions in construction equipment exhaust can be mitigated by the following:

- Keeping engines properly tuned;
- Limiting idling;
- Avoiding unnecessary concurrent use of equipment; and
- Using solar and battery powered signal boards.

2.2.7 Noise

The following summarizes the *Noise Study Report* (Illingworth and Rodkin 2012) and *Noise Abatement Decision Report* (URS 2012e), which were completed in September 2012, and the *Supplement to Noise Study Report and Noise Abatement Decision Report* (URS 2013n), which was completed in February 2013.

2.2.7.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The CEQA noise analysis is included at the end of this section.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 A-Weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). Table 2.2.7-1 lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

Table 2.2.7-1: Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, $L_{eq}(h)^{1, 2}$	Description of Activities
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

Source: Caltrans 2011d

[1] Includes undeveloped lands permitted for this activity category.

[2] The $L_{eq[h]}$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

Figure 2.2.7-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

According to the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011* (Protocol; Caltrans 2011d), a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

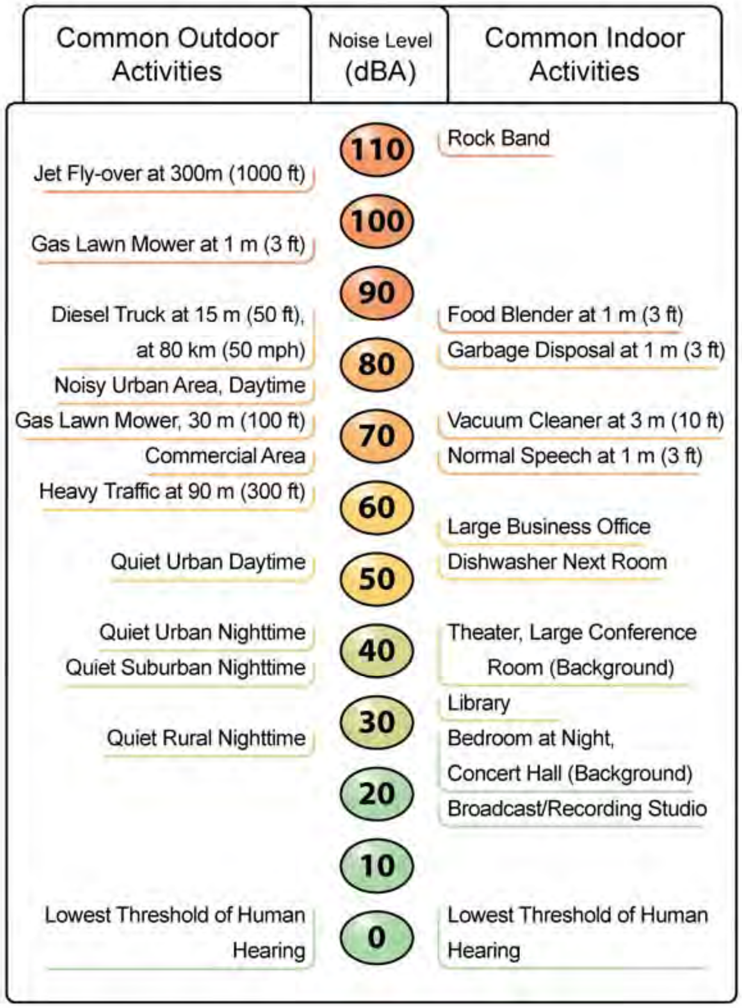

Figure 2.2.7-1. Noise Levels of Common Activities

The Department's TNAP sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 7 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance and the cost per benefited residence.

2.2.7.2 Affected Environment

The existing noise environment throughout the project corridor varies by location, depending on site characteristics such as proximity to SR 85, US 101, and other nearby noise sources; local elevation and terrain of SR 85 and US 101 with respect to land uses where people could be affected by highway noise;[19] and any intervening structures or barriers. Single-family and multi-family residences, active recreational areas, schools, churches, hospitals, and commercial and agricultural land uses are located along the project corridor. These land uses vary in their sensitivity to highway noise and are ranked by activity category in Table 2.2.7-1. Noise abatement criteria for these land uses are listed in Table 2.2.7-1 by activity category.

Existing Noise Barriers

The study area has existing noise barriers in the form of sound walls and berms along the majority of SR 85 and along parts of US 101 in Palo Alto/Mountain View and San Jose. To better characterize the noise environment and existing barriers along the 33.7-mile project corridor, the study area was divided into 15 segments. The segments, existing barriers, and land uses by activity category are summarized in Table 2.2.7-2.

Table 2.2.7-2: Noise Study Area Summary by Segment

Segment	Segment Description	Existing Barrier Heights (feet)	Land Uses by Activity Category
A	US 101 – Oregon Expressway to SR 85 (Palo Alto and Mountain View)	10 to 16	B, C, and D
1	SR 85 – US 101 to Central Expressway (Mountain View)	14	B, C
2	SR 85 – Central Expressway to El Camino Real (Mountain View)	12, 16	B, D
3	SR 85 – El Camino Real to Fremont Avenue (Mountain View, Sunnyvale, and Los Altos)	12, 16	B, C, and D
4	SR 85 – Fremont Avenue to I-280 (Sunnyvale and Cupertino)	12–16	B
5	SR 85 – I-280 to South De Anza Boulevard (Cupertino)	12–16	B, C, and D
6	SR 85 – South De Anza Boulevard to Saratoga Avenue (San Jose and Saratoga)	12, 14	B, C
7	SR 85 – Saratoga Avenue to Winchester Boulevard (Saratoga, San Jose, Campbell, and Los Gatos)	6–16	B, C
8	SR 85 – Winchester Boulevard to Union Avenue (Los Gatos, Campbell and San Jose)	10–16	B, C, and D
9	SR 85 – Union Avenue to Camden Avenue (San Jose)	5–14	B
10	SR 85 – Camden Avenue to Almaden Expressway (San Jose)	10–14	B, C
11	SR 85 – Almaden Expressway to Blossom Hill Road (San Jose)	6–16	B, C
12	SR 85 – Blossom Hill Road to Cottle Road (San Jose)	12, 14	B
13	SR 85 – Cottle Road to South of SR 85/US 101 Interchange (San Jose)	12–16	B, C
B	US 101 – South of SR 85/US 101 Interchange to Bailey Avenue (San Jose)	berms	B, C

Notes:
Existing barrier locations are shown in Appendix A.
Activity category descriptions are provided in Table 2.2.7-1.

[19] Land uses where people could be affected by highway noise are referred to as noise-sensitive land uses. Specific locations where people could be affected by highway noise are referred to sensitive receptors.

Noise Study

In October through mid-November 2011 and March 2012, noise measurements were conducted to document the noise environment at sensitive land uses along the project corridor. Measurements were also conducted along US 101 in April 2008 for the US 101 Auxiliary Lanes Project (EA 4A330K; Illingworth and Rodkin 2008) and updated and validated for the SR 85 Express Lanes Project in early December 2011. The measurement locations for each study were chosen to accurately represent land uses that would potentially benefit from lower future noise levels. The sites were also selected to minimize interference from noise sources other than freeway traffic. Table 2.2.7-3 lists all noise measurement locations for the proposed project.

Table 2.2.7-3: Noise Study Measurement Locations

Receptor ID	Segment	Location	Noise Abatement Criteria
Long-term measurement locations			
LT-1	1	Central Avenue trail entrance to Stevens Creek Trail, Mountain View.	Long-term measurements are used for model calibration of short-term measurements; therefore, no noise abatement criteria are applied
LT-2	2	Rear yard of 579 McCarty Avenue, Mountain View.	
LT-3	3	Rear yard of 1105 Remington Court, Sunnyvale.	
LT-4	5	Rear yard of 10480 Stokes Avenue, Cupertino.	
LT-5	6	Congress Springs Park, Saratoga.	
LT-6	9	Rear yard of 1860 Little Branham Lane, San Jose.	
LT-7	10	Rear yard of 5071 Las Cruces Court, San Jose.	
LT-8	11	Rear yard at 5464 Chesbro Avenue, San Jose.	
LT-9	12	Rear yard at 218 Herlong Avenue, San Jose.	
LT-10	13	Monterey Grove Apartment Complex, San Jose.	
LT-11	B	Rear yard of 251 Crestridge Court.	
Short-term measurement locations			
ST-1	1	Front yard of 751 San Carlos Avenue.	B(67)
ST-2	1	Rear Yard of 861 San Luppe Drive.	B(67)
ST-3	1	500 W. Middlefield Road - Willow Creek Apartments.	B(67)
ST-4	1	Equivalent to pool/common area of 500 W. Middlefield Road.	B(67)
ST-5	1	Alamo Court Park	C(67)
ST-6	1	West end of Creekside Park. Representative of park and adjacent residential apartments.	B(67)/ C(67)
ST-7	1	179 B Central Avenue condos.	B(67)
ST-8	1	117 Easy Street – Church of Scientology.	C(67)
ST-9	2	120 Pioneer Way – Jehovah's Witness Church. No sensitive outdoor uses.	D(52)
ST-10	2	Avalon Apartments.	B(67)
ST-11	2	Equivalent to apartments adjoining SR 85 along Alice Avenue.	B(67)
ST-12	3	150 Kings Row in Sahara Mobile Home Park.	B(67)
ST-12a	3	Stevens Creek Trail.	C(67)
ST-12b	3	271 Kings Row in Sahara Mobile Home Park.	B(67)
ST-13	3	Pool area of Americana Apartments.	B(67)
ST-14	3	Park along Franklin Avenue.	C(67)
ST-15	3	1240 Dale - Delmonico Apartments.	B(67)
ST-16	3	Rear yard of 1317 Brook Place.	B(67)
ST-17	3	Rear yard of 877 Heatherstone - Heatherstone Apartments.	B(67)
ST-18	3	End of Mockingbird Lane.	B(67)
ST-19	3	Alta Vista High School at setback of nearest classrooms to SR 85. Equivalent to Lubich Drive residential rear yards.	B(67)/C(67)/D(52)

Table 2.2.7-3: Noise Study Measurement Locations, continued

Receptor ID	Segment	Location	Noise Abatement Criteria
ST-20	3	Rear yard of 1429 Brookmill Road.	B(67)
ST-21	3	Bernardo Avenue - Assisted living facility, adjacent to outdoor use area.	B(67)
ST-22	4	Front of 1090 Butte Court.	B(67)
ST-23	4	Rear yard of 1272 Brookings.	B(67)
ST-24	4	Equivalent to 1112/1113 The Dalles Ave.	B(67)
ST-25	4	Rear yard of 1624 Bellville Way.	B(67)
ST-26	4	Equivalent to rear yard of 1494 S. Bernardo Avenue.	B(67)
ST-27	4	10901 Maxine Avenue.	B(67)
ST-28	4	Rear yard of 1739 Banff Drive.	B(67)
ST-29	4	Front yard of 10760 Maxine Avenue.	B(67)
ST-30	5	10700 Stokes Avenue - Somerset Park. Receptor outside of study area.	N/A
ST-31	5	Small park next to Casa de Anza Apartments on Mary Avenue.	C(67)
ST-32	5	End of Fitzgerald Avenue.	B(67)
ST-33	5	Glenbrook Apartments.	B(67)
ST-34	5	De Anza College, Campus Drive.	C(67)
ST-35	5	Home of Christ Church on Bubb Street. No sensitive outdoor uses.	D(52)
ST-36	5	South end of Campus Drive - Child Development Center.	C(67)
ST-36a[1]	5		C(67)
ST-37	5	Rear yard of 826 September Drive.	B(67)
ST-38	5	Equivalent to rear yard of 7855 Festival Drive.	B(67)
ST-39	5	Park across from 7704 Orogrande Place.	C(67)
ST-40	5	Rear yard of 7726 Tonki Court.	B(67)
ST-41	5	Rear yard of 1101 Kentwood Avenue.	B(67)
ST-42	5	Rear yard of 114 Scotland Drive.	B(67)
ST-43	6	7150 Rainbow Drive, Building 1.	B(67)
ST-44	5	Gardenside Lane at Kingsbury Place. Equivalent to outdoor use areas of residences.	B(67)
ST-45	5	Water Lily Way - townhomes.	B(67)
ST-46	6	Rear yard of 20167 Pampas Court.	B(67)
ST-47	6	Equivalent to rear yard of 7168 Shanon Court.	B(67)
ST-48	6	1507 Eddington Place.	B(67)
ST-49	6	Prospect Corners Apartments.	B(67)
ST-50	6	Rear yard of 19782 Solana Drive.	B(67)
ST-51	6	Rear yard of 20159 Marilla Court.	B(67)
ST-52	6	South corner of Kevin Moran Park.	C(67)
ST-53	6	Rear yard of 19899 Seagull Way.	B(67)
ST-54	6	13149 Anza Court.	B(67)
ST-55	6	Rear yard of 19729 Yuba Court.	B(67)
ST-56	6	Front yard of 19201 Vineyard Lane – Vineyards of Saratoga condos.	B(67)
ST-57	7	19110 Bonnet Way. Represents both rear yards and front yards.	B(67)
ST-58	7	Park across from 18906 Bellgrove Circle.	C(67)
ST-59	7	Alvarado Place.	B(67)
ST-60	7	14035 Abdulla Way.	B(67)
ST-61	7	Rear yard of 18581 Lyons Court.	B(67)
ST-62	7	5104 Westmont Avenue – Hacienda Quito Apartments.	B(67)
ST-63	7	Rear yard of 18669 Casa Blanca Lane.	B(67)
ST-64	7	Rear yard of 1380 Elwood Drive.	B(67)

Table 2.2.7-3: Noise Study Measurement Locations, continued

Receptor ID	Segment	Location	Noise Abatement Criteria
ST-65	7	5036 Pinetree Terrace – Roundtree Apartments.	B(67)
ST-66	7	Los Gatos Estates on Pollard Road.	B(67)
ST-67	7	Palmer Drive apartments, swimming pool.	B(67)
ST-68	7	Equivalent to residential yards at end of Mulberry Avenue.	B(67)
ST-69	7	Equivalent to rear yard of 748 Pollard Road.	B(67)
ST-70	7	Elmwood Court apartments.	B(67)
ST-71	7	End of Del Loma Drive.	B(67)
ST-72	8	Aventino Apartments, pool/playground.	B(67)
ST-73	8	Bonnie View mobile home park, #58.	B(67)
ST-74	8	Los Gatos Swim and Racquet Club, tennis courts.	C(67)
ST-75	8	Front yard of 106 Pso Laura Court.	B(67)
ST-76	8	Across from 16260 Burton Road.	B(67)
ST-77	8	16160 East Mozart Avenue.	B(67)
ST-78	8	Ashbrook Circle.	B(67)
ST-79	8	Rear side of Good Samaritan Hospital.	D(52)
ST-80	8	Equivalent to 2313 Clydelle Avenue.	B(67)
ST-81	8	Equivalent to rear yard of 4643 Marbella Drive.	B(67)
ST-82	8	Carolyn Norris Park.	C(67)
ST-83	9	Front yard of 4840 Anna Drive.	B(67)
ST-84	9	Standish Drive.	B(67)
ST-85	9	Equivalent to rear yard of 4794 Sally Drive.	B(67)
ST-86	9	Rosswood Drive.	B(67)
ST-87	10	Lawson Court, rear patio.	B(67)
ST-88	10	Rear yard of 1599 Rebel Way	B(67)
ST-89	10	5055 Dent Avenue.	B(67)
ST-90	10	Appleseed School field.	C(67)
ST-91	10	Rear yard of 5141 Yucatan Way.	B(67)
ST-92	10	Rear yard of 1373 Dentwood Drive.	B(67)
ST-93	10	Rear yard of 5098 Tifton Way.	B(67)
ST-94	10	5304 Ayrshire, equivalent to Almaden Elementary School playground.	B(67)/C(67)
ST-95	10	Russo Park.	C(67)
ST-96	11	Sanchez Drive.	B(67)
ST-97	11	5403-5435 Sanchez Drive – apartments.	B(67)
ST-98	11	Rear yard of 5283 Fell Avenue.	B(67)
ST-99	10	Rear yard of 1265 Dentwood Drive.	B(67)
ST-100	11	5220 Terner Way, setback of Ohlone Court apartments.	B(67)
ST-101	11	Rear yard of 5371 Glenbury Way	B(67)
ST-102	11	Gunderson High School, large baseball field.	C(67)
ST-102a1	11	Gunderson High School, small baseball field.	C(67)
ST-102b1	11	Gunderson High School, open field closest SR 85.	C(67)
ST-102c1	11	Gunderson High School, tennis courts.	C(67)
ST-103	11	In cul-de-sac near 772 Glenbury Way.	B(67)
ST-104	11	End of Rutherglen Place, rear yard pool.	B(67)
ST-105	11	Rear yard of 685 Glenbury Way, patio.	B(67)
ST-106	11	Rear yard on Gaundebert Lane.	B(67)
ST-107	11	Rear yard of 579 Glenbury Way	B(67)
ST-108	11	Rear yard of 5452 Chesbro Avenue.	B(67)
ST-109	11	Rear yard of 5536 Chesbro Avenue.	B(67)
ST-110	11	Front yard of 495 Velasco Drive.	B(67)
ST-111	11	425 Don Fernando Way - Kinderwood Children's Center.	C(67)
ST-112	12	Rear yard of 5614 New Court.	B(67)
ST-113	12	Rear yard of 5684 Crow Lane.	B(67)
ST-114	12	Front yard of 5787 Ribchester Court.	B(67)

Table 2.2.7-3: Noise Study Measurement Locations, continued

Receptor ID	Segment	Location	Noise Abatement Criteria
ST-115	12	Rear yard of 5733 Hillbright Circle, patio.	B(67)
ST-116	12	Rear yard of 5834 Bridle Way.	B(67)
ST-117	12	Rear yard of 5871 Herma Street.	B(67)
ST-118	12	Rear yard of 5874 Bufkin Court.	B(67)
ST-119	12	Rear yard of 294 Herlong Avenue.	B(67)
ST-120	12	Rear yard of 5858 Treetop Court.	B(67)
ST-121	12	End of Pala Mesa Drive.	B(67)
ST-122	12	Palm Valley townhomes, common use area/pool.	B(67)
ST-123	13	Kaiser Permanente, picnic area.	C(67)
ST-124	13	Kaiser Permanente, picnic area.	C(67)
ST-125	13	End of Holly Gillingham Lane.	B(67)
ST-126	13	Front of 5983 Breeze Court.	B(67)
ST-127	13	Monterey Grove Apartments.	B(67)
ST-128	13	Setback of mobile homes nearest US 101 in Monterey Circle.	B(67)
ST-129	B	Swimming pool at 449 Danna Court	B(67)
ST-130	B	Rear yard of 404 Birkhaven Place	B(67)
ST-131	B	Rear yard of 7032 Basking Ridge Avenue	B(67)
ST-132	B	Rear yard of 7406 Basking Ridge Avenue	B(67)
ST-133	B	Coyote Creek Trail near Metcalf Park	C(67)
ST-134	B	Parkway Fishing Lakes	C(67)
ST-135	B	Parkway Fishing Lakes	C(67)
ST-136[2]	B	Calibration point for residences on Malech Road	G
ST-136a[1]	B	Rural residence on Malech Road	B(67)
ST-136b[1]	B	Rural residence on Malech Road	B(67)
ST-136c[1]	B	Rural residence on Malech Road	B(67)
ST-137[1]	B	Rural residence off Coyote Creek Ranch Road	B(67)

Notes:
[1] Non-measurement receptor location added to the model.
[2] Used as calibration point for ST-136a, ST-136b, and ST-136c.

Noise measurement sites are depicted in Appendix A. Existing noise levels at each measurement location are listed by segment in Section 2.2.7.3.

Following established methods for a traffic noise study, the short-term and long-term measurements, together with the measured traffic conditions, vehicle mix, and site-specific geographical information, were then used to determine future noise levels in the project area. Calculated and measured noise levels were compared to assess any differences, to calibrate or validate the FHWA's Traffic Noise Model (TNM) for use in determining noise levels with and without the project, and to consider any applicable noise abatement measures.

Section 2.2.7.3 discusses the receptor locations where existing and/or future noise levels were estimated to approach or exceed the NAC.

2.2.7.3 Environmental Consequences

The project would convert the existing single HOV lanes into express lane facilities that would have one lane between US 101 in southern San Jose and SR 87, two lanes between

SR 87 and I-280, and one lane between I-280 and US 101 in Mountain View. As the proposed project would essentially add a through lane on SR 85 between SR 87 and I-280, it would qualify as a Type I project as defined in 23 CFR 772.7. Noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. This section describes the results of the noise impact assessment.

A noise impact assessment is performed for the peak noise period. The noisiest hour is not necessarily the hour with peak traffic volumes. Congestion results in slower speeds, which substantially reduces traffic noise levels. The loudest hour is typically an hour where traffic flows freely at or near-capacity conditions. The loudest hour varies throughout the project corridor based on location, proximity to other freeways, relative elevation of roadways and receptor locations, and intervening structures or barriers.

Traffic Noise Modeling

Traffic volume inputs for the traffic noise model were taken from the traffic projections developed for this project (CDM Smith 2012). Free-flowing capacity traffic conditions were used for the traffic noise modeling of existing and future noise levels where demand volumes exceeded capacity. Under this assumption, Level of Service C traffic volumes were used, which correspond with the following traffic volumes:

- 1,800 vehicles per hour per lane for general purpose lanes;
- 1,500 vehicles per hour per lane for HOV lanes;
- 1,400 vehicles per hour per lane for express lanes;
- 1,000 vehicles per hour per lane for auxiliary lanes; and
- 1,000 vehicles per hour per lane for freeway ramps.

Traffic mix information (percentage of truck classes versus autos) reported by the Department was used for both existing and future scenarios. All freeway traffic was modeled at 65 mph for autos and light trucks, 60 mph for medium trucks and heavy trucks, and 45 mph for all on- and off-ramps.

Noise Level Predictions

Noise levels were predicted for all measurement locations within the 15 study segments (Segment A on US 101 in Palo Alto/Mountain View, Segments 1 to 13 on SR 85, and Segment B on US 101 in San Jose). The study segments and land uses by activity category are discussed below. Noise impacts were identified for outdoor use areas as well by the number of affected units, or receptors.[20] Noise levels are based on the adjusted model results, using worst-case traffic conditions (in terms of noise generation) for the future No Build and Build scenarios. Overall, the project would result in a 0 to 3 dBA increase in noise levels. This is not considered a substantial project-related noise level increase with

[20] For residential (Category B) land uses, each single-family or multi-family dwelling unit counts as one receptor. Category C, D, and E land uses are assigned numbers of receptors based on site-specific criteria that are described in the Protocol.

regard to the Department's Protocol (meaning it would be less than 12 dBA, as described in Section 2.2.7.1).

Some locations are predicted to experience noise levels that approach or exceed the NAC. Noise levels for existing, future No Build, and future Build conditions at those locations are described below. Potential noise abatement is discussed in Section 2.2.7.4 and Table 2.2.7-19.

Segment A: US 101—Oregon Expressway to SR 85. Category B (residences), Category C (Greer Park), and Category D (Emerson School and the Girls' Middle School) land uses are located southwest of US 101 from Oregon Expressway to San Antonio Road and from Rengstorff Avenue to Shoreline Boulevard.

Category D land uses in this segment include the Emerson School located at 2800 West Bayshore Avenue and the Girls' Middle School located at 3400 West Bayshore Road. The construction of a noise barrier to benefit a single receptor would not be reasonable based only on cost of construction. A visual inspection of these Category D land uses was made to estimate the noise reduction provided by the building structure. The visual inspection revealed that both schools have mechanical ventilation and fixed windows. This type of construction provides a minimum noise reduction of 30 dBA indoors. Traffic noise modeling results show that exterior noise levels at the façade of the two schools would reach 77 dBA $L_{eq[h]}$ under the Build scenario. Interior noise levels would be expected to be a minimum of 30 dBA lower, or 47 dBA $L_{eq[h]}$, which is at least 5 dBA below the interior criterion of 52 dBA $L_{eq[h]}$. Category D land uses along the segment of US 101 between Oregon Expressway and SR 85 are not impacted as noise levels do not approach or exceed the NAC.

Table 2.2.7-4: Modeled Noise Levels: Oregon Expressway to SR 85

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [3]	Activity Category
	Existing	Future No Build [1]	Future Build [2]			
R20	69	70	70	1	A/E	C(67)
R21	67	69	69	2	A/E	C(67)
R22 [4]	76	77	77	1	None	D(52)
R24	78	78	78	0	A/E	B(67)
R25	65	66	66	1	A/E	B(67)
R27	73	74	74	1	A/E	B(67)
R27A	73	74	74	1	A/E	B(67)
R29	67	68	68	1	A/E	B(67)
R34	68	68	68	0	A/E	B(67)
R35	68	68	68	0	A/E	B(67)
R36	67	68	68	1	A/E	B(67)

[1] Assumes construction of US 101 Auxiliary Lanes Project (EA 4A330K.)
[2] Assumes construction of US 101 Auxiliary Lanes Project (EA 4A330K) and SR 85 Express Lanes Project (EA 04-4A7900).
[3] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC.
[4] Represents exterior façade of Category D land uses.

The locations that are predicted to approach or exceed the NAC are listed below and depicted in Appendix A:

- Single-family residences on Leghorn Street (R27 and R27A) and multi-family residences on Plymouth Street (R29) adjacent to southbound US 101 south of North Rengstorff Avenue;
- Residential neighborhood on Spring Street adjacent to southbound US 101 on-ramp from Old Middlefield Road (R34, R35, and R36);
- Sterling Park residential development along West Bayshore Road (R24); and
- Greer Park (R20 and R21).

Ten- to 16-foot noise barriers shield the majority of these land uses, except for Greer Park. Five noise barriers (SW1–SW5) were evaluated in 2008 to abate noise impacts as part of the US 101 Auxiliary Lanes Project Noise Study Report (Illingworth and Rodkin 2008) and were analyzed for the SR 85 Express Lanes Project as 101-SW1 through 101-SW5.

Segment 1: SR 85—US 101 to Central Expressway. This study segment contains residences (Category B) and Alamo Court Park, Creekside Park, and the outdoor use area of the Church of Scientology on Easy Street (Category C).

Table 2.2.7-5: Modeled Noise Levels: US 101 to Central Expressway

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact[1]	Activity Category
	Existing	Future No Build	Future Build			
LT-1	64	65	65	1	None	C(67)
ST-1	54	55	55	1	None	B(67)
ST-2	57	58	58	1	None	B(67)
ST-3	59	59	59	0	None	B(67)
ST-4	55	56	56	1	None	B(67)
ST-5	63	63	63	0	None	C(67)
ST-6	61	62	62	1	None	B(67), C(67)
ST-7	59	60	60	1	None	B(67)
ST-8	64	65	65	1	None	C(67), D(52)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

All noise-sensitive receptors are predicted to experience future Build noise levels that are more than 1 dBA below the NAC. As a result, noise abatement was not considered in this area.

Segment 2: SR 85—Central Expressway to El Camino Real. This segment contains residences (Category B) and the Kingdom Hall of Jehovah's Witnesses on Pioneer Way (Category D).

Receptor ST-9 represents the Kingdom Hall of Jehovah's Witnesses that is located at 120 Pioneer Way. No exterior uses were identified at this land use; therefore the Category D NAC would apply. A visual inspection of this Category D land use was made to estimate the noise reduction provided by the building structure. The visual inspection revealed that the building is mechanically ventilated and has fixed windows. This type of construction provides a minimum noise reduction of 30 dBA indoors. Measurements were also made indoors. The results of the measurements indicated that worst-hour noise levels in the sanctuary are 40 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$. As a result, noise abatement was not considered in this area.

Table 2.2.7-6: Modeled Noise Levels: Central Expressway to El Camino Real

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact[1]	Activity Category
	Existing	Future No Build	Future Build			
LT-2	57	58	57	0	None	B(67)
ST-9 [2]	71	72	71	0	None	D(52)
ST-10	61	62	62	1	None	B(67)
ST-11	68	68	68	0	A/E	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

[2] Represents exterior façade of Category D land use.

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- Single-family residences located east of SR 85 and north of El Camino Real (ST-11).

However, the existing noise barrier at this location is already at the maximum allowable height of 16 feet. As a result, additional noise abatement was not considered in this area.

Segment 3: SR 85—El Camino Real to Fremont Avenue. This segment contains residences (Category B); the Steven's Creek Trail and Franklin Avenue Park (Category C); and Alta Vista High School for both exterior and interior levels (Categories C and D).

Alta Vista High School, located at 1325 Bryant Avenue, was identified as a Category D land use in this segment. A 16-foot noise barrier currently shields this Category D land use. A visual inspection of this Category D land use revealed that the school is mechanically ventilated, of light frame construction, with dual thermal-pane insulating windows. This type of construction provides a minimum noise reduction of 25 dBA indoors. Traffic noise modeling results show that exterior noise levels at the façade of the school would reach 69 dBA $L_{eq[h]}$ under the Build scenario. Interior noise levels would be expected to be 44 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$.

Table 2.2.7-7: Modeled Noise Levels: El Camino Real to West Fremont Avenue

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
LT-3	64	64	64	0	None	B(67)
ST-12	64	64	64	0	None	B(67)
ST-12a	71	71	71	0	A/E	C(67)
ST-12b	59	59	59	0	None	B(67)
ST-13	57	57	57	0	None	B(67)
ST-14	62	62	62	0	None	C(67)
ST-15	64	64	64	0	None	B(67)
ST-16	63	63	63	0	None	B(67)
ST-17	63	63	63	0	None	B(67)
ST-18	64	64	64	0	None	B(67)
ST-19	69	69	69	0	A/E	B(67), C(67), D(52)
ST-20	66	66	66	0	A/E	B(67)
ST-21	71	71	71	0	A/E	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- Stevens Creek Trail (ST-12a);
- Alta Vista High School and residences located to the west of SR 85 and north of West Fremont Avenue (ST-19 and ST-20); and
- Sunnyvale Health Center, located east of SR 85 and just north of West Fremont Avenue (ST-21).

No noise barriers currently shield ST-12a or ST-21. A 12-foot barrier shields ST-20. Noise abatement in the form of new and replacement sound walls was considered for these receptors.

The existing noise barrier adjacent to Alta Vista High School and adjacent residences (ST-19) is already at the maximum allowable height of 16 feet. As a result, noise abatement was not considered for the receptors represented by ST-19.

Segment 4: SR 85—Fremont Avenue to I-280. This segment contains residences (Category B) and Cupertino Middle School (Category D).

Cupertino Middle School, located at 1650 South Bernardo Avenue, was identified as a Category D land use in this segment. A 16-foot noise barrier currently shields this Category D land use. A visual inspection of this Category D land use revealed that the school is mechanically ventilated, of light frame construction, with dual thermal-pane insulating windows. This type of construction provides a minimum noise reduction of 25 dBA indoors. Traffic noise modeling results show that exterior noise levels at the façade of the school would reach 69 dBA $L_{eq[h]}$ under the Build scenario. Interior noise levels would be expected to be 44 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$.

Table 2.2.7-8: Modeled Noise Levels: West Fremont Avenue to Interstate 280

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
ST-22	65	65	65	0	None	B(67)
ST-23	66	66	66	0	A/E	B(67)
ST-24	68	68	68	0	A/E	B(67)
ST-25 [2]	69	69	69	0	A/E	B(67), D(52)
ST-26	62	62	62	0	None	B(67)
ST-27	64	64	64	0	None	B(67)
ST-28	65	65	65	0	None	B(67)
ST-29	59	59	59	0	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC
[2] Represents exterior façade of Category D land use.

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- Single-family residences located west of SR 85 between West Fremont Avenue and Homestead Road (ST-23, ST-24, and ST-25).

A 12- to 16-foot noise barrier shields ST-23, ST-24, and ST-25. Noise abatement in the form of replacement sound walls was considered for this area.

Segment 5: SR 85—I-280 to South De Anza Boulevard. This segment contains residences (Category B); Mary Avenue Park, De Anza College, the Child Development Center at the south end of Campus Drive, and Orogrande Place Park (Category C); and the Home of Christ Church (Category D).

ST-35 represents the Home of Christ Church located at 10340 Bubb Road. No exterior uses were identified at this land use; therefore the Category D NAC would apply. A visual inspection of this Category D land use was made to estimate the noise reduction provided by the building structure. The visual inspection revealed that the building is mechanically ventilated and has fixed windows. This type of construction provides a minimum noise reduction of 30 dBA indoors. Measurements were also made indoors. The results of the measurements indicated that worst-hour noise levels in the sanctuary are 40 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$.

Table 2.2.7-9: Modeled Noise Levels: Interstate 280 to South De Anza Boulevard

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
LT-4	62	62	63	1	None	B(67)
ST-31	65	65	66	1	A/E	C(67)
ST-32	63	63	63	0	None	B(67)
ST-33	57	57	58	1	None	B(67)
ST-34	69	69	70	1	A/E	C(67), D(52)
ST-35	74	74	76	2	--	D(52)
ST-36	74	74	75	1	A/E	C(67), D(52)
ST-36a	60	60	60	0	None	C(67), D(52)
ST-37	64	64	65	1	None	B(67)
ST-38	67	67	68	1	A/E	B(67)
ST-39	68	68	68	0	A/E	C(67)
ST-40	67	67	68	1	A/E	B(67)
ST-41	63	63	64	1	None	B(67)
ST-42	68	68	69	1	A/E	B(67)
ST-44	66	66	67	1	A/E	B(67)
ST-45	64	64	65	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- First-row[21] single and multi-family residences located east of SR 85 between I-280 and Stevens Creek Boulevard (ST-31);
- De Anza College (ST-34 and ST-36);
- First-row single-family residences located north of South Stelling Road to the east (ST-40) and west of SR 85 (ST-38 and ST-39); and
- First-row single and multi-family homes located west of SR 85 and north of South De Anza Boulevard (ST-42 and ST-44).

A 16-foot noise barrier shields ST-31. No noise barriers currently shield ST-34 or ST-36. A 10.5- to 12-foot barrier shields ST-40; a 12- to 14-foot noise barrier shields ST-38 and ST-39; and a 12-foot noise barrier shields ST-42 and ST-44. Noise abatement in the form of new and replacement sound walls was considered for these areas.

Segment 6: SR 85—South De Anza Boulevard to Saratoga Avenue. This segment contains residences (Category B) as well as Kevin Moran Park and Congress Springs Park (Category C).

[21] The first row of structures from the noise sources being studied, in this case, SR 85 and US 101.

Table 2.2.7-10: Modeled Noise Levels: South De Anza Boulevard to Saratoga Avenue

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
LT-5	65	65	66	1	A/E	C(67)
ST-43	66	66	67	1	A/E	B(67)
ST-46	62	62	63	1	None	B(67)
ST-47	64	64	65	1	None	B(67)
ST-48	56	57	57	1	None	B(67)
ST-49	60	60	61	1	None	B(67)
ST-50	64	64	65	1	None	B(67)
ST-51	61	61	62	1	None	B(67)
ST-52	63	63	64	1	None	C(67)
ST-53	65	65	66	1	A/E	B(67)
ST-54	61	61	62	1	None	B(67)
ST-55	67	67	68	1	A/E	B(67)
ST-56	62	62	63	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- First-row residences located east of SR 85 between Prospect Road and Saratoga Avenue (LT-5, ST-53, and ST-55); and
- First-row residences located east of SR 85 between South De Anza Boulevard and Prospect Road (ST-43).

A 14-foot noise barrier shields LT-5, and 12-foot noise barriers shield ST-53, ST-55, and ST-43. Noise abatement in the form of replacement sound walls was considered for these areas.

Segment 7: SR 85—Saratoga Avenue to Winchester Boulevard. This segment contains residences (Category B) and Bellgrove Circle Park (Category C).

Table 2.2.7-11: Modeled Noise Levels: Saratoga Avenue to Winchester Boulevard

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
ST-57	55	55	56	1	None	B(67)
ST-58	62	62	62	0	None	C(67)
ST-59	58	58	59	1	None	B(67)
ST-60	59	59	60	1	None	B(67)
ST-61	51	51	52	1	None	B(67)
ST-62	58	58	59	1	None	B(67)
ST-63	59	59	60	1	None	B(67)
ST-64	59	59	60	1	None	B(67)
ST-65	59	59	62	3	None	B(67)
ST-66	60	60	62	2	None	B(67)
ST-67	56	56	57	1	None	B(67)
ST-68	58	58	59	1	None	B(67)
ST-69	58	58	59	1	None	B(67)
ST-70	60	60	61	1	None	B(67)
ST-71	60	60	61	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

All noise-sensitive receptors are predicted to experience future Build noise levels that are 5 dBA or more below the NAC. As a result, noise abatement was not considered in this area.

Segment 8: SR 85—Winchester Boulevard to Union Avenue. This segment contains residences (Category B); the Los Gatos Swim and Racquet Club and Hendy Lane Park (Category C); and Good Samaritan Hospital (Category D).

Good Samaritan Hospital is located at 2425 Samaritan Drive and is represented by receptor ST-79. No exterior uses were identified at this land use; therefore the Category D NAC would apply. A visual inspection of this Category D land use was made to estimate the noise reduction provided by the building structure. The visual inspection revealed that the building is mechanically ventilated and has fixed windows. This type of construction provides a minimum noise reduction of 30 dBA indoors. Traffic noise modeling results show that exterior noise levels at the façade of the hospital would reach 70 dBA $L_{eq[h]}$ under the Build scenario. Interior noise levels would be expected to be 40 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$.

Table 2.2.7-12: Modeled Noise Levels: Winchester Boulevard to Union Avenue

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
ST-72	57	57	59	2	None	B(67)
ST-73	56	56	57	1	None	B(67)
ST-74	65	65	66	1	A/E	C(67)
ST-74a	64	64	65	1	None	C(67)
ST-75	54	54	54	0	None	B(67)
ST-76	57	57	57	0	None	B(67)
ST-77	56	56	57	1	None	B(67)
ST-78	61	61	62	1	None	B(67)
ST-79 [2]	69	69	70	1	--	D(52)
ST-80	62	62	63	1	None	B(67)
ST-81	59	59	60	1	None	B(67)
ST-82	59	59	60	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC
[2] Represents exterior façade of Category D land use.

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- Los Gatos Swim and Racquet Club, located southwest of the SR 85 and SR 17 interchange (ST-74).

Noise abatement in the form of a new sound wall was considered for this area.

Segment 9: SR 85—Union Avenue to Camden Avenue. This segment contains residences (Category B).

Table 2.2.7-13: Modeled Noise Levels: Union Avenue to Camden Avenue

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
LT-6	59	59	60	1	None	B(67)
ST-83	65	65	66	1	A/E	B(67)
ST-84	57	57	58	1	None	B(67)
ST-85	61	61	62	1	None	B(67)
ST-86	64	64	65	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- First-row residences located south of SR 85 between Union Avenue and Leigh Avenue (ST-83).

A 10-foot noise barrier shields ST-83. Noise abatement in the form of a replacement sound wall was considered for this area.

Segment 10: SR 85—Camden Avenue to Almaden Expressway. This segment contains residences (Category B) and the Appleseed School field, Almaden Elementary School, and Russo Park (Category C).

Table 2.2.7-14: Modeled Noise Levels: Camden Avenue to Almaden Expressway

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
LT-7	66	66	67	1	A/E	B(67)
ST-87	64	64	65	1	None	B(67)
ST-88	64	64	65	1	None	B(67)
ST-89	59	59	61	2	None	B(67)
ST-90	58	58	59	1	None	C(67)
ST-91	65	65	66	1	A/E	B(67)
ST-92	62	62	63	1	None	B(67)
ST-93	54	54	55	1	None	B(67)
ST-94	58	58	59	1	None	C(67)
ST-95	68	68	68	0	A/E	B(67)
ST-99	62	62	63	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- First-row single-family residences located north of SR 85 between Meridian Avenue and Almaden Expressway (LT-7, ST-91, and ST-95).

Ten- to 14-foot noise barriers shield LT-7, ST-91, and ST-95. Noise abatement in the form of a replacement sound wall was considered for this area.

Segment 11: SR 85—Almaden Expressway to Blossom Hill Road. This segment contains residences (Category B) and the Gunderson High School sports fields and Kinderwood Children's Center (Category C).

Table 2.2.7-15: Modeled Noise Levels: Almaden Expressway to Blossom Hill Road

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
LT-8	59	59	59	0	None	B(67)
ST-96	62	62	64	2	None	B(67)
ST-97	65	65	67	2	A/E	B(67)
ST-98	65	65	67	2	A/E	B(67)
ST-100	58	59	60	2	None	B(67)
ST-101	60	60	60	0	None	B(67)
ST-102	64	64	64	0	None	C(67)
ST-102a	59	59	60	1	None	B(67)
ST-102b	71	71	71	0	A/E	B(67)
ST-102c	64	64	65	1	None	B(67)
ST-103	57	57	57	0	None	B(67)
ST-104	61	61	61	0	None	B(67)
ST-105	64	64	64	0	None	B(67)
ST-106	62	62	62	0	None	B(67)
ST-107	66	66	66	0	A/E	B(67)
ST-108	61	61	61	0	None	B(67)
ST-109	64	64	64	0	None	B(67)
ST-110	60	60	60	0	None	B(67)
ST-111	55	55	55	0	None	C(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- Multi-family residences located southeast of the interchange between SR 85 and Almaden Expressway (ST-97);
- First-row single family homes located north of SR 85 between Almaden Expressway and Santa Teresa Boulevard (ST-98);
- Sports fields at Gunderson High School (ST-102b); and
- First-row single family residences located south of SR 85 between Santa Teresa Boulevard and Blossom Hill Road, near Dunsburry Way (ST-107).

A 6-foot parapet currently shields ST-97 and ST-98, and a 12-foot noise barrier shields ST-107 and partially shields ST-102b. Noise abatement in the form of replacement sound walls was considered for these areas.

Segment 12: SR 85—Blossom Hill Road to Cottle Road. This segment contains residences (Category B).

Table 2.2.7-16: Modeled Noise Levels: Blossom Hill Road to Cottle Road

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
LT-9	63	63	63	0	None	B(67)
ST-112	56	56	56	0	None	B(67)
ST-113	64	64	65	1	None	B(67)
ST-114	57	57	57	0	None	B(67)
ST-115	62	63	63	1	None	B(67)
ST-116	63	63	63	0	None	B(67)
ST-117	64	65	65	1	None	B(67)
ST-118	62	62	62	0	None	B(67)
ST-119	63	64	64	1	None	B(67)
ST-120	63	63	63	0	None	B(67)
ST-121	62	62	62	0	None	B(67)
ST-122	61	62	62	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

All noise sensitive receptors are predicted to experience future Build noise levels that are more than 1 dBA below the NAC. As a result, noise abatement was not considered in this area.

Segment 13: SR 85—Cottle Road to US 101. This segment contains residences (Category B) and Kaiser Permanente picnic areas (Category C).

Table 2.2.7-17: Modeled Noise Levels: Cottle Road to US 101

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
ST-123	59	60	60	1	None	C(67)
ST-124	63	64	64	1	None	C(67)
ST-125	62	63	63	1	None	B(67)
ST-126	54	55	55	1	None	B(67)
ST-127	62	62	63	1	None	B(67)
ST-128	62	62	63	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC

Future Build noise levels are not predicted to approach or exceed the NAC at any noise sensitive receptors in this segment. As a result, noise abatement was not considered in this area.

Segment B: US 101—South of SR 85/US 101 Interchange to Bailey Avenue. This segment contains residences east of US 101 along Basking Ridge Avenue and off of Malech Road, and between the freeway and Coyote Ranch Road west of US 101 (Category B). Category C land uses include the Coyote Creek Trail, Coyote Creek Park, and Metcalf Park.

Table 2.2.7-18: Modeled Noise Levels: SR 85/US 101 Interchange to Bailey Avenue

Receptor ID	Worst Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing	Impact [1]	Activity Category
	Existing	Future No Build	Future Build			
LT-11	64	64	64	0	None	B(67)
ST-129	56	56	56	0	None	B(67)
ST-130	61	61	61	0	None	B(67)
ST-131	64	64	65	1	None	B(67)
ST-132	60	60	61	1	None	B(67)
ST-133	62	62	63	1	None	C(67)
ST-134	62	62	63	1	None	C(67)
ST-135	64	64	65	1	None	C(67)
ST-136[2]	69	69	70	1	None	G
ST-136a	66	66	67	1	A/E	B(67)
ST-136b	67	67	68	1	A/E	B(67)
ST-136c	66	66	67	1	A/E	B(67)
ST-137	63	63	64	1	None	B(67)

[1] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC
[2] Used as calibration point for ST-136a, ST-136b, and ST-136c.

The locations that are predicted to approach or exceed the NAC are described below and depicted in Appendix A:

- Single-family residences along Malech Road, northeast of the US 101/Bailey Avenue interchange (ST-136a, ST-136b, and ST-136c).

Noise abatement in the form of a new sound wall was considered for these receptors.

2.2.7.4 Avoidance, Minimization, and Abatement Measures

Traffic Noise Abatement Evaluation

Receptors that exceed either state or federal thresholds must be evaluated for potential abatement measures. Noise abatement is considered only where frequent human use occurs and where a lowered noise level would be of benefit. Noise abatement must be predicted to provide at least a 5-decibel (dB) minimum reduction at an impacted receptor to be considered feasible by the Department (i.e., the barrier would provide a noticeable noise reduction). Additionally, the Protocol acoustical design goal states that the noise barrier must provide at least 7 dB of noise reduction at one or more benefited receptors. Noise abatement measures that provide noise reduction of more than 5 dB are encouraged as long as they meet the reasonableness guidelines. The cost is based on a current allowance per benefited receptor of $55,000.

Potential noise abatement measures identified in the Protocol include:

- Avoiding the project impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise barriers;
- Using traffic management measures to regulate types of vehicles and speeds;

- Acquiring property to serve as a buffer zone; and/or
- Acoustically insulating Activity Category D land uses (such as auditoriums, day care centers, hospitals, and libraries).

The chosen abatement type for this project would be the construction of noise barriers. The reasons for not including the other potential abatement measures are as follows:

- Avoiding the project impact by using design alternatives, such as altering the horizontal and vertical alignment of the project, is not considered practicable because the project is on an already-constructed roadway, and parts of SR 85 are already below the grade of surrounding development.
- Using traffic management measures to regulate types of vehicles and speeds is not considered practicable because the greatest generator of highway noise is trucks, and trucks are already restricted on much of SR 85. Unless restrictions were imposed on the part of SR 85 where trucks are allowed, there would be no noticeable change in truck traffic noise.
- Acquiring property to serve as a buffer zone would greatly increase the environmental impacts and implementation costs for the project, as most of the project corridor is bordered on both sides by residential and other development.
- Acoustically insulating Activity Category D land uses (such as auditoriums, day care centers, hospitals, and libraries) has been considered. Category D land uses along the project corridor were evaluated in accordance with Caltrans and FHWA standards. At each of the Category D land uses, interior noise levels were either measured, or, if permission to enter to take measurements was denied, estimated based on construction methods, ventilation system type, and window type. No Category D land uses were identified that would have future noise levels with the project that would approach or exceed the interior noise abatement criteria (NAC) of 52 dBA $L_{eq[h]}$. Therefore, providing additional acoustical insulation for Category D land uses is not warranted.

A preliminary noise abatement analysis was conducted that identified the feasibility of constructing or replacing noise barriers to reduce traffic noise levels.

Table 2.2.7-19 summarizes the results of the noise abatement analysis for each study area segment that had representative receptors where future noise levels would approach or exceed the NAC (described in Section 2.2.7.3). Segments 1, 7, 12, and 13 are not included in Table 2.2.7-19 because the noise study indicates that no receptors in those segments would have future noise levels that would approach or exceed the NAC. Segment 2 is not included in Table 2.2.7-19 because receptors that would have future noise levels that approach or exceed the NAC are already protected by a 16-foot sound wall (the maximum allowable height).

Table 2.2.7-19 lists noise levels with and without the project, the corresponding sound walls that were studied to provide noise abatement for those receptors, the wall heights analyzed, and the predicted noise levels at each receptor if the walls were constructed. The potential sound wall locations are depicted in Appendix A. For each sound wall that met the Protocol acoustical design goal (at least 7 dB of noise reduction at one or more benefited receptors), Table 2.2.7-19 also identifies the total reasonableness allowance for each sound wall and the estimated construction cost.

Of the 8 new and 16 modified sound walls analyzed, 6 had at least one wall height that would meet the noise reduction design goal of a 7 dB noise reduction at a minimum of one receptor location. The total reasonableness allowance[22] for each feasible sound wall ranged from $55,000 to $2,365,000, depending on the wall height and number of benefited receptors. In all cases, the estimated construction costs[23] of the walls well exceeded the combined reasonableness allowance for the benefited receptors.

None of the sound walls evaluated meet both the feasibility and reasonableness criteria described at the beginning of Section 2.2.7.1. No noise barriers or other abatement measures are included in the project. If the project changes substantially during detailed design, noise abatement will be reconsidered.

[22] **Total reasonableness allowance** was calculated based on the allowance of $55,000 per benefited receptor, which is set by the Protocol.
[23] **Estimated construction cost** was calculated based on the square footage of the analyzed wall multiplied by an estimated construction cost of $100 per square foot. The estimated construction cost ranges based on the length and height of the analyzed wall.

Table 2.2.7-19: Noise Abatement Analysis Results

Segment A: US 101—Oregon Expressway to SR 85

***Sound Wall ID*: Receptor ID and Location**	**Noise Level (dBA)**			**Predicted Noise Level (dBA) w/Abatement (by wall height [ft])**					**Total Reasonableness Allowance**	**Construction Cost**	**Reasonable and Feasible?**
	Existing	**Predicted without Project[1]**	**Predicted with Project[2]**	**8**	**10**	**12**	**14**	**16**			
101-SW1 (new wall)											
R20 – Greer Park	69	70	70	67	65	64	63	63	$220,000	$960,000–$1,280,000	No
R21 – Greer Park	67	69	69	65	64	62	61	61			
101-SW2 (increase height of existing wall)											
R24 – W. Bayshore Rd.	66	66	66	[a]	[a]	[a]	[a]	66	NA	NA	No
101-SW3 (new wall)											
R27 – Leghorn St.	73	74	74	68	67	65	64	63	$220,000	$800,000–$1,280,000	No
R27A – Leghorn St.	73	74	74	68	66	65	64	63			
101-SW4 (increase height of existing wall)											
R29 – Plymouth St.	67	68	68	[b]	[b]	[b]	67	66	NA	NA	No
101-SW5 (increase height of existing wall)											
R34 – Spring St.	68	68	68	[c]	[c]	66	65	64	NA	NA	No
R35 – Spring St.	68	68	68	[c]	[c]	66	65	64			
R36 – Spring St.	67	68	68	[c]	[c]	67	65	64			

Notes:

Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.

[a] – Already protected by a 14-foot sound wall

[b] – Already protected by a 12-foot sound wall

[c] – Already protected by a 10-foot sound wall

[1] –Assumes construction of the US 101 Auxiliary Lanes Project (EA 4A330K)

[2] – Assumes construction of the US 101 Auxiliary Lanes Project (EA 4A330K) and SR 85 Express Lanes Project (EA-04-4A7900)

NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment 3: SR 85—El Camino Real to Fremont Avenue

Sound Wall ID: Receptor ID and Location	Noise Level (dBA)			Predicted Noise Level (dBA) w/Abatement (by wall height [ft])					Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
	Existing	Predicted without Project	Predicted with Project	8	10	12	14	16			
SW1 (new wall)											
ST-12 – Kings Row	64	64	64	58	58	57	56	55	$1,595,000–$2,365,000	$2,920,000–4,672,000	No
ST-12a – Stevens Creek Trail	71	71	71	65	64	62	61	60			
ST-12b – Kings Row	59	59	59	59	58	57	56	55			
ST-14 – Franklin Ave.	62	62	62	58	58	56	55	54			
SW2 (new wall)											
ST-21 – Bernardo Ave.	71	71	71	70	67	66	65	64	$55,000	$1,200,000	No
SW3 (increase height of existing wall):											
ST-20 – Brookmill Rd.	66	66	66	[a]	[a]	[a]	65	63	NA	NA	No

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
ST-19 is already protected by a 16-foot sound wall; therefore, a replacement wall was not considered.
[a] – Already protected by a 12-foot sound wall
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment 4: SR 85—Fremont Avenue to Interstate 280

Sound Wall ID: Receptor ID and Location	Noise Level (dBA)			Predicted Noise Level (dBA) w/Abatement (by wall height [ft])					Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
	Existing	Predicted without Project	Predicted with Project	8	10	12	14	16			
SW4 (increase height of existing wall)											
ST-23 – Brookings Rd.	66	66	66	[a]	[a]	[a]	[a]	63	NA	NA	No
ST-24 – The Dalles Ave.	68	68	68	[a]	[a]	[a]	[a]	68			
ST-25[b] – Bellville Way	69	69	69	[a]	[a]	[a]	[a]	68			

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
[a] – Already protected by 12- to 16-foot sound wall
[b] – Represents exterior façade of Category D land use
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment 5: SR 85—Interstate 280 to South De Anza Boulevard

Sound Wall ID: Receptor ID and Location	Noise Level (dBA) Existing	Noise Level (dBA) Predicted without Project	Noise Level (dBA) Predicted with Project	Predicted Noise Level (dBA) w/Abatement (by wall height [ft]) 8	10	12	14	16	Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
SW5 (new wall)											
ST-34 – Campus Dr.	69	69	72	66	65	65	64	63	$55,000–$110,000	$2,490,000–$3,984,000	No
ST-36 – Campus Dr.	74	74	77	72	70	68	67	66			
SW6 (*increase height of existing wall*)											
ST-38 – South Stelling Rd.	67	67	68	[a]	[a]	[a]	[a]	66	NA	NA	No
ST-39 – South Stelling Rd.	68	68	68	[a]	[a]	[a]	[a]	68			
SW7 (increase height of existing wall)											
ST-40 – Tonki Ct.	67	67	68	[b]	[b]	[b]	67	66	NA	NA	No
SW8 (increase height of existing wall)											
ST-42 – Scotland Dr.	68	68	69	[c]	[c]	[c]	68	67	NA	NA	No
ST-44 – Gardenside Ln.	66	66	67	[c]	[c]	[c]	66	65			

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
ST-31 is already protected by a 16-foot sound wall; therefore, a replacement wall was not considered.
For ST-34 and ST-36, predicted noise levels with the project and with abatement assume a 2 dBA increase in traffic noise from the proposed auxiliary lane on northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard (URS 2013n).
[a] – Already protected by 14-foot sound wall
[b] – Already protected by 11- to 12-foot sound wall
[c] – Already protected by 12-foot sound wall
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment 6: SR 85—South De Anza Boulevard to Saratoga Avenue

Sound Wall ID: Receptor ID and Location	Noise Level (dBA) Existing	Noise Level (dBA) Predicted without Project	Noise Level (dBA) Predicted with Project	Predicted Noise Level (dBA) w/Abatement (by wall height [ft]) 8	10	12	14	16	Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
SW9 (increase height of existing wall)											
ST-43 – Rainbow Dr.	66	66	67	[a]	[a]	[a]	67	66	NA	NA	No
ST-48 – Eddington Pl.	56	57	57	[a]	[a]	[a]	56	55			
SW10 (increase height of existing wall)											
ST-51 – Marilla Ct.	61	61	62	[a]	[a]	[a]	62	62	NA	NA	No
ST-53 – Seagull Way	65	65	66	[a]	[a]	[a]	64	63			
ST-55 – Yuba Ct.	67	67	68	[a]	[a]	[a]	67	66			
SW11 (increase height of existing wall)											
LT-5 – Congress Springs Park	65	65	66	[a]	[a]	[a]	65	64	NA	NA	No

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
[a] – Already protected by 12-foot sound wall
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment 8: SR 85—Winchester Boulevard to Union Avenue

Sound Wall ID: Receptor ID and Location	Noise Level (dBA) Existing	Predicted without Project	Predicted with Project	Predicted Noise Level (dBA) w/Abatement (by wall height [ft]) 8	10	12	14	16	Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
SW12 (new wall)											
ST-74 – Los Gatos Swim and Racquet Club	65	65	66	62	61	61	60	60	NA	NA	No

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment 9: SR 85—Union Avenue to Camden Avenue

Sound Wall ID: Receptor ID and Location	Noise Level (dBA) Existing	Predicted without Project	Predicted with Project	Predicted Noise Level (dBA) w/Abatement (by wall height [ft]) 8	10	12	14	16	Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
SW13 (increase height of existing wall)											
ST-83 – Anna Dr.	65	65	66	[a]	[a]	65	65	64	NA	NA	No

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
[a] – Already protected by 12- to 16-foot sound wall
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment 10: SR 85—Camden Avenue to Almaden Expressway

Sound Wall ID: Receptor ID and Location	Noise Level (dBA) Existing	Predicted without Project	Predicted with Project	Predicted Noise Level (dBA) w/Abatement (by wall height [ft]) 8	10	12	14	16	Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
SW14 (increase height of existing wall)											
LT-7 – Las Cruces Ct.	66	66	67	[a]	[a]	[a]	[a]	65	NA	NA	No
ST-91 – Yucatan Way	65	65	66	[a]	[a]	[a]	[a]	64			
ST-93 – Tifton Way	54	54	55	[a]	[a]	[a]	[a]	55			
ST-95 – Russo Park	68	68	68	[a]	[a]	[a]	[a]	68			

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
[a] – Already protected by 10- to 14-foot sound wall
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment 11: SR 85—Almaden Expressway to Blossom Hill Road

Sound Wall ID: Receptor ID and Location	Noise Level (dBA)			Predicted Noise Level (dBA) w/Abatement (by wall height [ft])					Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
	Existing	Predicted without Project	Predicted with Project	8	10	12	14	16			
SW15 (increase height of existing wall)											
ST-96 – Sanchez Dr.	62	62	64	63 [a]	63 [a]	63 [a]	63 [a]	63 [a]	NA	NA	No
ST-97 – Sanchez Dr.	65	65	67	67 [a]	67 [a]	67 [a]	67 [a]	67 [a]			
SW16 (increase height of existing wall)											
ST-98 – Fell Ave.	65	65	67	67 [a]	67 [a]	67 [a]	67 [a]	67 [a]	NA	NA	No
ST-100 – Terner Way	58	59	60	59 [a]	59 [a]	59 [a]	59 [a]	59 [a]			
SW17 (new wall)											
ST-102 – Gunderson High	64	64	64	60	60	59	59	59	$1,100,000–$1,155,000	$1,675,000–$2,680,000	No
ST-102a – Gunderson High	59	59	60	56	56	56	56	56			
ST-102b – Gunderson High	71	71	71	65	64	63	62	61			
ST-102c – Gunderson High	64	64	65	60	60	59	59	58			
SW18 (increase height of existing wall)											
ST-107 – Glenbury Way	66	66	66	[b]	[b]	[b]	65	64	NA	NA	No
ST-108 – Chesbro Ave.	61	61	61	[b]	[b]	[b]	60	59			
LT-8 – Chesbro Ave.	59	59	59	[b]	[b]	[b]	58	58			

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
[a] – Already protected by 6-foot sound wall
[b] – Already protected by 10- to 12-foot sound wall
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Segment B: US 101—South of SR 85/US 101 Interchange to Bailey Avenue

Sound Wall ID: Receptor ID and Location	Noise Level (dBA)			Predicted Noise Level (dBA) w/Abatement (by wall height [ft])					Total Reasonable-ness Allowance	Construction Cost	Reasonable and Feasible?
	Existing	Predicted without Project	Predicted with Project	8	10	12	14	16			
101-SW6 (new wall)											
ST-136a – Malech Rd.	66	66	67	65	65	64	64	64	NA	NA	No
ST-136b – Malech Rd.	67	67	68	65	65	65	64	64			
ST-136c – Malech Rd.	66	66	67	65	64	63	63	63			

Notes:
Shaded cells indicate that wall height does not meet the 7dB noise reduction goal and is therefore not considered reasonable.
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

<u>**Construction Noise Measures**</u>

Work taking place within the Department right-of-way is not subject to local noise ordinances; however, the Department will work with the contractor to meet local requirements where feasible. The cities of Palo Alto, Mountain View, Sunnyvale, Cupertino, Saratoga, Los Altos, and San Jose, and Santa Clara County have ordinances or General Plan polices that define construction activities and noise during specified daytime hours and on weekends.

Construction activities for the proposed project consist of inside pavement widening for the addition of a second express lane between SR 87 and I-280; outside pavement widening for the addition of an auxiliary lane along a 1.1-mile segment of northbound SR 85 between the existing South De Anza Boulevard on-ramp and Stevens Creek Boulevard off-ramp; bridge widening; and installation of electronic tolling equipment, roadway surveillance closed-circuit television cameras, vehicle detection stations, overhead signs, and lighting.

Construction noise would primarily result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. The highest maximum instantaneous noise levels would result from special impact tools such as impact pile drivers, if pile driving is used. The geotechnical analysis conducted for the project indicates that cast-in-drilled-hole (CIDH) piles, which would not involve impact pile driving, can be used to support overhead signs and toll structures. Either driven or CIDH piles can be used for bridge widening supports except at Pollard Road, which would have spread footings that do not require piles.

FHWA's Roadway Construction Noise Model was used to calculate the maximum and average noise levels anticipated during each phase of construction. This construction noise model includes representative sound levels for the most common types of construction equipment and the approximate usage factors of such equipment that were developed based on an extensive database of information gathered during the construction of the Central Artery/Tunnel Project in Boston, Massachusetts (CA/T Project or "Big Dig"). The usage factors represent the percentage of time that the equipment would be operating at full power. Vehicles and equipment anticipated during each phase of construction were input into the model to calculate noise levels at a distance of 100 feet.

Table 2.2.7-20 presents the construction noise levels calculated for each major phase of the project. In some instances, maximum instantaneous noise levels are calculated to be slightly lower than hourly average noise levels. This occurs because maximum instantaneous noise levels generated by multiple pieces of construction equipment are not likely to occur at the same time. Hourly average noise levels resulting from multiple pieces of construction equipment would be additive resulting in slightly higher calculated noise levels. Noise generated by construction equipment drops off at a rate of 6 dB per doubling of distance.

Table 2.2.7-20: Construction Equipment Noise Levels at 100 feet

Construction Phase	Maximum Noise Level (Lmax, dBA)	Hourly Average Noise Level ($L_{eq[h]}$, dBA)
Demolition	84	78
Earthwork	76	78
Paving	79	79
Structures (with pile driving)	95	89
Structures (without pile driving)	77	78

Noise generated by project-related construction activities would be temporary, concentrated in specific areas over a period of several days to a few weeks. The majority of project construction activities would take place in the SR 85 median, a minimum of approximately 75 feet from the outside edge of the right-of-way. As shown in Table 2.2.7-20, most construction phases would generate average noise levels that would exceed ambient daytime noise levels by 5 to 10 dBA $L_{eq[h]}$. The majority of residential receptors that are adjacent to SR 85 are shielded by existing noise barriers ranging from 10 to 16 feet in height. The noise barriers would provide a minimum 10 dBA reduction in construction noise levels. Therefore, construction noise levels at receptors nearest the project alignment would not be substantially higher than existing hourly average traffic noise levels on SR 85 (53 to 71 dBA $L_{eq[h]}$), except for pile driving. Temporary construction techniques such as pile driving could generate high, impulsive noise levels that exceed existing traffic noise levels and noise level limits established by local jurisdictions.

The following measures will be implemented to minimize or reduce the potential for noise impacts resulting from project construction:

- Limit pile driving activities to daytime hours only.
- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Use “quiet” air compressors and other “quiet” equipment where such technology exists.
- Prohibit unnecessary idling of internal combustion engines within 100 feet of residences.
- Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems as far practical from noise sensitive residences.
- Require all construction equipment to conform to Section 14-8.02, Noise Control, of the latest Department Standard Specifications.
- Require the contractor to prepare a detailed construction plan identifying the schedule for major noise-generating construction activities and distribute this plan to adjacent noise-sensitive receptors. The construction plan should also list the construction noise reduction measures identified in this section.

2.2.7.5 CEQA Noise Analysis

The significance of a noise impact under CEQA is evaluated based on the difference between the baseline noise level and Build noise level. This assessment entails looking at the setting of the noise impact and how large or perceptible any noise increase would be in the given area.

The noise analysis described in Section 2.2.7.3 considered the noise setting of several receptor locations along the project corridor, which are identified by development type in Section 2.2.7.2 and by specific location in Appendix A. The analysis found that the differences between the baseline noise level and Build noise level ranged from 0 to 3 dBA. An increase of 3 dBA is considered to be barely detectable to the human ear. Therefore, under CEQA, changes in traffic noise from the project would not result in a significant impact. (As described in Section 2.2.7.4, however, noise abatement has been considered under NEPA and 23 CFR 772.)

2.3 Biological Environment

2.3.1 Natural Communities

This section is summarized from the *Natural Environment Study* (URS 2013d) for the proposed project, which was completed in October 2013.

This section of the document discusses natural communities of concern. The focus of this section is on biological communities and the ecological function of the natural communities within the area, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife as seasonal or daily travel routes. Habitat fragmentation may lessen its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act (FESA) are discussed below in the Threatened and Endangered Species (Section 2.3.5). Wetlands and other waters are discussed in Section 2.3.2.

2.3.1.1 Affected Environment

A biological study area (BSA) was established to evaluate the effects of the proposed project on natural communities and other biological resources. The BSA extends beyond the project footprint to include the land surface that could be affected by project construction activities, including paved roadway surfaces, landscaped and disturbed upland habitat, wetlands and waters (including culverted waters, which are waters in pipes or waterways that flow under a road), and developed land including buildings and other structures along SR 85 and US 101. More than 90 percent of BSA contains pavement, various kinds of urban development, and landscaping. The remaining 10 percent contains nonlandscaped vegetation, more than half of which is ruderal California annual grassland.

Vegetation Communities

The BSA and surrounding area is highly developed with commercial, industrial, and residential land uses. Most upland vegetation consists of ruderal, landscaped, or nonnative species. Undeveloped areas and roadsides contain ruderal California annual grassland, which primarily consists of exotic grasses including Italian ryegrass *(Festuca perennis),* annual fescue *(Vulpia myuros),* and wild oats *(Avena fatua).* Portions of roadsides, streambanks, and ditches in the BSA are dominated by a mixture of native and landscaped vegetation.

Serpentine Grasslands

Other than vegetation associated with wetlands and waters, serpentine grasslands are the only natural community in the BSA that is considered uncommon or a community of special concern. Approximately 0.83 acre of serpentine grasslands was identified in the BSA along both sides of US 101 south of the SR 85/US 101 interchange in San Jose, between the Metcalf Road overcrossing and the Bailey Avenue interchange. This natural community develops on serpentine soils derived from minerals high in magnesium and iron but extremely low in calcium and other nutrients. The high concentration of magnesium relative to calcium is the most characteristic feature of serpentine soils. The harsh soil conditions thwart colonization by invasive plants and allow native plants adapted to serpentine soils to thrive. These soils support an unusually diverse and intact native plant community compared to other annual grasslands in California.

Serpentine grasslands also support a variety of endemic plants and animals (species that are only found in a particular location or habitat). Among the native plants that characterize the serpentine grasslands in the BSA are dwarf plantain *(Plantago erecta)*, which is the primary host plant for the endemic bay checkerspot butterfly *(Euphydryas editha bayensis)*, and California goldfields *(Lasthenia californica)*. Another plant species found in the serpentine grasslands is smooth lessingia *(Lessingia micradenia* var. *glabrata)*, a California Native Plant Society (CNPS) list 1B.2 species[24] that grows on serpentine soils or outcrops.

Serpentine grasslands are considered imperiled by California Department of Fish and Wildlife (CDFW) and ranked G2 and S2.2 by the Global and state ranking system.[25]

San Tomas Aquino and Saratoga Creek Riparian Corridors

Riparian areas are transition zones that connect water with land and that can host a wide array of plant and animal life. As described in Sections 2.2.1.2 and 2.2.2.2, US 101 and SR 85 cross several streams within the project limits, some of which have riparian areas. The project would involve work near only two of those riparian areas, at San Tomas Aquino Creek and Saratoga Creek.

San Tomas Aquino Creek passes under SR 85 just upstream of the confluence with Wildcat Creek in a residential neighborhood of Saratoga. The creek is surrounded by residences, railroad tracks, and an agricultural farm. An unpaved SCVWD maintenance road runs along the top of the southern creek bank in the BSA, including under the bridge.

In the BSA, San Tomas Aquino Creek is lined on both banks with sack concrete and riprap, and the creek bed is cobble and sand. During field visits on August 4, 2010, and March 16, 2012, the creek segment in the BSA was completely dry. With the exception of a nonnative blue gum eucalyptus (*Eucalyptus globulus*) on the upstream side of the bridge, there were no trees on or within the creek banks in the BSA. Other than nonnative weeds such as black mustard (*Brassica nigra*), the San Tomas Aquino Creek corridor in the BSA lacks vegetation.

Saratoga Creek passes beneath SR 85 in a suburban part of Saratoga close to residential development, railroad tracks, little league ballfields, and landscaped areas. The creek is lined with riprap for the entire section in the BSA. The riprap boulders range in size from approximately 1 foot to 4 feet in diameter. The riprap covers the entire stream banks under the SR 85 bridges from the abutments down to the stream channel. Sediment that had been deposited between the riprap boulders supports vegetation, including riparian trees, where sunlight is available. Riparian trees and vegetation are present between the northbound and southbound bridges and the northbound on-ramp and southbound off-ramp bridges.

On the west side of the SR 85 bridges over Saratoga Creek, a white alder riparian forest community is present that includes white alder (*Alnus rhombifolia*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), shining willow (*Salix lucida*),Oregon ash (*Fraxinus latifolia*), and big leaf maple (*Acer macrophyllum*). The understory consists mostly of Himalayan blackberry (*Rubus discolor*) and English ivy (*Hedera helix*) that covers the riprap. On the east

[24] The CNPS list 1B.2 ranking indicates the plant is rare throughout its range, and 20 to 80 percent of occurrences are threatened.
[25] The community is limited to 2,000 to 10,000 acres within its global and state range and is considered threatened at the state level.

side of the SR 85 bridges is a California sycamore riparian forest community that includes California sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), Oregon ash (*Fraxinus latifolia*), and white alder. The understory in this community consists of Himalayan blackberry, English ivy, and poison oak (*Toxicodendron diversilobum*). On the creek banks between the northbound and southbound SR 85 bridges where the sunlight penetrates, there are two trees: an arroyo willow and a big leaf maple.

Fish Passage

California Senate Bill 857 requires the Department to survey highway system culverts on coastal streams where migratory fish are currently or were historically present and take related actions to systematically review and remediate barriers to fish passage related to transportation projects. Fish passage was evaluated at the four stream crossings in the BSA where anadromous fish[26] occur: Coyote Creek, Guadalupe River, Los Gatos Creek, and Stevens Creek. The bridges over Coyote Creek (US 101 PM 26.47 and 26.60), Guadalupe River (SR 85 PM 5.59), and Los Gatos Creek (SR 85 PM 10.80) have separate structures for the northbound and southbound directions that range in width from 47 to 95 feet. Each bridge crossing presents hydrologic conditions similar to the upstream and downstream portions of the creek. No visible passage barriers were evident during field surveys, and no fish passage barriers are identified at these crossings in the Calfish California Fish Passage Database (Calfish 2013). Therefore, the existing creek crossings appear to be completely passable to anadromous fish.

At Stevens Creek, the three stream crossings under SR 85 (PMs 22.95, 20.96, and 20.02) and the one under US 101 (PM 48.04) are identified as partial barriers in the Calfish California Fish Passage Database (Calfish 2013). The northernmost SR 85/Stevens Creek crossing consists of a relatively narrow concrete chute, a drop structure, and a cobble streambed. The other two SR 85/Stevens Creek crossings to the south are also channelized in concrete underpasses. The US 101/Stevens Creek crossing consists of a concrete box culvert underpass. The long narrow concrete channels, drop structures, and lack of refuge habitat at these crossings may combine to hinder the passage of anadromous fish during seasons of low water flow. A detailed fish passage assessment was not performed at the Stevens Creek crossings because the crossings will not be affected by the project.

2.3.1.2 Environmental Consequences

Parts of the SR 85 Express Lanes Project lie within an area addressed in the 2001 U.S. Fish and Wildlife Service (USFWS) Biological Opinion (BO) for the US 101 Widening, SR 85/US 101 South Interchange, Riparian and Wetland Consolidated Biological Mitigation, Bailey Road Avenue Extension/US 101 Interchange, and Coyote Valley Research Park projects (USFWS # 1-1-01-F-186). As a condition for approval of the group of projects considered in the BO, the USFWS recommended that a regional Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) be developed. In June 2004, Santa Clara County, the City of San Jose, VTA, and the SCVWD signed a Memorandum of Understanding to develop a regional HCP/NCCP. In addition to addressing potential impacts of the projects addressed in the 2001 BO, the HCP/NCCP looks at habitat resources in the Santa Clara Valley on a large-area basis and identifies conservation and mitigation measures to protect listed species while allowing for

[26] Anadromous fish are born in freshwater, migrate to the ocean, and return to spawn in freshwater. Salmon and steelhead are examples of anadromous fish.

orderly development and public agency activities (County of Santa Clara 2010). To do so, the HCP/NCCP identifies and preserves land that provides important habitat for endangered, threatened, and other special-status species. The land preservation is both to mitigate for the environmental impacts of planned development and public infrastructure operations and maintenance activities and to enhance the long-term viability of endangered species (County of Santa Clara 2010).

The *Final Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan* (HCP/NCCP) was released for public review in August 2012 and approved and adopted by the cities of Gilroy, Morgan Hill, and San Jose, the County of Santa Clara, VTA, and SCVWD (collectively referred to as the Local Partners) in early 2013. The USFWS issued the federal permits on July 29, 2013 for the Local Partners and the recently formed Santa Clara Valley Habitat Agency, the entity that will manage implementation of the HCP/NCCP over the 50-year permit term. The CDFW issued the state permits on August 1, 2013. The Santa Clara Valley Habitat Agency began implementing the HCP/NCCP in October 2013.

The HCP/NCCP will allow the Local Partners to receive endangered species permits for activities and projects they conduct, and those under their jurisdiction, through a standard application and permitting process. The proposed SR 85 Express Lanes Project is a covered project in the HCP/NCCP. The proposed project will follow the conditions specified in the HCP/NCCP if feasible.

Vegetation Communities

Pavement and bridge widening along the median of SR 85 could result in approximately 0.97acres of permanent impacts to vegetation and removal of two trees. Tree removal is discussed below under “San Tomas Aquino and Saratoga Creek Riparian Corridors.” Construction activities including utility trenching; clearing and grubbing; grading; installation of biofiltration swales; installation of TOS equipment; and construction access, staging, and laydown would result in temporary impacts to 442.86 acres of landscaped and naturally occurring vegetation, predominantly to ruderal California annual grassland. As described above, the BSA is dominated by urban development; neither habitat fragmentation nor impacts to fish passage and wildlife corridors would result from changes in upland habitat.

Serpentine Grasslands

Vehicle traffic and construction activities as well as stationary emissions sources can increase airborne nitrogen, of which a certain amount is converted into forms that can fall to earth as depositional nitrogen (County of Santa Clara 2012). Studies have shown that nitrogen deposition on serpentine grasslands can alter the chemical composition of associated serpentine soils, making them more susceptible to invasion from nonnative species such as Italian rye grass (*Festuca perennis*) and soft brome (*Bromus hordeaceous*) (Weiss 1999; Huenneke et al. 1990; County of Santa Clara 2012).

Construction activities on US 101 south of the SR 85/US 101 interchange in San Jose would be of limited duration and in specific locations for roadway striping, installation of overhead signs, and installation of TOS equipment. The total construction period for this project segment is expected to be approximately two weeks or less. Because of the limited duration and scale of work in proximity to serpentine grasslands, temporary construction-related increases in nitrogen emissions are expected to be immeasurable and to have minimal or no effect on serpentine soils and associated vegetation communities and endemic species.

In addition, the project would not substantially increase traffic capacity. As a result, the project would not permanently increase nitrogen emission levels in the area. Although the exact locations of the TOS equipment have not been determined, they will not be placed within serpentine grassland areas because those areas will be restricted from construction access by ESA fencing.

San Tomas Aquino and Saratoga Creek Riparian Corridors

New bent and falsework construction to widen the SR 85 bridges over San Tomas Aquino and Saratoga creeks will take place below the bridge decks. Small construction equipment such as a backhoe, bobcat, crane, dump truck, and compressor may be used within the construction areas. Construction will take place within the riparian zones of the creeks but above the ordinary high water marks. No in-water work is proposed.

Construction activities at Saratoga Creek would permanently affect 0.03 acre and temporarily affect 0.11 acre of California sycamore woodland located immediately below the top of bank. In addition, an arroyo willow with multiple trunks less than 6 inches in diameter at breast height (dbh) and a big leaf maple with a dbh of 8 inches may need to be removed to accommodate widening of the SR 85 bridges. The trees are on the north bank of Saratoga Creek between the northbound and southbound SR 85 bridges in the California sycamore woodland. The trees are not identified as heritage trees (City of Saratoga 2013); however, the big leaf maple qualifies as a protected tree under Saratoga City Code Section 15-50.050, requiring a tree removal permit (City of Saratoga 2003). The removal of the two trees and herbaceous understory vegetation would not affect the overall function of Saratoga Creek or its riparian zone.

At San Tomas Aquino Creek, the creek area is completely lined with sack concrete and riprap; therefore, no impacts to riparian habitat would occur.

Fish Passage

The project would not introduce barriers to fish passage.

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

Vegetation Communities

Replacement landscaping would be implemented as part of the project and would minimize impacts to natural communities. Vegetation and trees removed by construction operations within the project limits will be replaced according to Caltrans policy. Appropriate native species will be used to the maximum extent possible, and trees, shrubs, and groundcover will be selected for drought tolerance and disease resistance.

Tree removal would take place before the start of the nesting season for raptors and migratory birds (February 15) to avoid impacts to birds that are protected under the Migratory Bird Treaty Act (MBTA). Vegetation would be preserved in areas of the project limits where no construction is planned.

Serpentine Grasslands

To avoid and minimize potential effects to serpentine grasslands, the following conservation measure, in addition to the general avoidance and minimization measures described in Section 2.3.2.4, will be implemented in all active ground disturbance and construction areas along US 101 south of the SR 85/US 101 interchange in San Jose.

- An approximate 5-foot buffer will be placed around serpentine grasslands using ESA fencing prior to the start of construction to avoid direct impacts to this sensitive habitat. Preconstruction surveys for serpentine grasslands will be conducted before construction begins on US 101 south of the SR 85/US 101 interchange to identify where ESA fencing should be placed.

San Tomas Aquino and Saratoga Creek Riparian Corridors

The measures described in Section 2.3.2.4 would serve to avoid and minimize potential impacts to San Tomas Aquino and Saratoga creeks and their riparian corridors. During bridge widening, the construction contractor will be required to stay out of the ordinary high water of both creeks, which will be marked with ESA fencing. To minimize impacts to riparian areas around Saratoga Creek, payment will be provided through an in-lieu fee to the HCP/NCCP. If payment through the HCP/NCCP is not feasible for impacts to riparian areas, other minimization options include mitigation/conservation banks, in-lieu fee programs, and permittee-responsible mitigation. These options will be evaluated on the basis of their likelihood for ecological success and sustainability, location relative to the impact area, significance within the local and/or regional landscape of the Coyote Valley, and anticipated costs. Final mitigation requirements will be determined through consultation with the RWQCB before project construction.

Potential indirect effects to San Tomas Aquino and Saratoga creeks and their riparian corridors from construction discharges would be avoided and minimized with implementation of BMPs and the measures discussed in Section 2.3.2.4. These measures include, but are not limited to, using erosion control to reduce siltation and runoff into the creeks, and not refueling construction or maintenance vehicles within 200 feet of the creeks unless the appropriate BMPs are in place. In addition, during bridge widening, the construction contractor will be required to stay out of the ordinary high water of both creeks, which will be marked with ESA fencing.

Fish Passage

No avoidance, minimization, or mitigation measures are needed.

2.3.2 Wetlands and Other Waters of the United States

This section is summarized from the *Natural Environment Study* (URS 2013d) and *Jurisdictional Delineation* (URS 2013o) for the proposed project, which were completed in October 2013.

2.3.2.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (CWA; 33 United States Code [USC] 1344), is the primary law regulating wetlands and waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the USACE with oversight by the U.S. EPA.

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of Federal agencies with regard to wetlands. Essentially, this EO states that a Federal agency such as the FHWA cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the SWRCB, the RWQCB and the CDFW. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission [BCDC]) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the CDFW before beginning construction. If the CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Water Quality Control Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. See Section 2.2.2 for additional details.

2.3.2.2 Affected Environment

Approximately 7.98 acres of potentially jurisdictional waters of the U.S. were delineated in the BSA. The potentially jurisdictional features include perennial and intermittent streams, some of which contain wetlands in their channels. Table 2.3.2-1 lists the potential jurisdictional wetlands and other waters of the U.S. in the BSA, the type of structure that conveys the feature, and the construction activity (if any) proposed at each location. Wetland features are identified by the water feature in which they are found, where applicable.

In addition, the BSA contains 2,398.70 linear feet of culverts or other engineered structures that are conveyed entirely underground within the BSA. These features were not delineated in the field due to lack of access (most extended far beyond the boundaries of the BSA) and lack of entry permission; however, they are also potential waters of the U.S.. Table 2.3.2-2 provides the lengths of the potential culverted waters of the U.S. in the BSA that were not delineated.

Potential waters of the state were identified in the riparian corridors of San Tomas Aquino and Saratoga creeks (Section 2.3.1).

Table 2.3.2-1: Potential Waters of the United States in the BSA

Feature Type and Label	Delineated Acres	Structure Type	Construction Activity
Waters of the United States			
CWUS-1: Culverted water - Permanente Creek	0.06	Culvert	None
WUS-1: Stevens Creek	0.16	Bridge	None
WUS-2: Stevens Creek	0.07	Bridge	None
WUS-3: Stevens Creek	0.23	Bridge	None
WUS-4: Calabazas Creek	0.17	Bridge	None
WUS-5: Stormwater Drain	0.07	Culvert	None
WUS-6: Coyote Creek	0.37	Bridge	None
WUS-7: Saratoga Creek	0.20	Bridge	Bridge Widening
WUS-8: Wildcat Creek	0.13	Double box culvert	None
WUS-9: San Tomas Aquino Creek	0.11	Bridge	Bridge Widening
WUS-10: Los Gatos Creek	0.41	Bridge	None
WUS-11: Ross Creek	0.15	Double box culvert	None
WUS-12: Guadalupe River	0.37	Bridge	None
WUS-13: Open Water Recharge Basin	0.95	Bridge	None
WUS-14: Open Water Recharge Basin	2.91	Bridge	None
WUS-15: Canoas Creek	0.13	Bridge	None
WUS-16: Ephemeral Drainage, Coyote	0.03	NA	None
WUS-18: Matadero Creek	0.15	Bridge	None
WUS-19: Adobe Creek	0.15	Bridge	None
WUS-20: Permanente Creek	0.01	Bridge	None
WUS-21: Stevens Creek	0.14	Bridge	None
WUS-22: Permanente Creek	0.01	Bridge	None
WUS-23: Stevens Creek	0.31	Bridge	None
Other Waters Of the U.S. Subtotal	*7.29*	NA	NA
Wetlands			
WWUS-2: Calabazas Creek	<0.01	NA	None
WWUS-4: Los Gatos Creek	0.02	NA	None
WWUS-5: Los Gatos Creek	0.01	NA	None
WWUS-6: Guadalupe River	0.05	NA	None
WWUS-7: Coyote Creek	<0.01	NA	None
WWUS-8: Coyote Creek	0.43	NA	None
WWUS-9: Perennial Freshwater Wetland	0.14	NA	None
WWUS-10: Perennial Freshwater Wetland (cattail)	<0.01	NA	None
WWUS-11: Guadalupe River	0.03	NA	None
Wetlands Subtotal	*0.69*	NA	None
Total Wetlands and Waters of the United States	**7.98**	NA	NA

Notes:

WUS = Other waters of the U.S.
WWUS = Wetlands

Table 2.3.2-2: Potential Culverted Waters of the United States within the Biological Study Area (Not Delineated)

Feature Type and Label	Length (feet)[1]
CWUS-2: Culverted Water	213.13
CWUS-3: Culverted Water – Permanente Creek Diversion Canal	157.67
CWUS-4: Culverted Water – Regnart Creek	265.73
CWUS-5: Culverted Water – Rodeo Creek	155.85
CWUS-6: Culverted Water	228.02
CWUS-7: Culverted Water	257.57
CWUS-8: Culverted Water – Smith Creek	347.92
CWUS-9: Culverted Water – Smith Creek East Channel	342.96
CWUS-10: Culverted Water	260.73
CWUS-11: Culverted Water	169.12
Total Culverted Waters of the United States	**2,398.70**

Source: USGS 2013a
Notes:
1. The length in linear feet for each feature was estimated based on the National Hydrography Dataset (USGS 2013b).
CWUS = Culverted water of the United States

2.3.2.3 Environmental Consequences

Permanent and Temporary Impacts

No permanent or temporary impacts are anticipated to wetlands or waters of the U.S. The project will not affect culverted waters that are conveyed entirely underground within the BSA. Minimal impacts will occur to waters of the state at San Tomas Aquino and Saratoga creeks as a result of abutment construction for bridge widening, as discussed further in Section 2.3.1.2. In addition, the project could have temporary indirect effects if construction-related discharges occur.

Impacts on Functions and Values

Although jurisdictional wetlands and waters of the U.S are present within the project area, no impacts associated with fill or dredge would occur. Construction activities could cause temporary impacts to water quality. These impacts would be avoided and minimized with implementation of BMPs such as the measures listed below.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance and Minimization

Upon completion of the project, all areas that have been temporarily affected will be restored to approximately their original condition. Cutting of trees and other woody vegetation within the Saratoga Creek riparian corridor will be limited to between June 15 and October 15. Measures will be employed to prevent construction material or debris from entering surface waters or their channels. BMPs for erosion control will be implemented and will be in place prior to, during, and after construction to avoid silt or sediment entering surface waters. The proposed measures and BMPs are listed below.

All proposed construction will be limited to the defined project area. ESAs adjacent to the project area will be identified on contract plans and discussed in the Special Provisions. The ESAs will include areas designated in this document and biological reports as wetlands, waters, and/or habitats that potentially support listed species and have been specifically identified to avoid during construction. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent to sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts. Contractor encroachment into ESAs will be prohibited (including the staging/operation of heavy equipment or casting of excavation materials). ESA provisions will be implemented as a first order of work and remain in place until all construction is completed.

A Storm Water Pollution Prevention Plan (SWPPP) and erosion and dust control measures will be developed and implemented for the project and will comply with the requirements of the RWQCB. The SWPPP will provide guidance for design staff to include provisions in construction contracts for measures to protect sensitive areas and to prevent and minimize storm water and non-storm water discharges. In addition, the project will incorporate applicable measures specified in the Santa Clara Valley HCP/NCCP (County of Santa Clara 2012). These BMPs include, but are not limited to, the following measures:

- ESA fencing will be placed 5 feet away from each wetland feature.
- Appropriate erosion control measures will be used to reduce siltation and runoff of contaminants into wetlands and adjacent, ponds, streams, or riparian woodland/scrub. The contractor will not be allowed to stockpile brush, loose soils, or other debris material on stream banks. Only native plant species will be used in erosion control or revegetation seed mix. Any hydroseed mulch used for revegetation must also be certified weed-free. Dry-farmed straw will not be used, and certified weed-free straw will be required where erosion control straw is to be used. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion-control measures will be placed between a water or wetland and the outer edge of the project site (County of Santa Clara 2012).
- All off-road construction equipment will be cleaned of potential noxious weed sources (mud, vegetation) before entry into the project area south of the SR 85/US 101 interchange in San Jose. Equipment will be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.
- Vehicles and equipment will be parked on pavement, existing roads, or specified staging areas.
- Trash generated by covered activities will be promptly and properly removed from the site (County of Santa Clara 2012).
- No construction or maintenance vehicles will be refueled within 200 feet of wetlands and ponds unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill (County of Santa Clara 2012).

- Equipment storage, fueling, and staging areas will be sited on disturbed areas or on non-sensitive nonnative grassland land cover types, when these sites are available, to minimize risk of direct discharge into riparian areas or other sensitive land cover types.
- All temporarily disturbed areas, such as staging areas, will be returned to pre-project or ecologically improved conditions within 1 year of the completing construction or the impact will be considered permanent. Alternatively, if active restoration is used to restore the site within 5 years and the restoration is successful, the impact will be considered temporary (County of Santa Clara 2012).

Compensatory Mitigation

The project would have no impacts on jurisdictional wetlands or waters of the U.S. in the BSA or culverted waters that are conveyed entirely underground within the BSA. Therefore, no compensatory mitigation is necessary.

To minimize impacts to waters of the state, payment will be provided through an in-lieu fee to the HCP/NCCP, or other minimization measures will be implemented in coordination with the RWQCB, as discussed in Section 2.3.1.2.

2.3.3 Plant Species

This section is summarized from the *Natural Environment Study* (URS 2013d) for the proposed project, which was completed in October 2013.

2.3.3.1 Regulatory Setting

The USFWS and CDFW share regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special-status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the FESA and/or the California Endangered Species Act (CESA). See Section 2.3.5 for detailed information about these species.

This section of the document discusses all the other special-status plant species, including CDFW fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 USC 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code Section 1900-1913, and the California Environmental Quality Act, CA PRC Sections 2100-21177.

2.3.3.2 Affected Environment

Lands in the BSA are highly disturbed, generally urbanized, and dominated by nonnative or landscape species, as described in Section 2.3.1.

A California Natural Diversity Data Base (CNDDB) check indicated that several rare or sensitive plants have been recorded within 1 mile of the BSA (CDFW 2013). The CNPS Inventory of Rare and Endangered Plants of California 6th Edition and online inventory (CNPS 2001, 2012, 2013) and the USFWS species lists (USFWS 2012, 2013, 2015; included in Appendix C) were also consulted. Based on those sources and the geographic ranges of various sensitive species, 28 special-status plant species were evaluated for potential to occur in the BSA.

Rare plant surveys of the BSA were conducted in July and August 2010 and March and May 2012. The surveys coincided with the early, mid and late blooming periods of the special-status plants with potential to occur in the BSA. No federally or state-listed plant species were identified during the surveys. The following three CNPS-listed species were observed south of the SR 85/US 101 interchange in San Jose in areas that coincided with serpentine grasslands (discussed in Section 2.3.1):

- Mount Hamilton fountain thistle (*Cirsium fontinale* var. *campylon*; CNPS 1B.1) – A perennial herb that occurs on serpentine seeps in chaparral, cismontane woodland, and valley foothill grasslands at elevations between 330 and 2,900 feet. This species blooms between February and October (CNPS 2012).
- Smooth lessingia (*Lessingia micradenia* var. *glabrata*; CNPS 1B.2) – An annual herb that occurs on serpentine soils, often along roadsides at elevations below 1,000 feet. This species has a limited range in Santa Clara County (CNPS 2012).
- Most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*; CNPS 1B.2) – An annual herb that occurs on serpentine soils commonly found in chaparral, cismontane woodland, and valley and foothill grassland areas at elevations from 300 to 3,300 feet. It blooms between March and October (CNPS 2012).

The CNDDB shows occurrences of four other endemic serpentine species within 1 mile of the BSA (CDFW 2013), in the same area of serpentine grasslands south of the SR 85/US 101 interchange in San Jose. However, none of the four plants—San Francisco collinsia *(Collinsia multicolor)*, Loma Prieta hoita *(Hoita strobilina)*, fragrant fritillary *(Fritillaria liliacea)*, and woodland woolythreads *(Monolopia gracilens)*—were observed during field surveys.

Elsewhere, vegetation in the project area is dominated by urban landscaping and/or invasive nonnative species, with native plants restricted to limited areas along US 101 and riparian habitat associated with overpasses at certain stream crossings.

2.3.3.3 Environmental Consequences

As discussed in Section 2.3.1.2 temporary increases in nitrogen deposition from project construction are expected to be immeasurable and have minimal or no effect on serpentine soils and associated serpentine grasslands that provide habitat for endemic plant species.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

Implementing the proposed measures discussed in Sections 2.3.1.3 and 2.3.2.4 will avoid or minimize direct impacts to smooth lessingia, Mount Hamilton fountain thistle, most beautiful jewel-flower, and other plants associated with serpentine soils.

2.3.4 Animal Species

This section is summarized from the *Natural Environment Study* (URS 2013d) for the proposed project, which was completed in October 2013.

2.3.4.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The USFWS, the National Marine Fisheries Service (NOAA Fisheries), and the CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act;
- Migratory Bird Treaty Act (MBTA); and
- Fish and Wildlife Coordination Act.

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act;
- Sections 1600–1603 of the California Fish and Game Code; and
- Section 4150 and 4152 of the California Fish and Game Code.

2.3.4.2 Affected Environment

Wildlife species common to urban habitats are expected to inhabit the BSA. Along SR 85, common species include raccoon *(Procyon lotor)* and striped skunk *(Mephitis mephitis)*, as well as birds such as barn swallow *(Hirundo rustica),* European starling *(Sturnus vulgaris),* California towhee *(Pipilo crissalis)*, mourning dove *(Zenaida macroura)*, house finch *(Carpodacus mexicanus),* and Western scrub jay *(Aphelocoma coerulescens).*

The creeks and riparian areas that cross the BSA along SR 85 may serve as migratory corridors between other less urbanized habitats for birds including chestnut-backed chickadee *(Parus rufescens),* bushtit *(Psaltriparus minimus),* oak titmouse *(Baeolophus inornatus),* Bewick's wren *(Thryomanes bewickii)*, California towhee *(Pipilo crissalis),* Cooper's hawk *(Accipiter cooperii),* and sharp-shinned hawk *(Accipiter striatus).* Bat species such as the pallid bat *(Antrozous pallidus)*, big brown bat *(Eptesicus fuscus)*, and Yuma myotis *(Myotis yumanensis)* may forage in the riparian areas.

The grasslands and coyote brush habitats along US 101 south of the SR 85/US 101 interchange in San Jose provide habitat for a variety of burrowing mammals including ground squirrel *(Spermophilus beecheyi),* California vole *(Microtus californicus),* and pocket gopher *(Thomomys bottae)* and foraging habitat for raptors including white-tailed kite *(Elanus leucurus),* red-tailed hawk *(Buteo jamaicensis),* and American kestrel *(Falco sparverius).* The southern part of the project area is also dispersal and upland habitat for amphibian and reptile species including western fence lizard *(Sceloporus occidentalis)* and gopher snake *(Pituophis catenifer).* Larger mammals that may use these habitats include black-tailed jackrabbit *(Lepus californicus),* black-tailed mule deer *(Odocoileus hemionus),* and bobcat *(Lynx rufus).*

Special-status animals with potential to occur in the BSA are described below.

Western Pond Turtle

Northwestern pond turtle and southwestern pond turtle (*Clemmys marmorata pallida*) are subspecies of the Western pond turtle *(Actinemys marmorata)*. Both subspecies are listed as California species of special concern by the CDFW. No surveys were conducted for this species, and it was not observed during field visits. The CNDDB shows western pond turtle occurrences along the west side of US 101 south of the SR 85/US 101 interchange in San Jose, in the vicinity of Coyote Creek. Potential aquatic habitat is available for this species in percolation ponds, wetlands, and riparian areas outside of but near the BSA at its southern end (Bailey Avenue) along US 101.

Western pond turtles nest in sunny upland areas including grasslands and grazed areas near aquatic habitats. Therefore, there is some, albeit marginal, potential for turtles to enter and/or use the BSA for nesting in upland grassland areas along US 101 south of the SR 85/US 101 interchange in San Jose.

Special-Status Birds

The only special-status birds with potential to occur in the BSA are Alameda song sparrow *(Melospiza melodia pusillula),* nesting raptors (protected under California Fish and Game Code Section 3503.5), and migratory birds (protected under the MBTA).

Alameda song sparrow, a state species of special concern, has been recorded to occur within 0.5 mile of the northern part of the BSA, along US 101 north of the SR 85/US 101 interchange in Mountain View (CDFW 2013). Neither suitable nesting habitat nor individuals were observed in the BSA during field surveys. The northern part of the BSA in the vicinity of the recorded occurrences is mostly paved; the remaining vegetation is landscaped and horticulturally derived. The closest suitable habitat is north of the northern terminus of SR 85, in the slough areas east of US 101, and potentially in the nearby creek corridors that cross US 101 (Matadero, Adobe, and Permanente creeks).

The trees and shrubs in the BSA may provide nesting, foraging, and roosting habitat for nesting raptors protected under California Fish and Game Code Section 3503.5. The CDFW range map for the white-tailed kite (*Elanus leucurus,* a California fully protected species) indicates that the BSA is in the species' year-round range. The American peregrine falcon (*Falco peregrinus anatum,* a California fully protected species) may occasionally forage in the BSA; however, the species is not known to breed in the project vicinity (CDFG 2008). Marginally suitable foraging habitat for the northern harrier (*Circus cyaneus;* a state species of special concern) is present in the BSA but the species is not known from the area (CDFG 2008). Oak woodlands and riparian corridors in and adjacent to the BSA may provide potential foraging habitat for Cooper's hawk (*Accipter cooperii;* a state species of special concern). Other potential nesting raptors in the BSA include the red-tailed hawk and sharp-shinned hawk. Threats to all of these species include habitat fragmentation, nesting failure due to disturbance, and loss of foraging habitat. Overall, potential nesting habitat for raptors is in the BSA is marginal.

Although unlikely, there is potential for nesting raptors to be present in and adjacent to the BSA during construction.

The MBTA makes it unlawful at any time, by any means, or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season.

Migratory birds were observed foraging or migrating but not nesting in the BSA during the field visits. The list of migratory birds comprises many different bird species, including many that are common. Therefore, it is likely that the BSA will have several species of migratory birds at one time. Potential nesting locations in the BSA include roadside trees, dense shrubs, and human-made structures along the margins of the corridor and in the median areas. Migratory birds nesting along the project corridor will likely be tolerant of the disturbances and noise associated with the freeway and the surrounding urban area. Migratory birds could nest in the BSA during project construction.

Bats

Three bat species that are California species of special concern have the potential to be present in the BSA: pallid bat *(Antrozous pallidus)*, hoary bat *(Lasiurus cinereus)*, and yuma myotis *(Myotis yumanensis)*. In addition, the Western Bat Working Group[27] has designated the pallid bat as a "high priority" species and the hoary bat and Yuma myotis bat as "medium priority" and "low priority" species, respectively. The priority status reflects a bat species' risk of imperilment and priority level for funding, planning, and conservation actions (WBWG 2007).

During the reconnaissance surveys, no roosting bats or signs of roosting bats (such as bat guano [droppings] on structures, trees, or the ground) were observed. Potential roosting sites are present in the trees and human-made structures in the BSA.

2.3.4.3 Environmental Consequences

Western Pond Turtle

The project would have no permanent effects on potential aquatic habitat for western pond turtle. All proposed construction work in the Coyote Creek area would be on paved roadways, in freeway median areas, or within 10 feet of the edge of pavement. Utility trenching; clearing and grubbing; construction access, staging, and laydown; and installation of TOS equipment along US 101 between the SR 85/US 101 interchange in San Jose and Bailey Avenue could temporarily affect up to 1.57 acres of potential dispersal habitat for western pond turtle. The habitat consists of hardscape and ruderal California annual grassland. The installation of exclusion fencing and implementation of other measures described in Sections 2.3.2.4 and 2.3.5.4 (under "California Red-Legged Frog") would avoid and minimize potential adverse

[27] The Western Bat Working Group is composed of agencies, organizations, and individuals interested in bat research, management, and conservation. The group includes representatives from 13 western states, the provinces of British Columbia and Alberta, and Northern Mexico (WBWG 2013).

effects to western pond turtles that may wander into the project area. Areas that are disturbed temporarily would be restored to pre-project conditions.

Special-Status Birds

The project would have no direct impacts on the Alameda song sparrow because suitable habitat for the species is absent from the BSA. No construction is proposed near suitable habitat in the slough areas east of US 101 in the northern project limits or the Matadero, Adobe, and Permanente creek corridors; therefore, no temporary indirect effects would occur.

The project would have no direct impacts to nesting raptors or migratory birds with implementation of the avoidance and minimization measures listed in Section 2.3.4.4. Project construction would not produce a substantial increase in the amount of noise or activity in the BSA. Raptors, if present in the BSA, could experience temporary loss of foraging habitat from short-term construction noise. However, the loss of habitat would be minimal compared to the amount of foraging habitat available in the project vicinity. The measures discussed in Section 2.3.4.4 would prevent disturbance of nesting activities, including take of individual raptors or migratory birds, or their nestlings or eggs.

Bats

Project construction could temporarily disturb marginally suitable roosting and nesting sites for special-status and high-priority bat species. The project would not contribute to permanent habitat fragmentation or loss of roosting or foraging habitat. Implementation of the measure described in Section 2.3.4.4 would minimize disturbance to roosting and nesting bats.

2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures

Western Pond Turtle

Although it is unlikely that this species would be present in the project area, the avoidance and minimization measures described in Sections 2.3.2.4 and 2.3.5.4 (under "California Red-Legged Frog") would also avoid and minimize potential adverse effects to western pond turtle habitat. No additional mitigation is required.

Special-Status Birds

Implementation of the following measures would prevent impacts to nesting raptors and their habitat in and adjacent to the BSA.

- If vegetation clearing and grubbing occurs between February 15 and August 31, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 50 feet for passerines and 300 feet for raptors before vegetation clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code will be observed. If an active nest is found, CDFW will be consulted to determine the appropriate buffer area to be established around the nesting site and the type of buffer to be used, which typically is ESA fencing. If establishment of a buffer is not feasible, CDFW will be contacted for further avoidance and minimization guidelines.

- A qualified biologist will conduct weekly monitoring to evaluate the nest for potential disturbances associated with construction activities. Construction within the buffer is prohibited until the qualified biologist determines the nest is no longer active.
- If an active nest is found after construction begins, construction activities in the vicinity of the nest will stop until a qualified biologist has evaluated the nest and established the appropriate buffer around the nest. If establishment of the buffer is not feasible, CDFW will be contacted for further avoidance and minimization guidelines.

Implementing the following measures, in conjunction with the measures for nesting raptors described above, would avoid or minimize potential effects to migratory birds and their habitat in and adjacent to the BSA. The measures below would be implemented for construction work during the nesting season (February 15 through August 31).

- A qualified biologist will conduct preconstruction surveys for nesting migratory birds in the project area no more than three days prior to the start of ground disturbing activities in the BSA. If preconstruction surveys indicate the presence of any migratory bird nests where activities would directly result in bird injury or death, a buffer zone of 50 feet will be placed around the nest.
- Buffers will be established around active migratory bird nests where project activities would directly result in bird injury or death. The size of the buffer may vary for different species and will be determined in coordination with CDFW. A qualified biologist will delineate the buffer using ESA fencing, pin flags, and/or yellow caution tape. The buffer zone will be maintained around all active nest sites until the young have fledged and are foraging independently. In the event that an active nest is found after the completion of preconstruction surveys and after construction begins, all construction activities within a 50-foot radius will be stopped until a qualified biologist has evaluated the nest and erected the appropriate buffer around it.
- If an active nest is found in an area after construction begins, construction activities in the vicinity of the nest will stop until a qualified biologist has evaluated the nest and established the appropriate buffer around the nest. If establishment of the buffer is not feasible, CDFW will be contacted for further avoidance and minimization guidelines.

Bats

Disturbance of bats is of particular concern during the maternity roosting season (April 15 through August 31), when bats are likely to be raising young. The following will be implemented to avoid and minimize potential adverse effects on special-status and high-priority bats.

- No more than three days prior to the start of ground disturbing activities, a qualified biologist will survey the trees and man-made structures in the BSA for evidence of bat roosts (e.g., bat guano). If bat roosts are located during preconstruction surveys, the roosts will be flagged and avoided during construction.

2.3.5 Threatened and Endangered Species

This section is summarized from the *Natural Environment Study* (URS 2013d) and Request for a Letter of Concurrence from the USFWS (URS 2013p) for the proposed project, which were completed in October and December 2013, respectively.

2.3.5.1 Regulatory Setting

The primary Federal law protecting threatened and endangered species is the FESA: 16 United States Code (USC) Section 1531, et seq.; see also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of the FESA, Federal agencies such as FHWA are required to consult with the USFWS and NOAA Fisheries to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of the FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law to FESA at the state level, the CESA (California Fish and Game Code, Section 2050 et seq.). The CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The CDFW is the agency responsible for implementing CESA. Section 2081 of the California Fish and Game Code prohibits take of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For projects requiring a Biological Opinion under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

2.3.5.2 Affected Environment

Federal and State Consultation Process

USFWS species records were reviewed at the outset of the biological studies for the project and periodically thereafter, most recently in February 2015 (see Appendix C). The CNDDB (CDFW 2013) and CNPS online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2001, 2012) were used to identify state-listed threatened and endangered species. Biologists conducted a site reconnaissance and terrestrial wildlife habitat assessment and surveys for plant communities and special-status plants in the BSA in July and August 2010, October 2011, and March and May 2012. The surveys coincided with the early, mid and late blooming periods of the special-status plants with potential to occur in the BSA.

As a result of a review of the USFWS species list, species occurrence databases and literature, the rare plant survey, and the reconnaissance-level wildlife habitat assessments, the species listed in Table 2.3.5-1 were considered to have potential to occur in the BSA.

Table 2.3.5-1: Threatened and Endangered Species Considered in the Biological Study Area

Common Name	Scientific Name	Status
Invertebrate		
Bay checkerspot butterfly	*Euphydryas editha bayensis*	Federal threatened
Amphibians		
California tiger salamander (CTS)	*Ambystoma californiense*	Federal and state threatened
California red-legged frog (CRLF)	*Rana draytonii*	Federal threatened, California species of special concern
Fish		
Steelhead – Central California Coast Distinct Population Segment (DPS)	*Oncorhynchus mykiss*	Federal threatened
Plants		
Metcalf Canyon jewel-flower	*Streptanthus albidus* ssp.*albidus*	Federal endangered, CNPS List 1B.1

Endangered species consultation with the USFWS and/or NOAA Fisheries is necessary when a project has the potential to affect federally listed species and/or destroy or adversely modify designated critical habitat. The proposed project has the potential to affect four federally listed special-status animal and plant species: California red-legged frog (CRLF), California tiger salamander (CTS), bay checkerspot butterfly, and Metcalf Canyon jewel-flower. The Department, as assigned by the FHWA, initiated Section 7 consultation with the USFWS on December 20, 2013, by submitting a Request for a Letter of Concurrence from the USFWS that addresses potential effects to these species. The USFWS issued a Biological Opinion on March 10, 2015 (08ESMF00-2014-F-0197-2; see Appendix C).

Based on the review of the USFWS species list, species occurrence databases and literature, the rare plant survey, and the reconnaissance-level wildlife habitat assessments, the species listed in Table 2.3.5-2 were determined to have no potential to be impacted by the project. The project would have no effect on these species.

Table 2.3.5-2: Threatened and Endangered Species With No Potential for Impacts from the Project

Common name	Scientific Name
Plants	
San Mateo thornmint	*Acanthomintha duttonii*
Tiburon paintbrush	*Castilleja affinis* spp. *neglecta*
Coyote ceanothus	*Ceanothus ferrisea*
Fountain thistle	*Cirsium fontinale* var. *fontinale*
Robust spineflower	*Chorizanthe robusta* var. *robusta*
Santa Clara Valley dudleya	*Dudleya setchellii*
Marin dwarf-flax	*Hesperolinon congestum*
Santa Cruz tarplant	*Holocarpha macradenia*
Contra Costa goldfields	*Lasthenia conjugens*
California seablite	*Suaeda californica*
Two-fork clover	*Trifolium amoenum*
Mammals	
Salt marsh harvest mouse	*Reithrodontomys raviventris*
San Joaquin kit fox	*Vulpes macrotis mutica*
Birds	
Marbled murrelet	*Brachyramphus marmoratus*
Western snowy plover	*Charadrius alexandrinus nivosus*
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*
California clapper rail	*Rallus longirostris obsoletus*
California least tern	*Sternula antillarum browni*
Reptiles	
San Francisco garter snake	*Thamnophis sirtalis tetraenia*
Fish	
Southern green sturgeon DPS	*Acipenser medirostris*
Tidewater goby	*Encyclogobius newberryi*
Delta smelt	*Hypomesus transpacificus*
Coho salmon-Central California Coast DPS	*Oncorhynchus kisutch*
Steelhead- Central Valley DPS	*Oncorhynchus mykiss*
Chinook salmon-Central Valley spring run DPS	*Oncorhynchus tshawytscha*
Chinook salmon- Sacramento River winter run DPS	*Oncorhynchus tshawytscha*
Invertebrates	
San Bruno elfin butterfly	*Incisalia mossii bayensis*
Vernal pool tadpole shrimp	*Lepidurus packardi*

Note:
Although the California brown pelican is included in the USFWS species list, this species was delisted in 2009.

Although the Central California Coast DPS steelhead is a federally listed species with potential to occur in streams that cross through the BSA, it is not discussed further because the project does not include any work at creeks where the species could be present. Bridge widening will affect the banks of Saratoga and San Tomas Aquino creeks (see Section 2.3.1); however, an impassable barrier at the confluence of the creeks prevents Central California Coast DPS steelhead from entering the portions of those creeks in the BSA (Leidy 2005). The project does not have the potential to affect species under the jurisdiction of NOAA Fisheries.

Endangered species consultation with the CDFW is necessary when a project may result in the take of a state-listed species as defined in the California Endangered Species Act. The proposed project would not result in the take of CTS; therefore, an incidental take permit for CTS is not needed.

Species Addressed in Consultation

California Red-Legged Frog

No CRLF occurrences have been recorded in the BSA. The CNDDB search identified 75 CRLF occurrences within a 10-mile radius of the BSA, the closest of which is approximately 0.15 mile away from the BSA border (CDFW 2013). Sixteen occurrences are within 2.2 miles of the BSA, which is the distance recognized by the USFWS that CRLF can disperse to locate breeding habitat regardless of topography or vegetation type. Field surveys were completed for the proposed project. During the October 25, 2011 survey a CRLF was sighted near the BSA at a pond approximately 100 feet west of the Coyote Creek crossing at the SR 85/US 101 interchange in San Jose. Annual grassland near US 101 south of Coyote Creek could provide upland dispersal habitat for the species despite the nearby roadways and housing developments. Riparian communities located adjacent to the annual grasslands may provide suitable aquatic and riparian habitat for the species.

CRLF may disperse through the BSA in the upland communities adjacent to these aquatic habitats, including California bay riparian forest, coast live oak woodland, coyote brush scrub, disturbed annual grassland, ruderal California annual grassland, and landscaped vegetation (including landscaped conifer woodland). The Coyote Creek corridor likely provides dispersal and refuge habitat for CRLF. There are no barriers that would prevent dispersing CRLF from moving through the BSA and project footprint. No suitable breeding habitat was observed in the BSA during the July 2010 or October 2011 reconnaissance-level surveys. The closest known aquatic breeding habitat is at four stock ponds within 0.55 mile of the project footprint on the east side of US 101. The stock ponds are located in open areas surrounded by ruderal California annual grassland. During the wetland delineation for the US 101 Express Lanes Project (EA 2G7100), an adult CRLF was observed in a seep-fed wetland on the northbound side of US 101 south of the US 101/Bailey Avenue intersection, approximately 100 feet from the end of the project footprint. The wetland is composed of Mt. Hamilton fountain thistle, nutsedge (*Cyperus eragrostis*), and white hedge nettle (*Stachys albens*). The wetland is approximately 0.25 mile southwest of a stock pond used by breeding CRLF (CDFW 2013). Although juvenile and larval CRLF were not observed, if the period of time when the wetland is saturated coincides with the CRLF breeding period, this wetland may be potential breeding habitat. Because there are no barriers present, dispersing CRLF moving along US 101 from this wetland could move into the project footprint.

During project consultation, the USFWS also identified suitable habitat for CRLF in Saratoga Creek.

The presence of CRLF in the BSA is inferred. This inference is based on the known occurrences within 2.2 miles of the BSA, the proximity of the BSA to the relatively undisturbed riparian corridor of Coyote Creek, known breeding habitat with connectivity to suitable dispersal habitat within the BSA, and the sighting of CRLF near the BSA.

The BSA is outside of designated critical habitat for CRLF, as defined in the March 2010 revised critical habitat designation (USFWS 2010). CRLF critical habitat Unit SCT-1 is approximately 3 miles from the BSA, in the Diablo Range east of US 101 near Metcalf Road and San Felipe Road. The proposed project would not affect designated or proposed critical habitat for CRLF.

California Tiger Salamander

No CTS occurrences have been recorded in the BSA. However, the BSA is located within the historic and current range of CTS. A review of the CNDDB (CDFW 2013) indicated that a total of 126 CNDDB occurrences of CTS have been reported within a 10-mile radius of the BSA. Eight occurrences are within 1.24 miles of the BSA, which is the distance recognized by the USFWS that CTS will migrate overland (USFWS 2005). The closest CNDDB occurrence was recorded approximately 0.15 mile northeast of the BSA.

Suitable breeding habitat for CTS was not observed in the BSA during field surveys for the proposed project. However, CTS have been observed in the project vicinity (CDFW 2013). The annual grasslands on both sides of US 101 in the BSA contain ground squirrel burrows and could provide some marginal dispersal habitat despite nearby roadways and housing developments.

Breeding CTS are not expected to be present because of the lack of breeding ponds in the BSA. The closest known breeding habitat is at three stock ponds within 0.55 mile of the project footprint on the east side of US 101 (CDFW 2013; Bettelheim 2013). These ponds are 286 feet and 0.48 mile, respectively, from the project footprint. Dispersing CTS moving along US 101 could move into the project footprint.

The presence of CTS in the BSA is inferred. This inference is based on the known occurrences within 1.24 miles of the BSA, the proximity of the BSA to known breeding habitat, and connectivity of the breeding habitat to suitable dispersal habitat within the BSA. The BSA is outside of designated critical habitat for CTS. The East Bay Region Critical Habitat Unit 7 is approximately 3 miles from the BSA (USFWS 2005a). The proposed project would not affect designated or proposed critical habitat for CTS.

Bay Checkerspot Butterfly

The CNDDB reports three occurrences of bay checkerspot butterfly within a 1-mile radius of the BSA. Bay checkerspot butterflies have been documented to move as far as 4.7 miles (USFWS 2008). The species was not observed during reconnaissance surveys. However, several clusters of dwarf plantain *(Plantago erecta)* and purple owl's clover (*Castille densiflora*), the primary and secondary host plants for bay checkerspot butterfly, were identified. The plants were observed on both sides of US 101, from just south of the PG&E substation near Metcalf Road to an area approximately 2,400 feet north of the Bailey Avenue intersection. Dwarf plantain and purple owl's clover are associated with serpentine grasslands and soils which occur along US 101 south of the SR 85/US 101 interchange in San Jose.

The presence of the bay checkerspot butterfly in the BSA is inferred. This inference is based on the known occurrences within 1 mile of the BSA, the proximity of the BSA to designated critical habitat and presence of the primary and secondary host plants for bay checkerspot butterfly in the BSA.

The BSA is within 0.03 mile of critical habitat for bay checkerspot butterfly (USFWS 2008). The proposed project would not affect designated or proposed critical habitat for the bay checkerspot butterfly.

Metcalf Canyon Jewel-Flower

Although areas of serpentine soils were identified during surveys of the BSA, the Metcalf Canyon jewel-flower was not observed. The closest recorded occurrence is south of Metcalf Road, approximately 230 feet from the edge of pavement on the east side of the road across from Coyote Ranch.

2.3.5.3 Environmental Consequences

California Red-Legged Frog

No effects to potential CRLF breeding habitat would occur because none exists in the project area.

Utility trenching; clearing and grubbing; construction access, staging, and laydown; and installation of TOS equipment along US 101 between the SR 85/US 101 interchange in San Jose and Bailey Avenue could temporarily affect up to 1.57 acres of potential upland habitat for CRLF. The habitat consists of hardscape and ruderal California annual grassland. During project consultation, the USFWS also identified the potential for up to 0.11 acre of temporary and permanent impacts to CRLF habitat during bridge widening at Saratoga Creek.

Exclusion fencing and the other measures described in Section 2.3.5.4 would avoid and minimize adverse effects to potential marginal dispersal habitat. Areas that are temporarily disturbed would be restored to pre-project conditions. With implementation of the avoidance and minimization measures described in Section 2.3.5.4, take of individual CRLF is not expected to occur. The project is likely to adversely affect, but not jeopardize, CRLF.

California Tiger Salamander

No effects to potential CTS breeding habitat would occur because none exists in the project area.

Utility trenching; clearing and grubbing; construction access, staging, and laydown; and installation of TOS equipment along US 101 between the SR 85/US 101 interchange in San Jose and Bailey Avenue could temporarily affect up to 1.57 acres of upland dispersal habitat for CTS. The habitat types that would be affected are the same as described for CRLF, above.

With implementation of the avoidance and minimization measures described in Section 2.3.5.4, take of individual CTS is not expected to occur. The project may affect, but is not likely to adversely affect, CTS.

Bay Checkerspot Butterfly

The bay checkerspot butterfly's primary and secondary host plants, dwarf plantain and purple owl's clover, are associated with serpentine grasslands. Habitat modifications resulting in the loss of serpentine grasslands could have an adverse effect on existing populations. Since the bay checkerspot butterfly's life history is directly tied to the dwarf plantain, and to a lesser extent the purple owl's clover, habitat modifications resulting in the loss of serpentine grasslands could have an adverse effect on existing populations. As discussed in Sections 2.3.1.2 and 2.3.3.3, temporary increases in nitrogen deposition from project construction are expected to be immeasurable and have minimal or no effect on serpentine grasslands that provide habitat for endemic plant species.

TOS equipment would be installed along the outside edge of pavement. Although the exact locations of these features have not been determined, they will not be placed within serpentine grassland areas that provide habitat for the dwarf plantain and purple's owl clover. Direct impacts to serpentine grasslands will be avoided with the implementation of the measures discussed in Sections 2.3.1.3 and 2.3.2.4.

In late fall, winter, and spring, various life stages of the butterfly are susceptible to impacts from dust related to project construction. Insects breathe through respiratory openings that can become clogged with dust. Impacts are most severe within a few hundred feet of the area where the dust is produced. Dust production in the southern segment of the project along US 101 is expected to be minimal because construction will occur in a small area for a short duration and will be further minimized by watering. Although construction vehicular strikes may result in "an unknown amount of mortality and injury to bay checkerspot butterfly" (USFWS 1998, pg. II-195, in USFWS 2008) within the BSA, the likelihood of this occurring is very low. Construction activities will not take place within serpentine grasslands and will therefore not affect the bay checkerspot butterfly's host plants and/or larval and diapause life stages. Additionally, construction activities will not take place during the adult flight period (March through early May).

Construction activities have a very low potential to result in a direct take of individual bay checkerspot butterflies. Temporary increases in nitrogen deposition are expected to be immeasurable and have minimal or no effect on serpentine soils and associated serpentine grasslands that provide habitat for the bay checkerspot butterfly's host plants. Based on this conclusion, the project may affect, but is not likely to adversely affect bay checkerspot butterfly.

Metcalf Canyon Jewel-Flower

The project has been designed to avoid serpentine grassland habitat for the Metcalf Canyon jewel-flower. Direct impacts to the species will be avoided with the implementation of the measures discussed in Sections 2.3.5.4. Therefore the project may affect, but is not likely to adversely affect, the Metcalf Canyon jewel-flower.

2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance and Minimization

California Red-Legged Frog

To avoid and minimize potential effects to CRLF and their habitat, the following conservation measures and any subsequent measures and modifications from the USFWS Biological Opinion 08ESMF00-2014-F-0197-2, dated March 10, 2015, in addition to the general avoidance and minimization measures described in Section 2.3.2.4, will be implemented in all active ground disturbance and construction areas along US 101 south of the SR 85/US 101 interchange in San Jose and within the bridge widening construction area at Saratoga Creek, unless otherwise noted.

Potential habitat for CTS also exists in the same areas where CRLF habitat has been identified; therefore, the following measures would also apply to CTS.

- Construction activities south of the SR 85/US 101 interchange in San Jose will occur during the dry season (June 15 to October 15).

- At Saratoga Creek, Caltrans does not anticipate the need for nighttime work. If nighttime work is needed to avoid safety issues or to complete work within the allotted construction season, all lighting will be directed towards the construction work taking place.

- Prior to any construction on US 101 south of the SR 85/US 101 interchange in San Jose and at Saratoga Creek Bridge, a USFWS-approved biologist will conduct an environmental education program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of CRLF and their habitats; associated habitats within the action area south of the SR 85/US 101 interchange in San Jose and at Saratoga Creek Bridge; an explanation of the status of these species and protection under the FESA; the measures to be implemented; communication and work stoppage procedures in case a listed species is observed within the action area south of the SR 85/US 101 interchange in San Jose and at Saratoga Creek Bridge; and an explanation of the ESAs and wildlife exclusion fencing (WEF) and the importance of maintaining these structures.

- Only USFWS-approved biologists will implement the monitoring duties including delivery of the Worker Environmental Awareness Training Program.

- Through communication with the Resident Engineer or their designee, the biologist may stop work if deemed necessary for any reason to protect CRLF and will advise the Resident Engineer or designee on how to proceed accordingly. If a CRLF or CTS is found, work will be halted and will not resume until the species has exited the work area on its own. CRLF and CTS will not be handled without authorization by the USFWS and CDFW.

- No more than two days prior to the start of ground disturbing activities on US 101 south of the SR 85/US 101 interchange in San Jose, preconstruction surveys for CRLF will be completed by a USFWS-approved biologist in all suitable upland and dispersal habitat areas. If CRLF are found during preconstruction surveys, the USFWS will be contacted within one working day, and work activities along US 101 in suitable upland and dispersal habitat will be suspended until the CRLF has exited the area on its own. CRLF and CTS will not be handled without authorization by the USFWS and CDFW.

- At Saratoga Creek, no more than 20 calendar days prior to any ground disturbance for the bridge widening, preconstruction surveys will be conducted by a USFWS-approved biologist for CRLF throughout the bridge widening work area.

- The USFWS-approved biologist will perform a CRLF clearance survey immediately prior to the initial ground disturbance at Saratoga Creek. In the same area, the USFWS-approved biologist will conduct clearance surveys at the beginning of each day within or adjacent to suitable listed species habitat and regularly throughout the work day.

- WEF will be installed around CRLF habitat prior to any construction during the dry season (June 15 through October 15), when CRLF are not actively dispersing or foraging. The WEF would be placed 10 feet from the edge of pavement along US 101, south of the SR 85/US 101 interchange in San Jose. The location, fencing materials, installation specifications, and monitoring and repair criteria will be submitted to the USFWS for approval prior to the start of the project. Caltrans will include the WEF specifications on the final project plans. Caltrans will include the WEF specifications including installation and maintenance criteria in the bid package special provisions. The WEF will remain in place until all project activities in the vicinity of suitable upland and dispersal habitat are completed. The WEF will be regularly inspected and fully maintained. Repairs to the WEF will be made within 24 hours of discovery. Upon completion of the project, the WEF will be completely removed and the area cleaned of debris and trash, and returned to natural conditions.

- A USFWS-approved biologist will be present during all vegetation clearing and ground-disturbing activities for the Saratoga Creek Bridge work.
- To prevent CRLF from becoming entangled or trapped in erosion control materials, plastic monofilament netting (erosion control matting) or similar material will not be used for erosion control. Acceptable erosion control substitutes include matting made of coconut coir (a fiber made from coconut husks) or tackified hydroseeding compounds (seeds and mulch mixed with a tacky substance to keep the mixture in place).
- To prevent inadvertent entrapment of CRLF and other wildlife during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks will be installed. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. If at any time a trapped animal is discovered, the USFWS-approved biologist will immediately remove and relocate it.
- Rodenticides and herbicides will be utilized in such a manner to prevent primary or secondary poisoning of listed species, and depletion of prey populations on which they depend. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Pesticide Regulation, and other appropriate state and federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS or the CDFW.
- No firearms will be allowed in the BSA except for those carried by authorized security personnel, or local, state, or federal law enforcement officials.
- No pets will be permitted in the BSA.

California Tiger Salamander

The avoidance and minimization measures listed for CRLF would serve to avoid and minimize potential impacts to CTS and their habitat. The construction contractor will be required to implement these measures for any ground disturbing construction along US 101, south of the SR 85/US 101 interchange in San Jose. The preconstruction survey will be conducted for both CTS and CRLF. The exclusion fencing will be designed and constructed in a way to keep both CTS and CRLF from entering the construction area. Worker training will include familiarizing construction personnel with both species.

Bay Checkerspot Butterfly

To avoid and minimize potential effects to the bay checkerspot butterfly, the following conservation measures, in addition to the avoidance and minimization measures described in

Sections 2.3.1.3 and 2.3.2.4, will be implemented in all active ground disturbance and construction areas along US 101 south of the SR 85/US 101 interchange in San Jose.

- Before construction commences, a preconstruction survey for serpentine grassland and the host plants will be conducted to determine the presence and extent of the bay checkerspot butterfly's host plants (dwarf plantain and purple owl's clover) within the BSA south of the SR 85/US 101 interchange in San Jose. Serpentine grassland and host plants that are present in the limits of construction will be fenced off prior to construction using ESA fencing (including an approximate 5-foot buffer) to avoid any direct impacts to bay checkerspot butterfly. The preconstruction survey will be conducted during the host plants' blooming period (March through early May), when the plants are identifiable.
- To avoid impacting dispersing adult butterflies, construction activities will not occur during the flight season (March through early May) (County of Santa Clara 2012).
- During ground-disturbing construction activities, the construction contractor will implement dust control measures including regular watering of exposed soils to reduce the amount of dust and particulate matter in the air. The control measures will be consistent with Caltrans Standard Specifications, Section 14-9.01 (Air Pollution Control) and Section 14-9.02 (Dust Control).

Metcalf Canyon Jewel-Flower

To avoid and minimize potential effects to the Metcalf Canyon jewel-flower, the following conservation measures, in addition to the measures discussed in Sections 2.3.1.3 and 2.3.2.4, will be implemented in all active ground disturbance and construction areas along US 101 south of the SR 85/US 101 interchange in San Jose.

- Preconstruction surveys for Metcalf Canyon jewel-flower will be conducted between April and July, before construction begins on US 101 south of the SR 85/US 101 interchange to identify where ESA fencing should be placed.
- Metcalf Canyon jewel-flower plants that are present in the limits of construction will be fenced off prior to construction using ESA fencing (including an approximate 5-foot buffer).

Compensatory Mitigation

With implementation of the reasonable and prudent measures described for CRLF, CTS, bay checkerspot butterfly, and Metcalf Canyon jewel-flower in Avoidance and Minimization, above, and in Sections 2.3.1.3 and 2.3.2.4, compensatory mitigation is not proposed.

2.3.6 Invasive Species

This section is summarized from the *Natural Environment Study* (URS 2013d) for the proposed project, which was completed in October 2013.

2.3.6.1 Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring Federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration (FHWA) guidance issued August 10, 1999, directs the use of the state's invasive species list maintained by the California Invasive Species Council to define the invasive plants that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

2.3.6.2 Affected Environment

The BSA supports a number of nonnative species, some of which are exotic but not invasive and some of which are both exotic and invasive. Species found in the BSA that are exotic but not invasive include a variety of Callistemon (bottle brush) and Melaleuca (paper bark), trees that were planted along the roadway in the BSA. Invasive species in the BSA include nonnatives that are deemed high risk by the California Invasive Plant Council such as English ivy and sweet fennel *(Foeniculum vulgare)*. The BSA also includes extensive stands of nonnative blue gum eucalyptus *(Eucalyptus globulus)* planted along US 101 as ornamental trees. Eucalyptus trees are exotic and deemed moderately invasive by the California Invasive Plant Council.

2.3.6.3 Environmental Consequences

None of the identified species on the California list of noxious weeds is used by the Department for erosion control or landscaping. However, project construction activities could have the potential to inadvertently spread these species.

2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures

In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the Federal Highway Administration, the landscaping and erosion control included in the project will not use species listed as noxious weeds. The following measures will also reduce the spread of invasive nonnative plant species and minimize the potential for construction disturbance to decrease palatable vegetation for wildlife to the greatest degree possible:

- No disposal of soil and plant materials should be allowed from areas that support invasive species to areas dominated by native vegetation;
- Resident Engineers should be educated on weed identification and the importance of controlling and preventing the spread of identified invasive nonnative species; and
- Gravel and/or fill material to be placed in relatively weed-free areas should come from weed-free sources. Certified weed-free imported materials (or rice straw in upland areas) will be used.

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects.

Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations (CFR), Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

2.4.2 Cumulative Impact Analysis

The cumulative impact analysis focuses on the resources that the project may affect. According to the Department’s eight-step approach for developing a cumulative impact analysis, if the project would not result in impacts on a resource, it could not contribute to a cumulative impact. The impact used in the cumulative impact analysis is the net impact: the project impact minus proposed avoidance, minimization, and/or mitigation measures. For resource areas where the impact will be fully offset by the proposed avoidance, minimization, and/or mitigation measures, the project would not contribute to cumulative impacts.

The proposed project would not have net impacts on any resources. All potential impacts will be minimized through the proposed avoidance, minimization, and/or mitigation measures presented in Chapter 2. Because no impacts have been identified as potentially significant, the project would not result in cumulative impacts.

2.5 Climate Change (CEQA)

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels. A greenhouse gas absorbs infrared radiation and traps heat in the earth’s atmosphere that would otherwise be released into space. GHG emissions form a layer around the earth much like a greenhouse—a structure with a glass or plastic roof and walls that traps heat from solar radiation.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane

(CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO_2 mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation”. “Greenhouse Gas Mitigation” is a term for reducing GHG emissions to reduce or offset the impacts of climate change. “Adaptation” refers to the effort of planning for and adjusting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[28].

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.[29]

2.5.1 Regulatory Setting

This section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order (EO) S-3-05 (June 1, 2005): The goal of this EO is to reduce California’s GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020 and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of AB 32.

Assembly Bill 32 (AB 32), Nunez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

[28] http://climatechange.transportation.org/ghg_mitigation/
[29] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the state's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level GHG analysis.[30] FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514- Federal Leadership in Environmental, Energy and Economic Performance.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies

[30] To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.

to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.[31]

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

2.5.1.1 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined

[31] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

with the contributions of all other sources of GHG.[32] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented (see Figure 2.5.1-1). The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

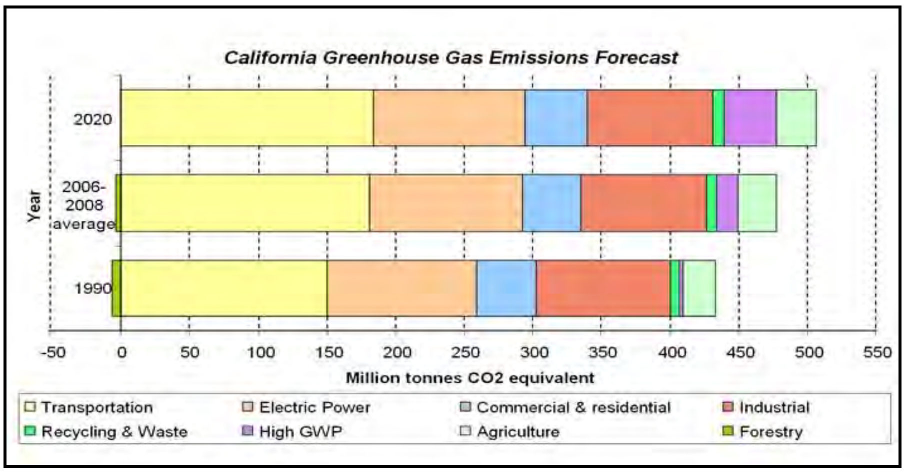

Figure 2.5.1-1. California Greenhouse Gas Forecast

Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[33]

Guidance for Congestion Relief Projects and Other Capacity Increasing Projects

One of the main strategies in the Department's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of

[32] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

[33] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

carbon dioxide (CO_2) from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph; the most severe emissions occur from 0-25 miles per hour (see Figure 2.5.1-2 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO_2, may be reduced.

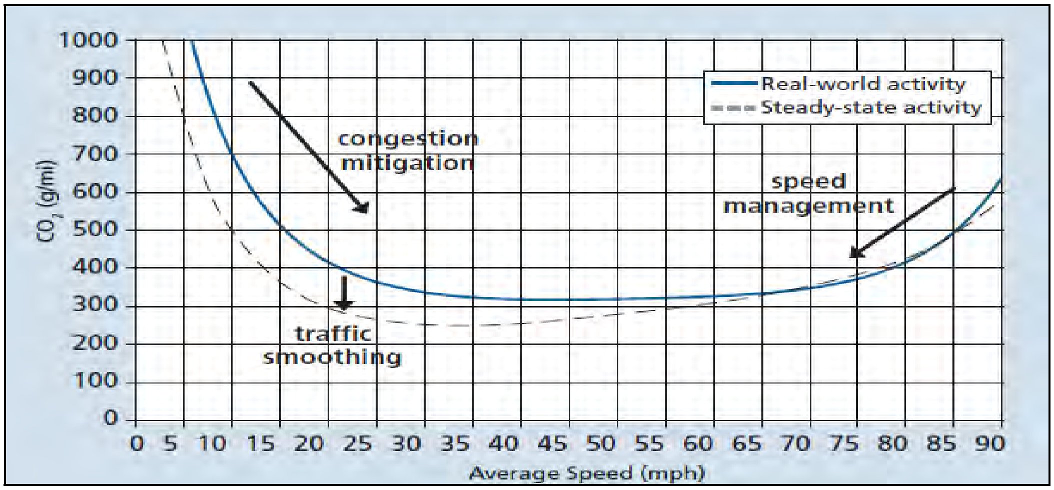

Figure 2.5.1-2. Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emission[34]

As described in Section 2.1.3, the project has been designed to decrease future delays and travel times and increase vehicle speeds throughout the project corridor. Allowing SOVs to pay to use the express lanes would shift some traffic out of the general purpose lanes, contributing to improved traffic operations and reduced congestion as shown in Tables 2.1.3-8 and 2.1.3-11 in Section 2.1.3.2. The future increase in average vehicle speed with the Build Alternative (47.5 mph compared with 38.5 mph with the No Build Alternative in 2015, and 37.5 mph compared with 29.5 mph with the No Build Alternative in 2035) would reduce CO_2 emissions, as vehicles would be traveling in the range when emissions are lowest (see Figure 2.5.1-2). The second express lane would expand freeway capacity for HOVs for part of the 24.1-mile SR 85 corridor, and express lane tolls would provide an additional funding source for public transit and other mobility options in the corridor.

The project is also included in the 2013 RTP and 2013 TIP, which contain adopted strategies for greenhouse gas emissions from transportation sources. Specifically, RTP reference number 230550, “Climate Initiatives Program,” is an adopted 5-year program for the Bay Area region involving outreach and education, promotion of safe routes to school, bikesharing, and funding for electric vehicles. The adopted TIP also demonstrates that the region will remain below all approved “vehicle emission budgets” through the RTP study year.

CO_2 emissions for the existing, opening year and horizon year (that is, 20 years after opening year) No Build condition, and for the opening year and horizon year Build condition, were estimated using the latest EMFAC model (EMFAC2011) for vehicles in Santa Clara County. The

[34] Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

VMT per day and per year for opening year 2015 and horizon year 2035 would increase for the Build scenario compared to the No Build scenario.

However, the average speeds would increase for the Build scenario compared to No Build in both 2015 and 2035. In opening year 2015, both the Build and No Build Alternatives would have higher GHG emissions than existing conditions (defined as 2007), and Build emissions would be higher than No Build. For horizon year 2035, the No Build Alternative would have higher GHG emissions than both existing conditions and the Build Alternative, and the Build Alternative would have lower emissions than existing conditions. The speeds used in the emissions model and shown in Table 2.5.1-1 represent the worst-case peak hour speeds along the SR 85 corridor within the project limits. The VMT, associated speeds, and CO_2 emissions for years 2007, 2015, and 2035 are presented in Table 2.5.1-1, along with emissions of methane (CH_4), nitrogen oxide (NO_2), and carbon dioxide equivalent (CO_2e).

Table 2.5.1-1: Daily and Annual GHG Emissions

Scenario	Peak Hour Speeds (mph)	Annual VMT	Annual Emissions (Metric Tons per Year)			
			CO_2	NO_2	CH_4	CO_2e
Existing (2007)	43	836,973,758	**325,788**	30	181	338,873
No Build (2015)	38.5	933,055,022	**336,103**	33	198	350,586
Build (2015)	47.5	995,888,663	**337,700**	36	211	353,158
No Build (2035)	29.5	999,656,046	**336,059**	35	218	351,624
Build (2035)	37.5	1,101,694,727	**318,866**	39	240	336,021

Notes: The EMFAC 2011 model was run for Santa Clara County for years 2015 and 2035.

It should be noted that the numbers in Table 2.5.1-1 are not necessarily an accurate reflection of what the true CO_2 emissions will be because CO_2 emissions are dependent on other factors that are not part of the model such as the fuel mix, rate of acceleration, and the aerodynamics and efficiency of the vehicles. EMFAC model emission rates are only for CO_2 that is directly emitted from vehicles by the combustion of fuel. The emission rates do not account for indirect life-cycle emissions associated with the production and distribution of the fuel and fuel additives like ethanol prior to combustion in the vehicle. The CO_2 emissions presented above are only useful for a comparison among the existing, No Build, and Build scenarios and should not be considered independently.

Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. An analysis of the expected project construction-related GHG emissions was conducted using conservative assumptions regarding duration and scope of construction, as described above. Construction-related GHG emissions are presented as CO_2 emissions in Table 2.2.6-4 in Section 2.2.6.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Measures to reduce construction emissions are listed in Section 2.2.6.4 and include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

CEQA Conclusion

While construction will result in a slight increase in GHG emissions during construction, it is anticipated that any increase in GHG emissions due to construction will be offset by the improvement in operational GHG emissions. While it is the Department's determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, the Department is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in Section 2.5.1.3.

2.5.1.2 Greenhouse Gas Reduction Strategies

The Department continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from the Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 2.5.1-3: The Mobility Pyramid.

Figure 2.5.1-3. The Mobility Pyramid

The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. The Department works closely with local jurisdictions on planning activities, but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participating the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

The Department is also working towards enhancing the state's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the state's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 2.5.1-2 summarizes the Departmental and statewide efforts that the Department is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 2.5.1-2: Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings Million Metric Tons(MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	CalEPA, ARB, BT&H, Metropolitan Planning Organizations		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Notes: BT&H = Business, Transportation and Housing, CalEPA = California Environmental Protection Agency, ARB = California Air Resources Board, CEC = California Energy Commission, MMT = million metric tons

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)[35] provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- The Department and the CHP are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
- The project will include an additional express lane for part of the SR 85 corridor. In addition, eight park and ride facilities are located less than 0.5 mile from SR 85 and US 101 within the project limits to help manage the growth in demand for highway capacity (VTA 2012b).
- The project would incorporate the use of energy efficient lighting, which will be defined during project design.
- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to ten minutes in each direction; in addition, the contractor must comply with Bay Area Air Quality Management District's rules, ordinances, and regulations in regard to air quality restrictions.

2.5.1.3 Adaptation Strategies

"Adaptation strategies" refer to how the Department and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011[36], outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding

[35] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

[36] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation

critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009)[37], which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report[38] to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates;
- The range of uncertainty in selected sea level rise projections;
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems; and
- A discussion of future research needs regarding sea level rise.

[37] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF
[38] Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

All projects that have filed a Notice of Preparation, as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level affecting safety, maintenance and operational improvements of the system and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

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Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation, the level of analysis required, and to identify potential impacts and avoidance, minimization and/or mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including: project development team meetings, interagency coordination meetings, and public outreach. This chapter summarizes the results of the Department's efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

3.1 Public Scoping and Participation

VTA began seeking public input on express lanes for SR 85 and US 101 in Santa Clara County in 2004. A primary focus of the public outreach has been fairness and equity issues of charging tolls for express lane use. A study prepared for VTA during early express lane planning, *Assessing the Equity Implications of HOT Lanes* (Weinstein and Sciara 2004) examines these issues and provides strategies to address equity concerns, including public outreach and education, documentation of equity analysis in project planning, and project design elements and approaches that increase equity in express lane benefits and costs.[39]

In 2008, VTA conducted a research, public outreach, and education program to gauge public sentiment about the adoption of express lanes. The program consisted of polling and interviewing approximately 750 Santa Clara County citizens, including 681 SR 85 and US 101 users, 4 focus groups of HOV users and solo drivers who use SR 85, 13 one-on-one interviews with community stakeholders, and 10 one-on-one interviews with VTA managers and staff. Section 6 of the Silicon Valley Express Lanes Program Implementation Assessment and Plan (VTA 2008)[40] provides additional information about the program and public perceptions and concerns about the express lanes.

Focus group participants were screened to reflect diversity in the ethnicity, income and education level, age, sex, and commute patterns of the general population in Santa Clara County (SA Opinion Research 2008). The program found the following:

- In focus groups, concerns about a "Lexus Lane" initially divided survey respondents evenly. However, once more information was given and project benefits were explained, respondents were more likely to view the project favorably.
- The dedication of toll revenues to other improvements in the corridor, including public transit improvements, was identified by focus group participants as the number one benefit.
- Fifty-eight percent of those surveyed thought that dual use (combining HOVs and toll-paying SOVs in the same facility) is an efficient approach to relieving traffic congestion.

[39] Available on VTA's Web site at http://www.vta.org/projects-and-programs/highway/express-lanes-communications.
[40] Available on VTA's Web site at http://www.vta.org/projects-and-programs/highway/express-lanes-communications.

- Focus group participants reported they could see how everyone could benefit from express lanes, whether through public transit improvements, better air quality, or improved quality of life from less congestion.
- Respondents from all income levels surveyed said they would use the lanes (VTA 2008).[41]

On October 19, 2011, VTA held a public information meeting about the project at the Saratoga Senior Center, 19655 Allendale Avenue, Saratoga. The meeting was advertised through VTA press releases (October 12 and 18, 2011); local English-language newspapers (*Mercury News*, *Mountain View Voice*, *Sunnyvale Sun*, *Cupertino Carrier*, *Saratoga News*, and *Philippines Today*); and foreign-language newspapers that serve the project corridor (*El Observador*—Spanish, *Sing Tao*—Chinese, *Korea Times*—Korean, and *Thoi Bao*—Vietnamese).

Representatives from VTA and the Department were present at the October 19, 2011, public information meeting to discuss the project and answer questions from members of the public. Meeting materials included an SR 85 fact sheet, a "frequently asked questions" handout, display boards and maps, and an express lanes video. Four members of the public attended: a middle school student on a school assignment, two Saratoga residents, and an employee of the City of Saratoga. The attendees did not express specific concerns or comments about the project and were primarily interested in learning more about it.

Public input on the project was solicited during the review period for this Initial Study/Environmental Assessment (IS/EA), as discussed further in Section 3.3.

3.2 Consultation and Coordination

3.2.1 Public Events and Other Outreach

3.2.1.1 Early Project Engineering Phase

In 2008 through 2010, VTA outreach staff participated in five public events and made presentations about the express lanes projects to business, environmental, and community groups as described below (VTA 2008, 2010):

- Public events (2008)
  - Silicon Valley Leadership Group's "Clean and Green" Conference
  - Santa Teresa Citizen Action Group Community Festival in south San Jose
  - "Let the Children Play" Concert in downtown San Jose
  - San Jose Mariachi Festival in downtown San Jose
  - Japantown Festival in San Jose
- Presentations and meetings

[41] A detailed description of the focus group findings is available on VTA's Web site at http://www.vta.org/projects-and-programs/highway/express-lanes-communications.

- Mineta Transportation Institute (San Jose State University; 4/16/08)
- California Highway Patrol (7/14/08)
- Sierra Club, Loma Prieta Chapter meeting (9/22/08)
- Employee Transportation Coordinator meeting (Moffett Park Business and Transportation Association; 9/25/08)
- Contra Costa County Transportation Authority Board of Directors meeting (10/15/08)
- Silicon Valley Leadership Group (12/02/08)
- Silicon Valley Chamber of Commerce (12/02/08)
- Board of Directors meeting for the Moffett Park Business and Transportation Association (12/08/08)
- TransForm (Transportation and Land Use Coalition) regional meeting (3/18/09)
- Transportation Authority of Marin County meeting (4/28/09)
- Solano County Transportation Authority meeting (6/04/09)
- Transportation Research Board poster presentation (Washington D.C.; 1/10/10)
- Northern California Conference of Minority Transportation Officials (4/23/10)
- South Bay Transportation Officials Association (6/10/10)
- Presentations to VTA Standing and Advisory committees that include elected officials from municipalities in the proposed project corridor (multiple dates)

3.2.1.2 Preliminary Engineering and Environmental Approval Phase

Starting in 2011, while engineering and environmental studies were under way, VTA continued project outreach as described below.

- Community Meeting, Saratoga (10/20/11): VTA presented plans and exhibits for the SR 85 Express Lanes Project to communities who live along the corridor. Four people from the Saratoga community attended. The attendees were interested in the project and did not provide any specific comments regarding the express lanes.
- Erikson Neighborhood Association Meeting, San Jose (4/25/12): VTA presented an overview of the project to approximately 20 people from communities in the vicinity of SR 85, Branham, Almaden Expressway, and Pearl Avenue. Comments ranged from positive feedback about the project to concerns about double taxation, the purchase and use of the FasTrak device, local ramp access to and from the express lanes, and the focus of the program on high-income travelers.
- VEP Community Association Meeting, Vista Park (5/29/12): VTA presented an overview of the project to approximately 25 people from the communities of Vista Park, Encore, and Parkview Valley in San Jose. The attendees asked general questions about how the express

lanes work; some attendees expressed concerns about not having local ramp access to and from the lanes. The VEP Community Association President and some others expressed support for the project.

- Old Mountain View Neighborhood Association, Mountain View (1/14/13): VTA presented an overview of the SR 85 and US 101 Express Lane projects to 10 people from the community and steering committee. The attendees asked questions about how the express lanes would be enforced, if the tolls are by distance, and how far they have to drive to enter the express lanes. The commuters were generally receptive to the express lanes; other people expressed concerns about local ramp access to and from the lanes.

- Saratoga City Council Meeting, Saratoga (1/16/13): VTA presented an overview of the Silicon Valley Express Lanes Program to the Saratoga City Council and 25 members of the public. The city council members asked questions about freeway noise, how the projects are funded, if there will be improvements to local signal intersections, and how the express lane tolls are determined.

- West Valley Mayors and Managers, Cupertino (1/23/13): VTA presented an overview of the SR 85 and US 101 Express Lanes projects to city managers and city council members from Los Gatos, Saratoga, Cupertino, Monte Sereno, and Campbell. The attendees asked questions about express lane operation and funding and the project timeline.

- VTA-sponsored outreach meeting, VTA River Oaks, San Jose (1/31/13): VTA presented an overview of the SR 85 and US 101 Express Lanes projects to groups including Urban Habitat, Working Partnerships, SPUR, and Transform. One attendee asked if the Sierra Club had been contacted in regard to the projects.

- San Jose City Council District 2 Meeting, San Jose (2/4/13): VTA presented an overview of the SR 85 and US 101 Express Lanes projects to attendees. The public asked questions about where the money goes, how much it costs per person per year, and if the money would be put into transit projects. Several people expressed concerns that VTA did not reach out to the public early enough and about the allocation of money to express lanes projects rather than transit.

- Silicon Valley Transportation Summit 2013, San Jose (2/23/13): This event was a forum for organizations, agencies and Santa Clara residents to discuss transportation and land use planning options. VTA hosted a table and passed out project fact sheets for the SR 85 and US 101 Express Lanes projects. One attendee expressed the opinion that the lanes encourage cheaters because the CHP cannot properly monitor the lanes.

- San Jose City Council District 5 Meeting, San Jose (3/27/13): VTA presented an overview of the Silicon Valley Express Lanes Program to attendees. The public asked questions about how much the express lanes cost, where to get the FasTrak toll tags, and how much the toll tags cost.

- Berryessa Citizens Advisory Council, San Jose (6/10/13): VTA presented an overview of the Silicon Valley Express Lanes Program to attendees. The public asked questions about express lane enforcement, access to express lanes from specific interchanges, and whether FasTrak toll tags can be used in more than one vehicle.

- Monta Loma Neighborhood Association, Mountain View (6/17/13): VTA presented an overview of the Silicon Valley Express Lanes Program. Attendees asked about project funding and use of express lanes revenue, including whether the public would have input on which transit projects to fund.
- San Jose Kiwanis Club, San Jose (9/16/13): VTA presented information on its functions as a congestion management agency and transit provider along with general description of express lanes. The attendees asked about trip pricing and express lane entry and exit points, and were generally receptive toward express lanes.

3.2.2 Consultation and Coordination with Public Agencies

3.2.2.1 Federal Agencies

- U.S. Fish and Wildlife Service (USFWS): A USFWS species list was obtained on April 29, 2010, and used to identify target species for reconnaissance-level surveys for terrestrial plants and animals. Updated species list were obtained periodically, most recently in February 2015 (see Appendix C). The Department initiated Section 7 consultation with the USFWS on December 20, 2013, by submitting a Request for a Letter of Concurrence to address potential project effects on California red-legged frog, California tiger salamander, bay checkerspot butterfly, and Metcalf Canyon jewel-flower (see Section 2.3.5). USFWS issued a Biological Opinion on March 10, 2015 (08ESMF00-2014-F-0197-2; see Appendix C).
- Federal Highway Administration (FHWA): FHWA issued a project-level conformity determination on April 14, 2015 (see Appendix C).

3.2.2.2 Tribal Entities

Native American consultation is described in Section 2.1.5.2.

3.2.2.3 State Agencies

- California Department of Fish and Wildlife (CDFW): During detailed project design, the Department will consult with CDFW to obtain a Section 1602 Lake and Streambed Alteration Agreement for work within the banks of San Tomas Aquino and Saratoga creeks.
- State Historic Preservation Officer (SHPO): The project's cultural resource studies were submitted to SHPO on June 21, 2013, for notification of the Department's finding of "No Adverse Effect with Standard Conditions – Environmentally Sensitive Areas (ESAs)" under the Section 106 Programmatic Agreement. Caltrans issued a Section 106 completion memorandum on August 22, 2013, which is included in Appendix C.

3.2.2.4 Regional Agencies

- Bay Area Air Quality Conformity Task Force: In October 2011, VTA initiated consultation with the Air Quality Conformity Task Force by submitting a Project Assessment Form for $PM_{2.5}$ Interagency Consultation. On October 27, 2011, the Task Force determined that the project is not a project of air quality concern. After the 2011 consultation, the project limits on US 101 in San Jose were changed, and an auxiliary lane was added to the proposed project on northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard. The Task Force was informed about the project limit change as part of consultation on TIP Amendment 11-25 in May 2012, and the auxiliary lane as part of consultation on the 2013 TIP in February 2013. The project status remains not a project of air quality concern.

During the public review and comment period for the IS/EA, public comments were requested regarding the information in the Project Assessment Form for $PM_{2.5}$ Interagency Consultation and the Task Force's determination (see Appendix C). No comments were provided on these items. A separate announcement to request public comment on the $PM_{2.5}$ assessment and Task Force determination was published in the *Mercury News* on February 18, 2015. The public comment period closed on March 5, 2015. FHWA issued a project-level conformity determination on April 14, 2015 (see Appendix C).

- San Francisco Bay Regional Water Quality Control Board: A joint "Application for 401 Water Quality Certification and/or Report of Waste Discharge" and National Pollutant Discharge Elimination System permit application will be submitted during detailed project design. A Notice of Intent and Storm Water Pollution Prevention Plan will be prepared and submitted before construction begins.

3.3 Circulation, Review, and Comment on the Draft Environmental Document

3.3.1 Notifications for Comment Period and Public Meetings

Caltrans and VTA circulated the IS/EA for public review and comment on December 30, 2013. Each of the agencies and individuals listed in Chapter 5 received printed or electronic copies of the document or mailers with information about the two public meetings for the project and a link to the IS/EA on the Caltrans District 4 environmental documents website. In addition, the meetings were advertised through VTA press release on January 13, 2014, and newspaper ads in the following newspapers on the following days: local English-language newspapers (*Mercury News*, December 30, 2013 and *Philippines Today*, January 1, 2014); and foreign-language newspapers that serve the project corridor (*El Observador*, January 3, 2014—Spanish, *Sing Tao*, December 30, 2013—Chinese, *Korea Times*, December 30, 2013—Korean, and *Viet Nam*, December 30, 2013—Vietnamese).

3.3.2 Public Meetings

Two public meetings were held for the proposed project, as described further below.

3.3.2.1 Calabazas Branch Library, San Jose, January 14, 2014

The first public meeting was held on Tuesday, January 14, 2014, from 6 p.m. to 8 p.m. at the Calabazas Branch Library, 1230 South Blaney Avenue, San Jose. The meeting was open house style, with multiple display boards for review and discussion. Project staff engaged members of the public in one-on-one conversations. Thirty-four members of the public attended, mostly local residents. Comments and questions included the following:

- There were educational queries, such as how FasTrak would collect the tolls, how the variable toll would be set and adjusted, how ingress and egress would work, how would

HOVs be affected by the change, and how the SR 85/US 101 express lane connectors would work.

- There were financial questions about how the project will be funded as well as about financial equity, such as do express lanes disproportionately benefit more affluent individuals.
- A number of local residents also stated that when SR 85 was proposed and built, a pledge was made that the freeway would not be widened and that the median of the freeway would be reserved for light rail.
- Residents close to the freeway also had specific questions regarding noise and air quality impacts.
- There was a recommendation to improve a pedestrian overcrossing in the northern portion of the corridor as part of the project.

Four written comments were provided. The comments are shown in Volume 2 (Appendix H) along with responses.

3.3.2.2 Cambrian Branch Library, San Jose, January 16, 2014

The second public meeting was held on Thursday, January 16, 2014, from 6 p.m. to 8 p.m. at the Cambrian Branch Library, 1780 Hillsdale Avenue, San Jose. The meeting was open house style, with multiple display boards for review and discussion. Project staff engaged members of the public in one-on-one conversations. Nineteen members of the public attended, mostly local residents. Comments and questions included the following:

- There were educational queries, such as how FasTrak would collect the tolls, how the variable toll would be set and adjusted, how ingress and egress would work, how would HOVs be affected by the change, and how the SR 85/US 101 express lane connectors would work.
- There were financial questions about how the project will be funded as well as about financial equity, such as do express lanes disproportionately benefit more affluent individuals.
- There were questions regarding noise impacts.
- There were questions regarding whether VTA had evaluated the use of the SR 85 median for mass transit uses.
- There was also a question about why VTA was not building a direct connector ramp between northbound SR 85 and northbound I-280.

Two written comments were provided. The comments are shown in Volume 2 (Appendix H) along with responses.

3.3.3 Additional Notifications and Outreach

On January 30, 2014, the end of the public comment period was extended from January 31, 2014 to February 28, 2014, in response to public requests for additional time to review and comment on the IS/EA. Additional newspaper advertisements were run in the following newspapers on the following days to notify the public of the comment period extension: local English-language newspapers (*Mercury News*, January 30, 2014 and *Philippines Today*, January 29, 2014); and foreign-language newspapers that serve the project corridor (*El Observador*, January 31, 2014—Spanish, *Sing Tao*, January 31, 2014—Chinese, *Korea Times*, January 31, 2014—Korean, and *Viet Nam*, January 31, 2014—Vietnamese).

The Draft IS/EA included and described the proposed addition of a second express lane. Additional newspaper advertisements in the following newspapers were run on the following days to clarify that the project would include this second express lane in each direction of SR 85 between SR 87 and I-280: local English-language newspapers (*Mercury News*, February 14, 2014 and *Philippines Today*, February 12, 2014); and foreign-language newspapers (*El Observador*, February 14, 2014—Spanish, *Sing Tao*, February 14, 2014—Chinese, *Korea Times*, February 14, 2014—Korean, and *Viet Nam*, February 14, 2014—Vietnamese).

An announcement to request public comment on the $PM_{2.5}$ determination was published in the *Mercury News* on February 18, 2015. The public comment period was from February 18 to March 5, 2015. Comments on $PM_{2.5}$ conformity are shown in Volume 2, Appendix H, Section H.7, along with responses.

3.3.4 Public Comments

Regional and local agencies, organizations, and members of the public submitted comments on the Draft Environmental Document. Each comment letter, e-mail, comment card, or note that was received was reviewed and substantive comments were identified. Volume 2 of this Final Environmental Document presents the public comments and responses to those comments.

Chapter 4 List of Preparers

This document and its related technical studies were prepared under the supervision of Caltrans District 4. The Project Development Team (PDT) was responsible for oversight of the project and consists of representatives from the Department and VTA.

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- Ngoc Bui, Associate Environmental Planner – Reviewed Environmental Document and Community Impact Assessment
- Eric DeNardo – Associate Environmental Planner
- Jo Ann Cullom, Senior Environmental Planner – NEPA Quality Control Reviewer
- Matthew Gaffney, Engineering Geologist – Reviewed Paleontological Identification Report, Paleontological Evaluation Report and Mitigation Plan
- Glenn Kinoshita, District Branch Chief Air/Noise Studies – Reviewed Noise and Air Quality
- Elizabeth Krase Greene, Branch Chief (Architectural History / Built Resources) Office of Cultural Resources Studies – Reviewed Historic Properties Survey Report
- Kathryn Rose, Branch Chief (Archaeology), Office of Cultural Resource Studies – Reviewed Historic Properties Survey Report
- Benjamin Harris, Associate Archaeologist, Co-Principal Investigator, Historical Archaeology – Reviewed Historic Properties Survey Report and Cultural Resources section
- Douglas Bright, Principal Architectural Historian – Reviewed Historic Properties Survey Report and Cultural Resources section
- Steve Harris – Environmental Planner, Reviewed Biological Assessment, Natural Environment Study, and Biology section
- Thomas Packard, Landscape Associate – Reviewed Visual Impact Assessment and Visual/Aesthetics section
- Bryan Walker, Senior Landscape Architect – Reviewed Visual Impact Assessment
- Stuart Kirkham – Senior Environmental Planner, Reviewed Biological Assessment and Request for a Letter of Concurrence from the USFWS, Natural Environment Study, Jurisdictional Delineation, and Biology section

- John Yeakel – Senior Environmental Planner, Reviewed Biological Assessment and Natural Environment Study
- Lance Hall – Reviewed Traffic

Individuals Involved in Technical Studies and Environmental Document Preparation

The following consulting team staff members were responsible for the preparation of the environmental technical studies and the environmental document:

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- Joe Bandel, URS Corporation, B.S., Wildlife, Fish and Conservation Biology. Contribution: Jurisdictional Delineation and Natural Environment Study preparation.
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DKS 2014b Traffic Operations Analysis Report Addendum 2: Local Street Supplemental Analysis – Future Year Demand Forecasts. Prepared by SBTA, DKS Associates, and CDM Smith for Santa Clara Valley Transportation Authority. November 25, 2014.

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Appendix A Noise Receptors and Barriers

The attached plans show the proposed project limits and the locations of the noise receptors and existing and modeled noise barriers analyzed in Section 2.2.7.

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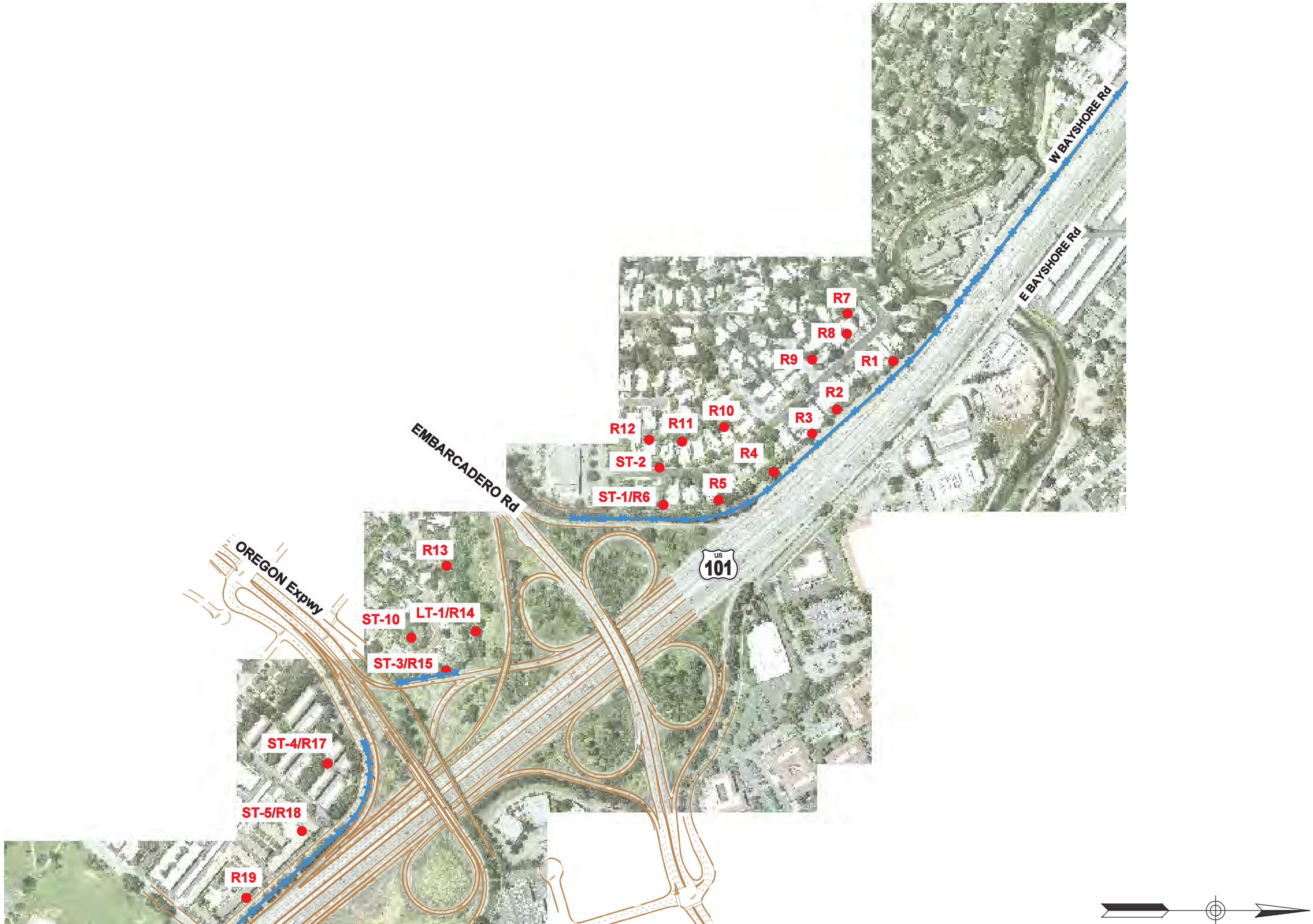

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- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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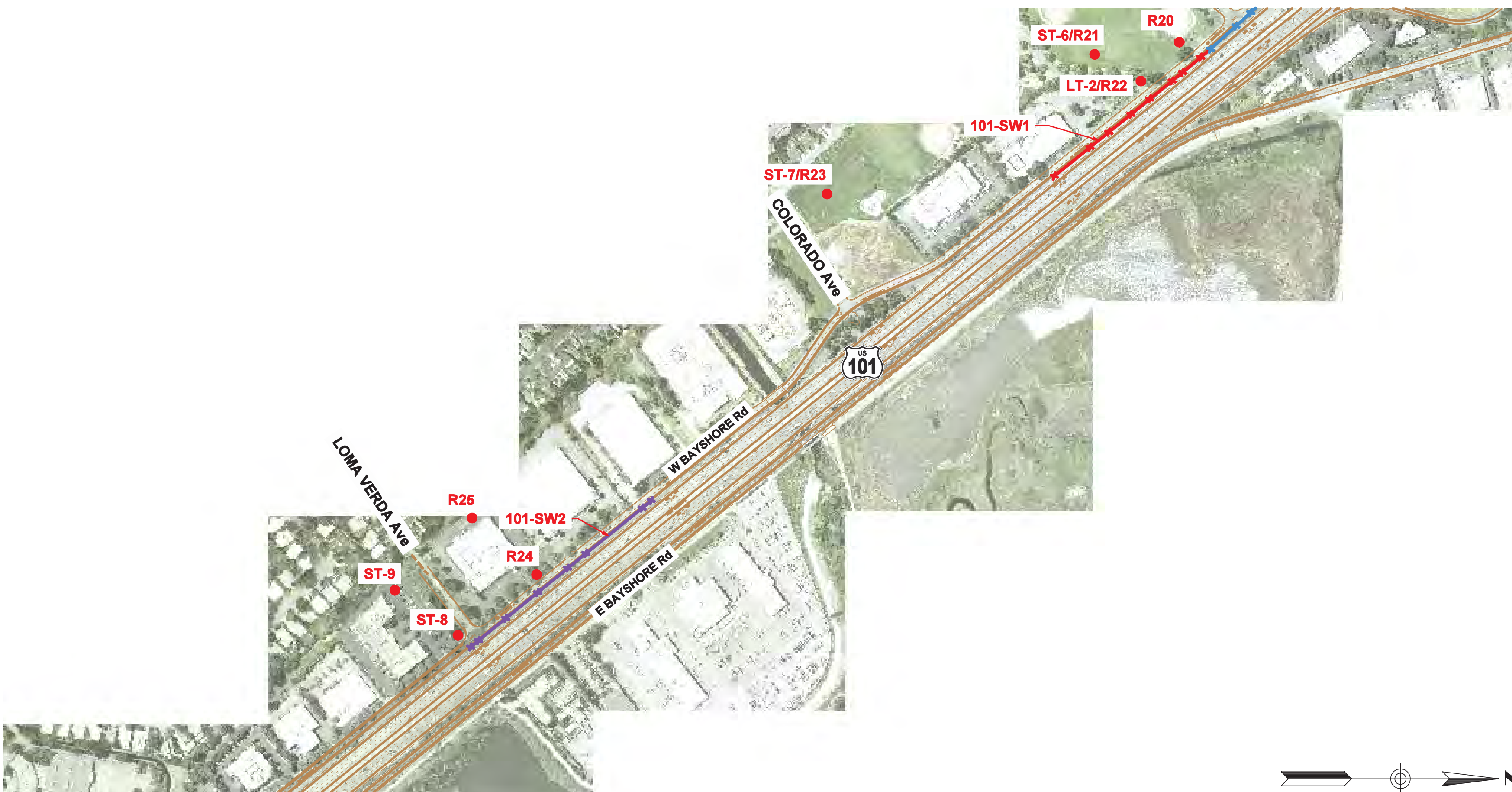
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

SHEET NO. 1 OF 5



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MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 2 OF 5

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- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

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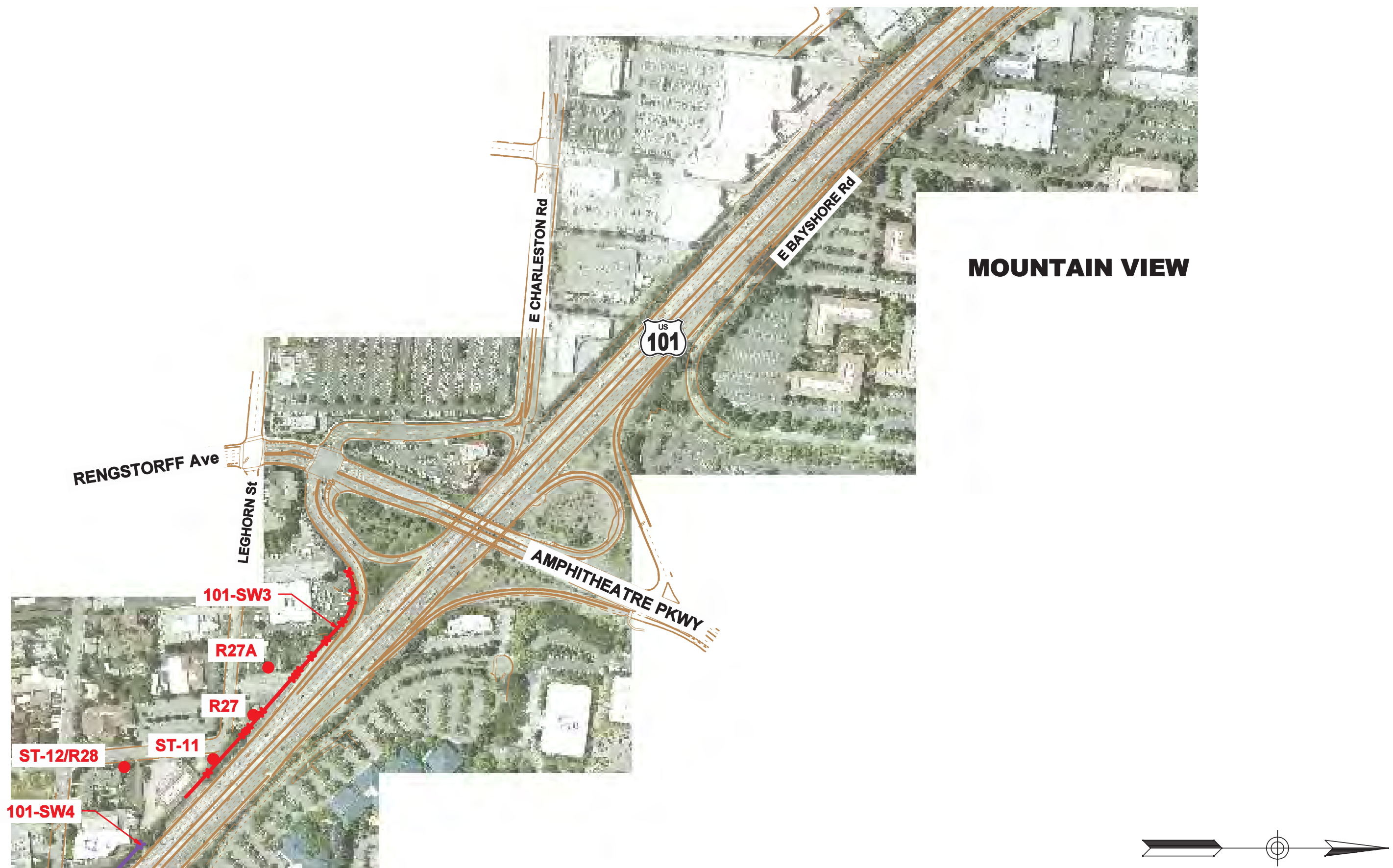

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MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

SHEET NO. 4 OF 5

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- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

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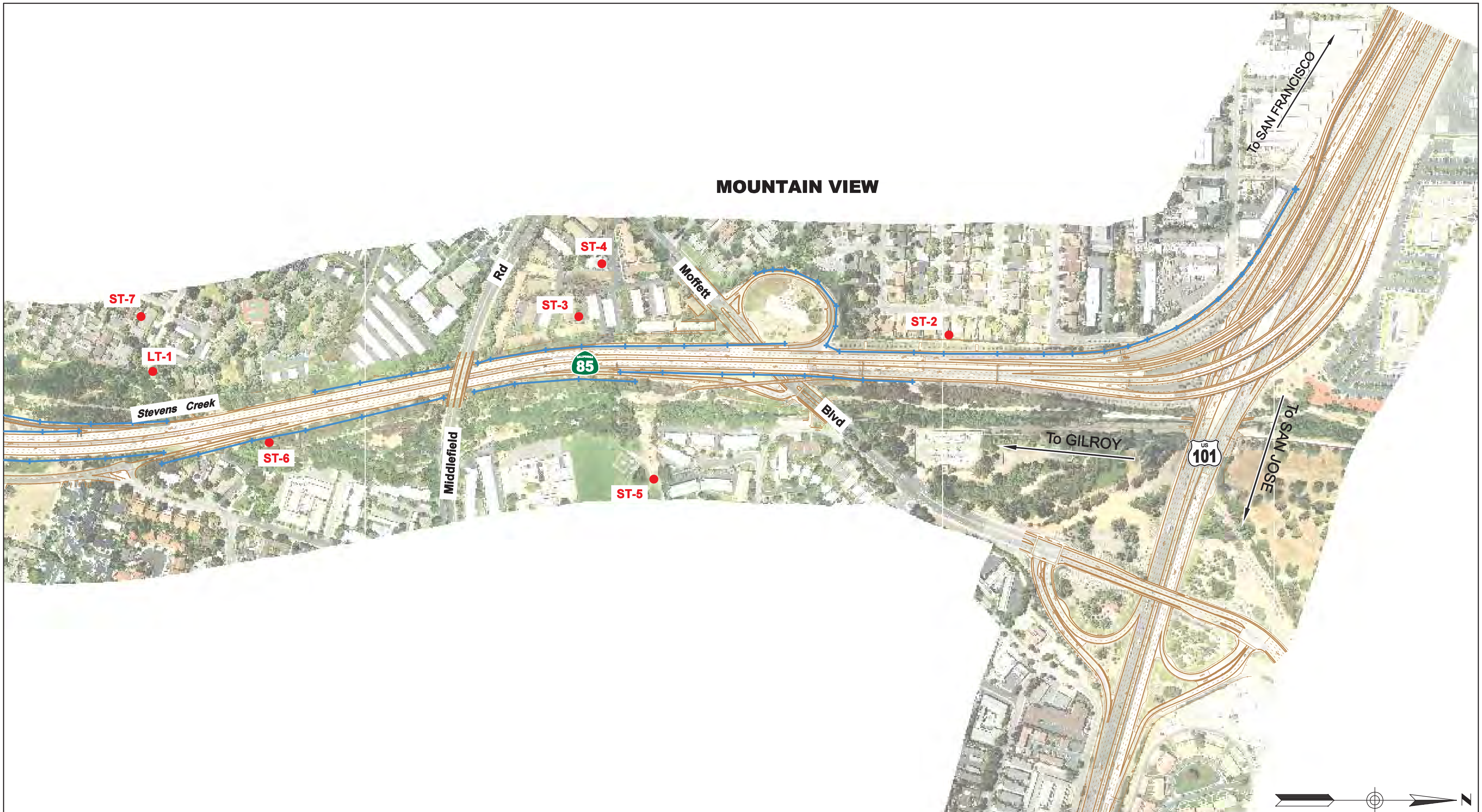

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- EVALUATED NOISE ABATEMENT (NEW BARRIER)
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MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 1 OF 26

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- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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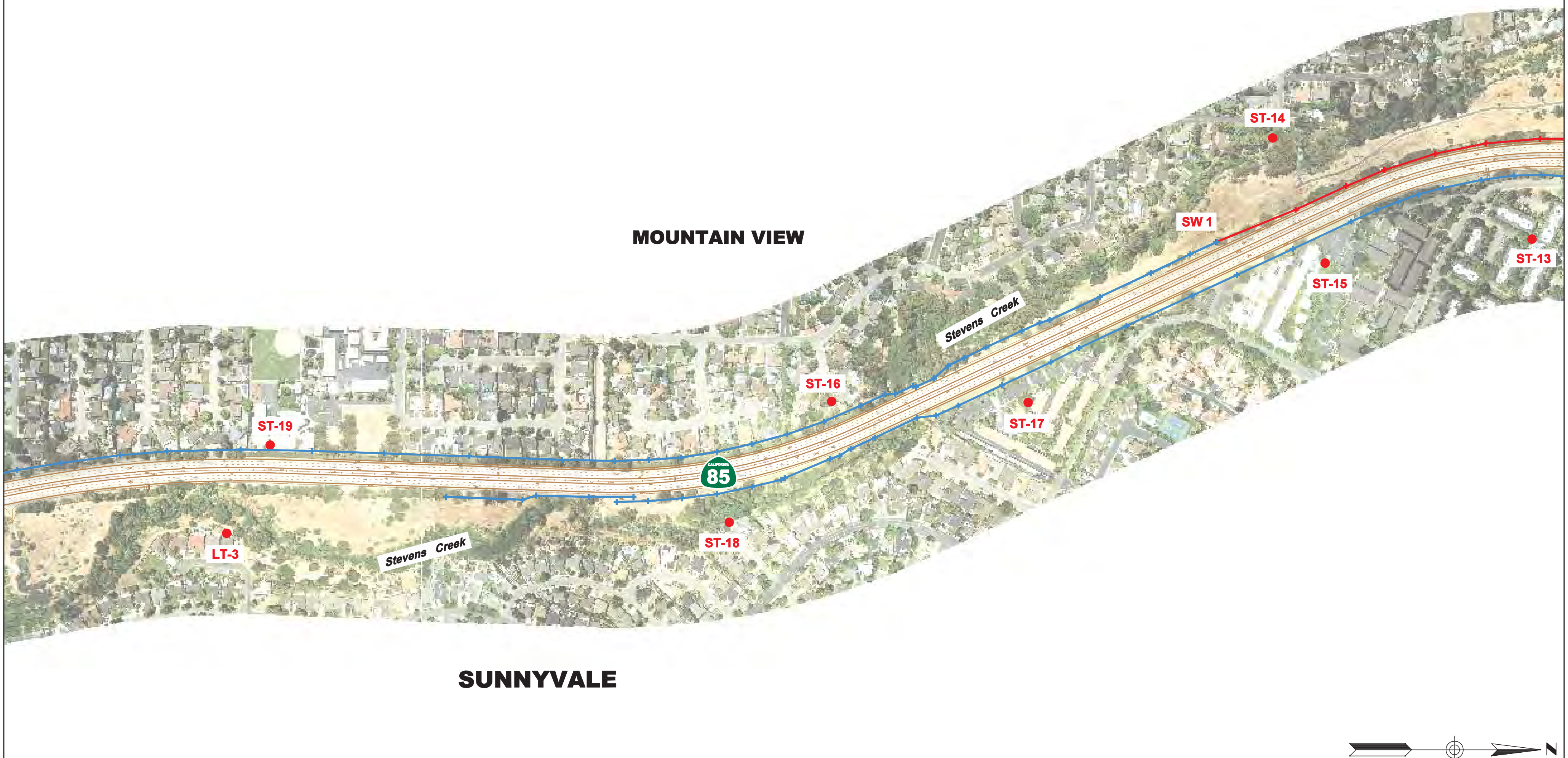
MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT



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MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

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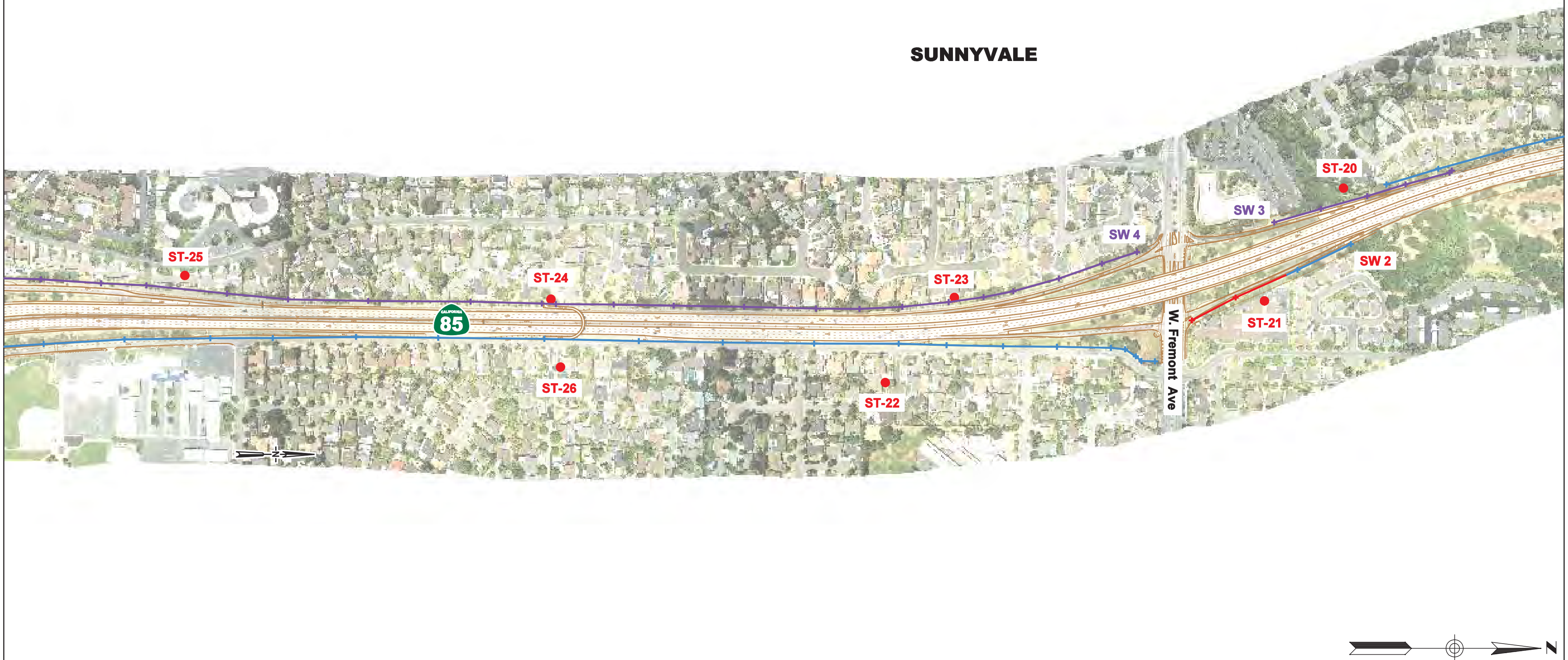

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MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

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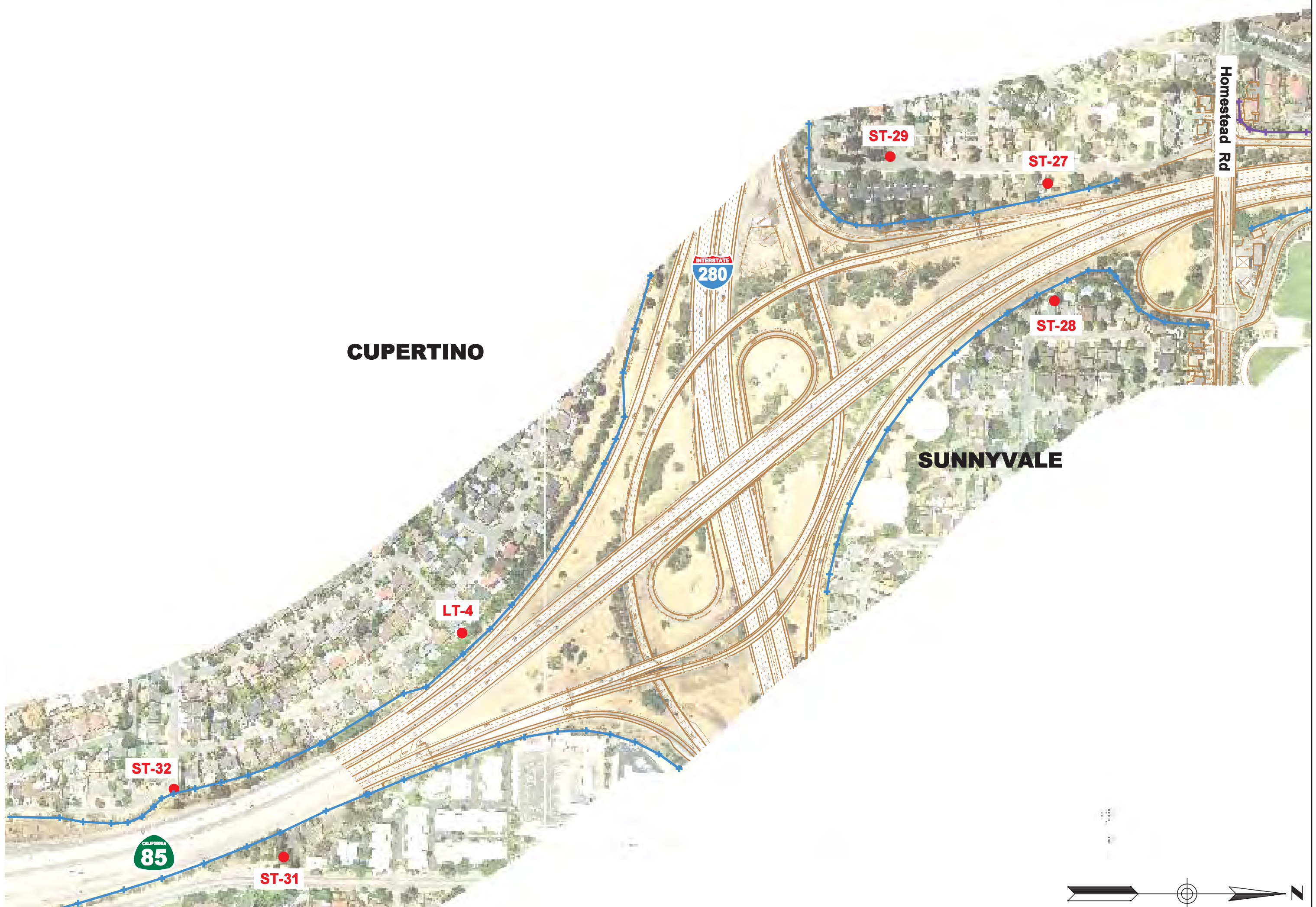

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- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

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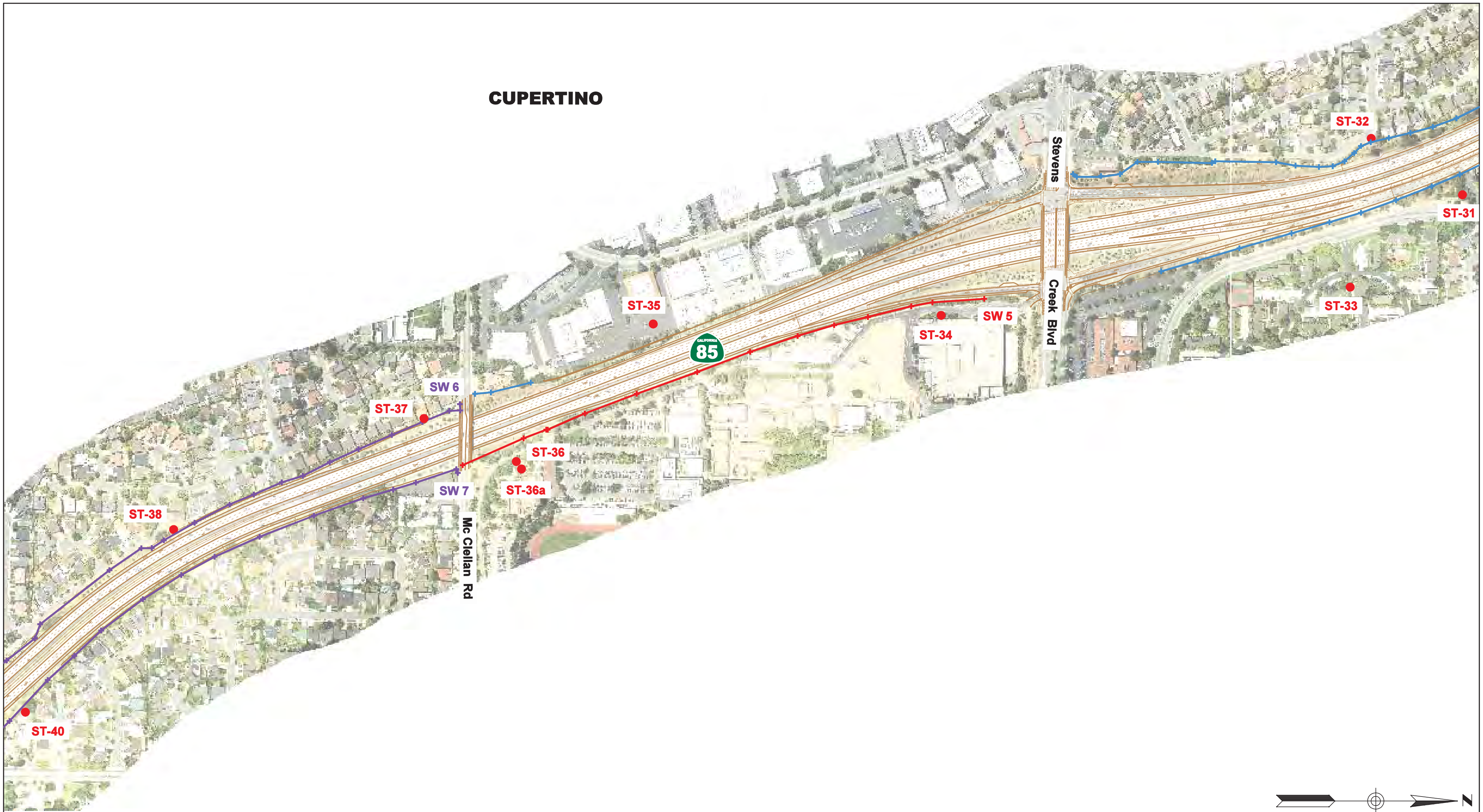

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- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

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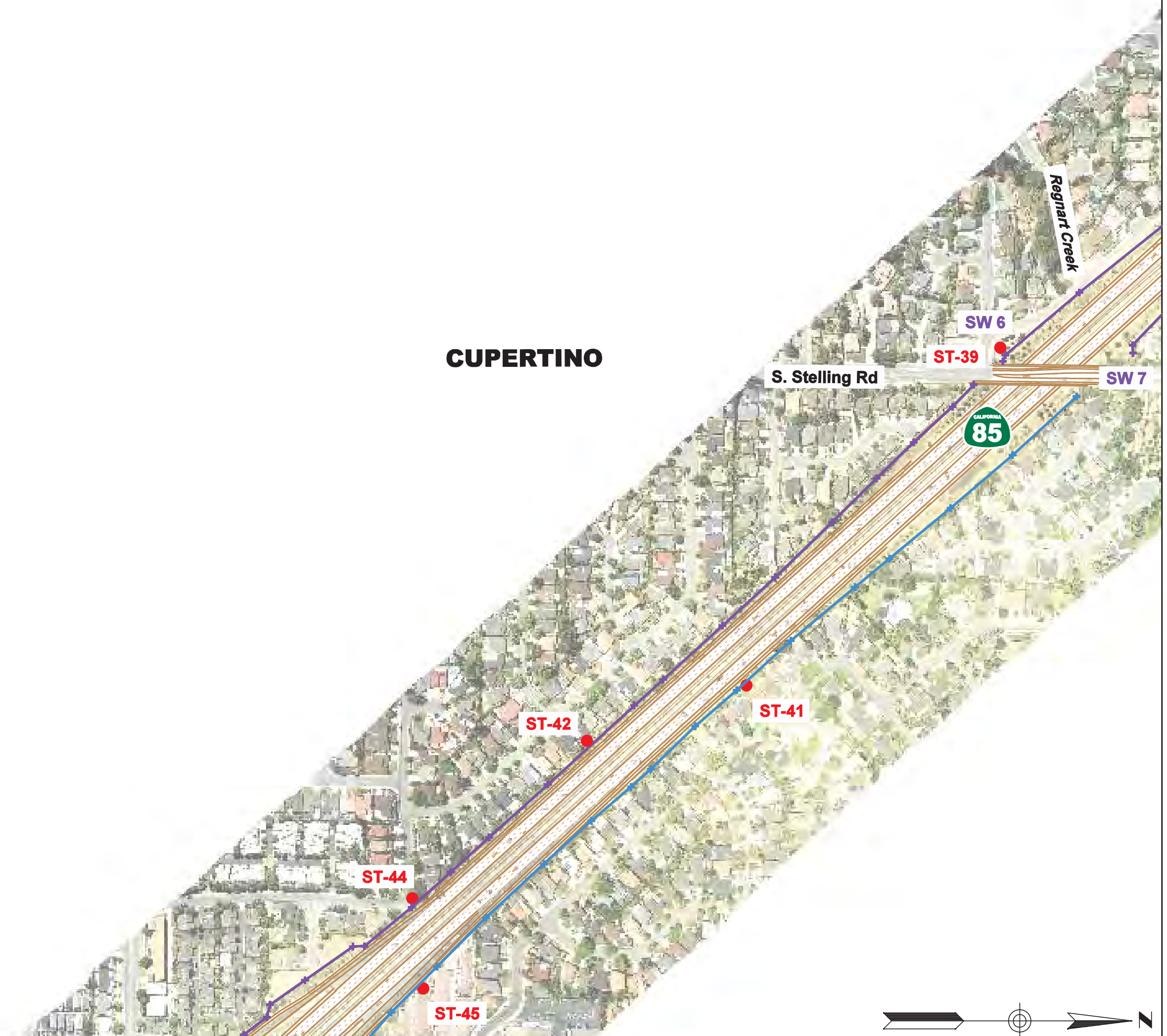

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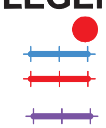

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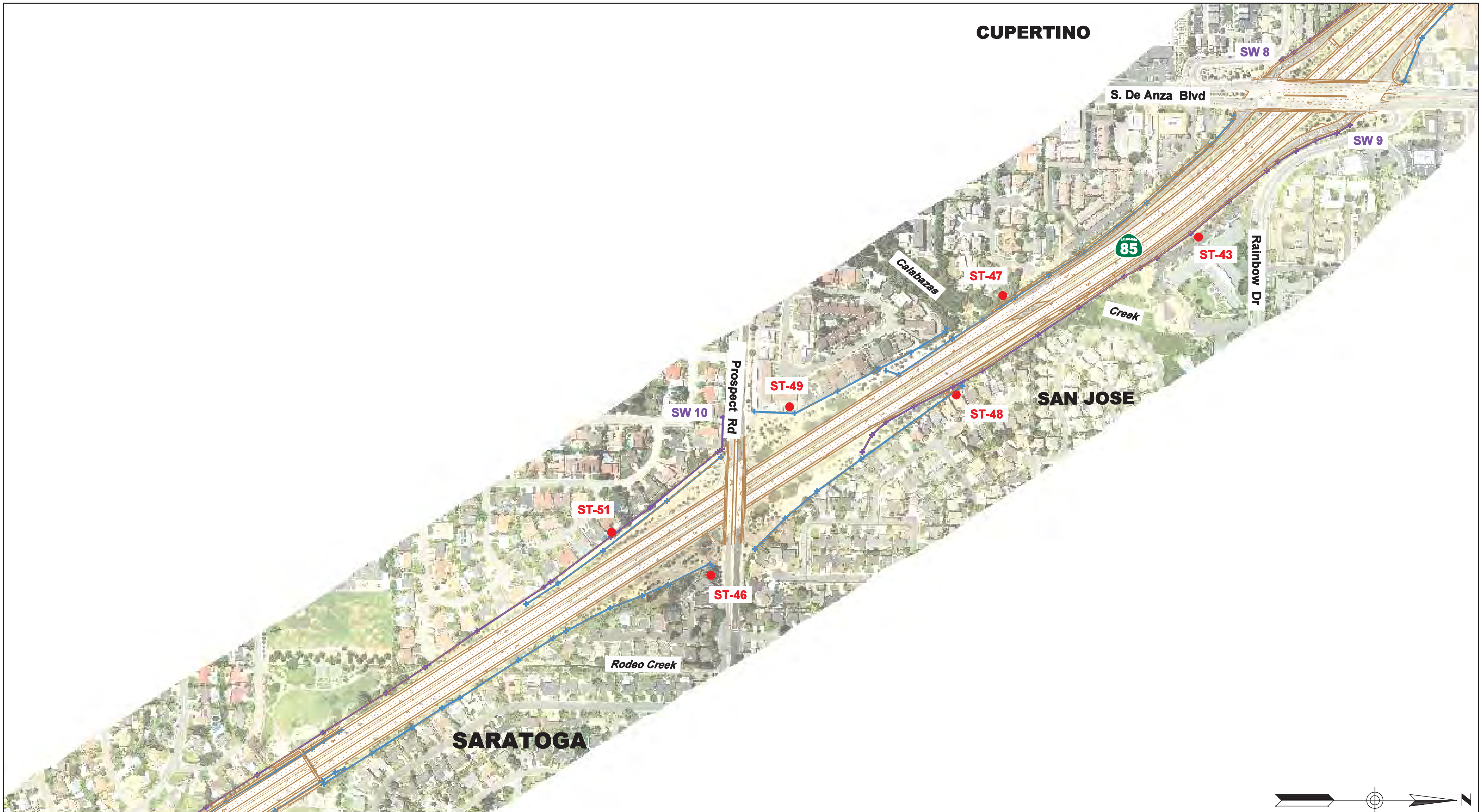
MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 7 OF 26



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- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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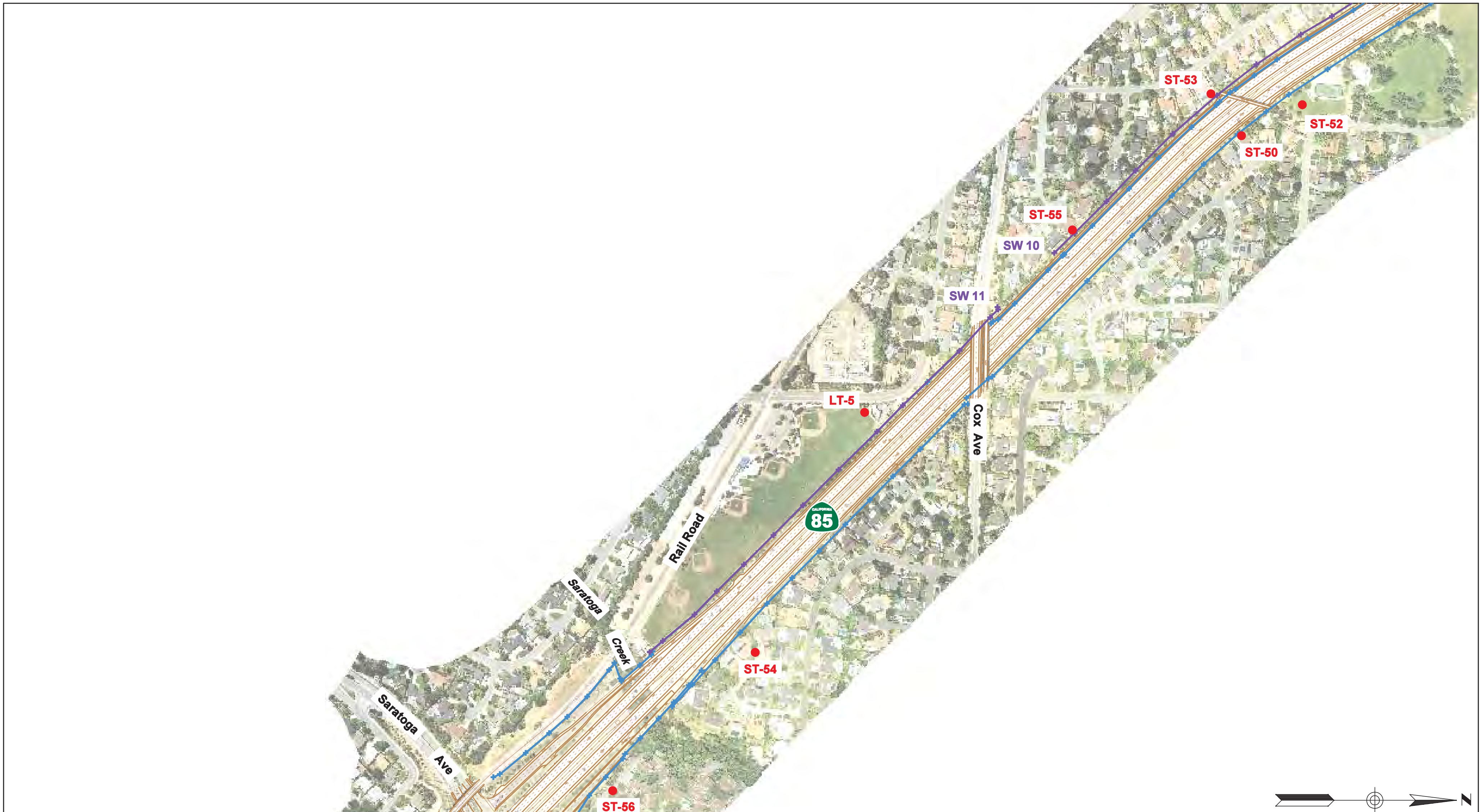
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 8 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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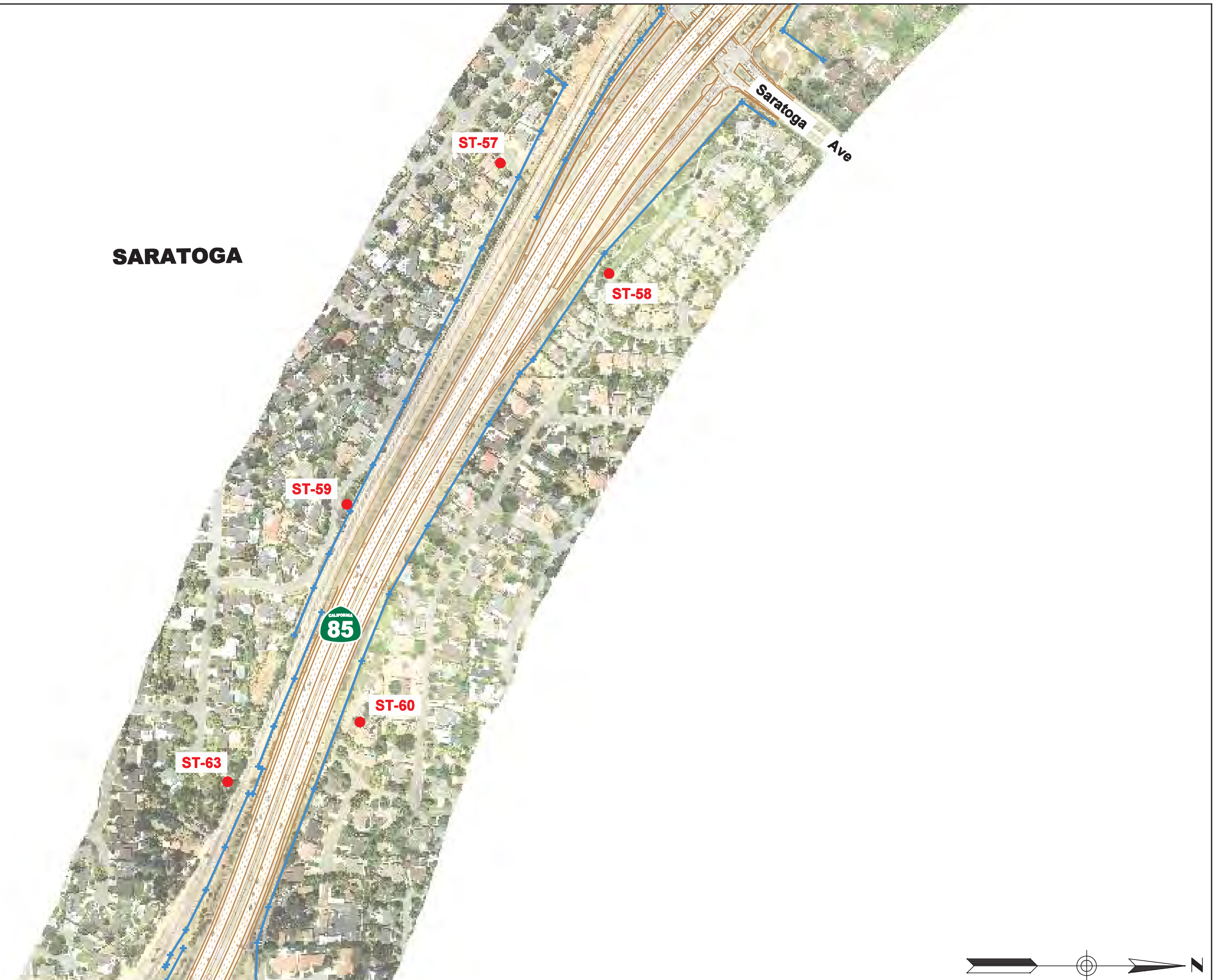
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

SHEET NO. 9 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 10 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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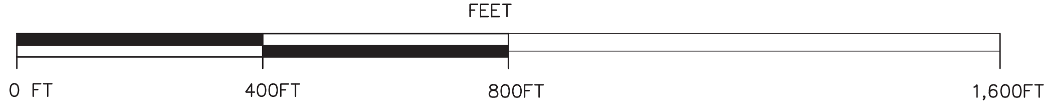

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 11 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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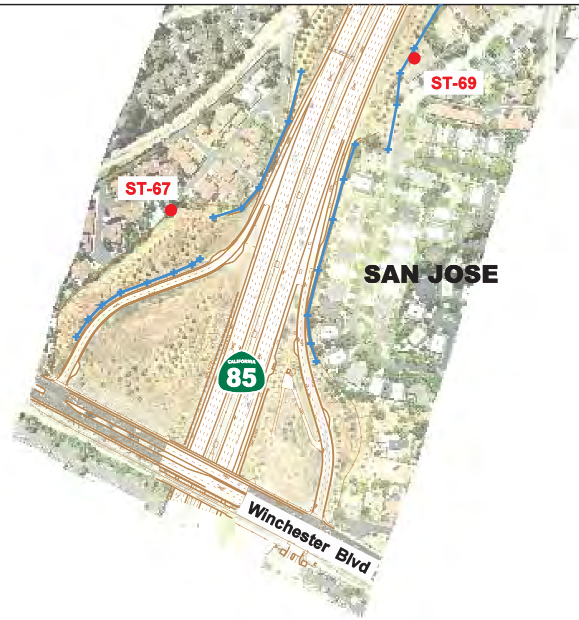
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 12 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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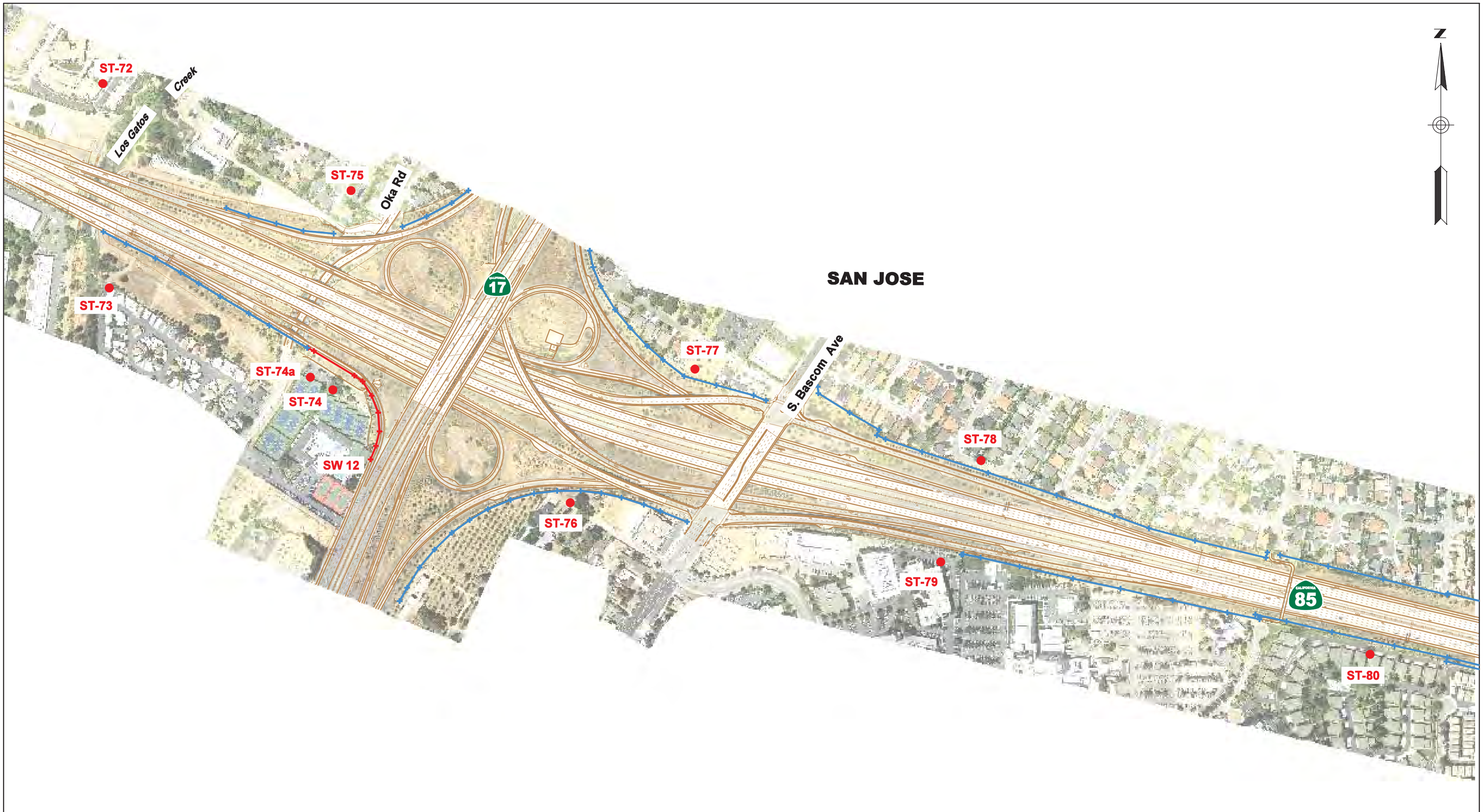
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

SHEET NO. 13 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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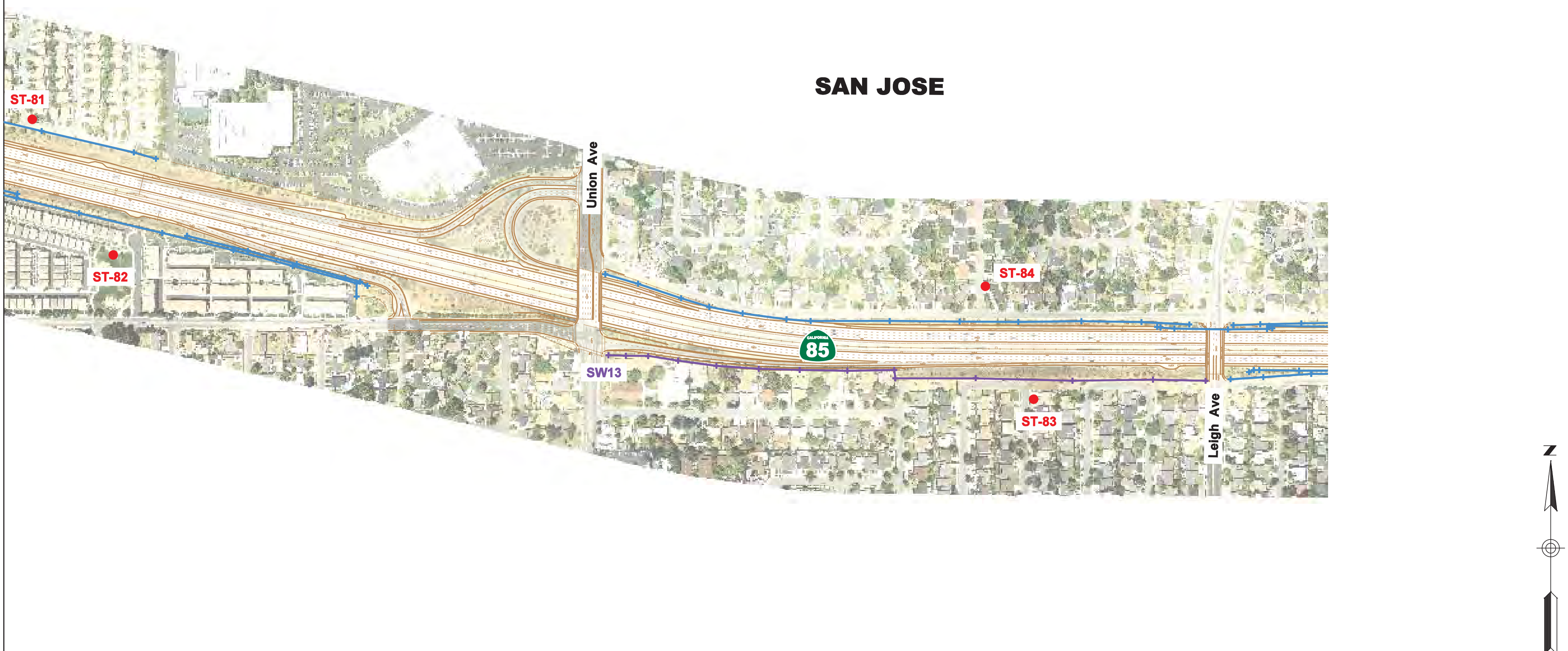
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 14 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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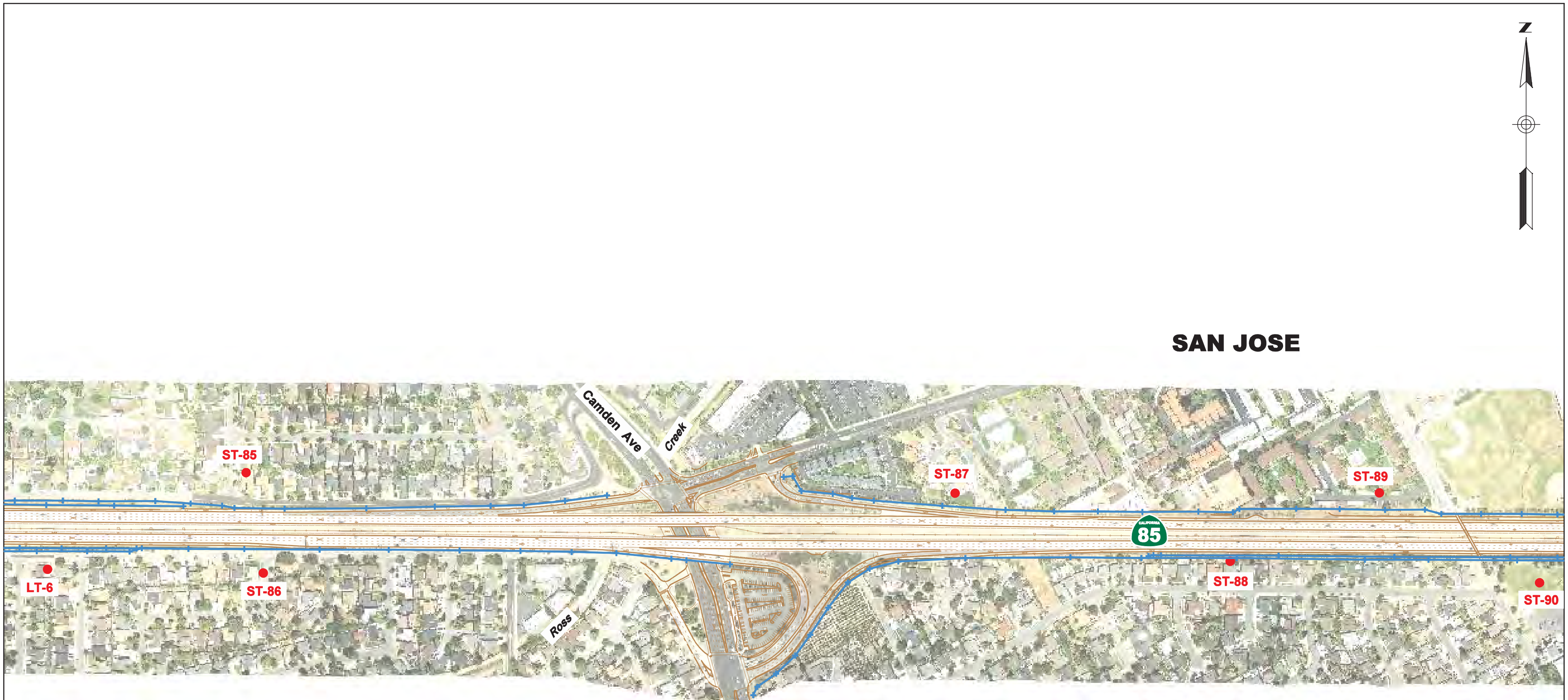
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

SHEET NO. 15 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 16 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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FEET

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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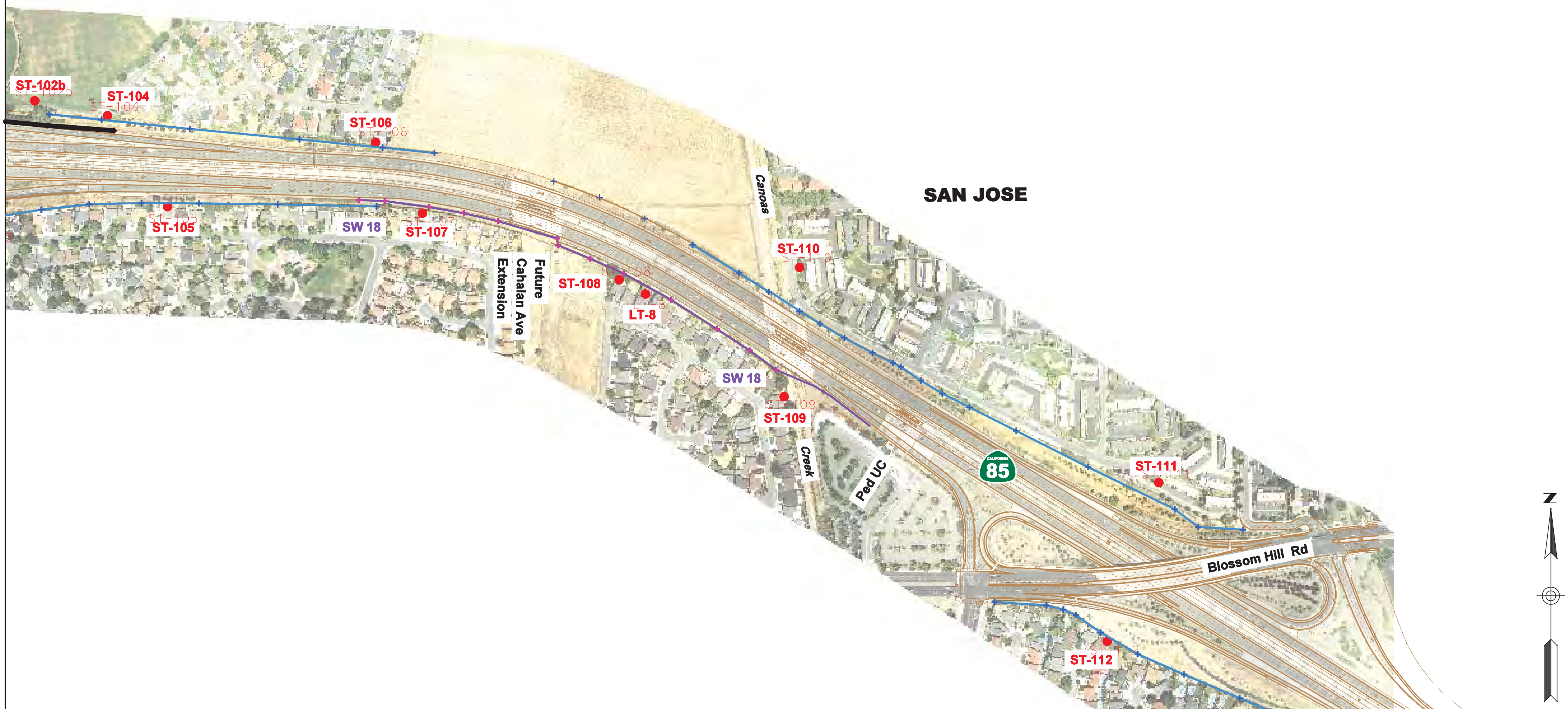
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 18 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

SHEET NO. 19 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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FEET

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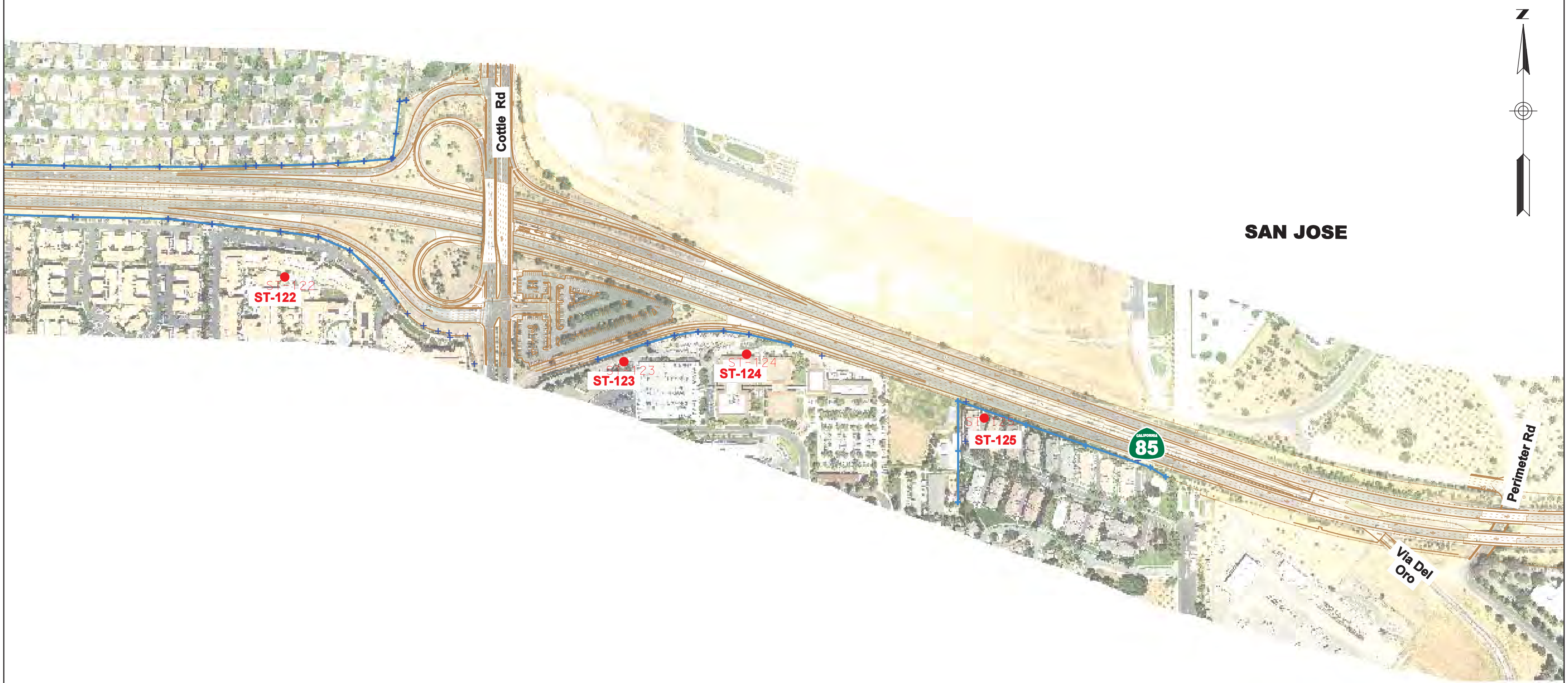
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 20 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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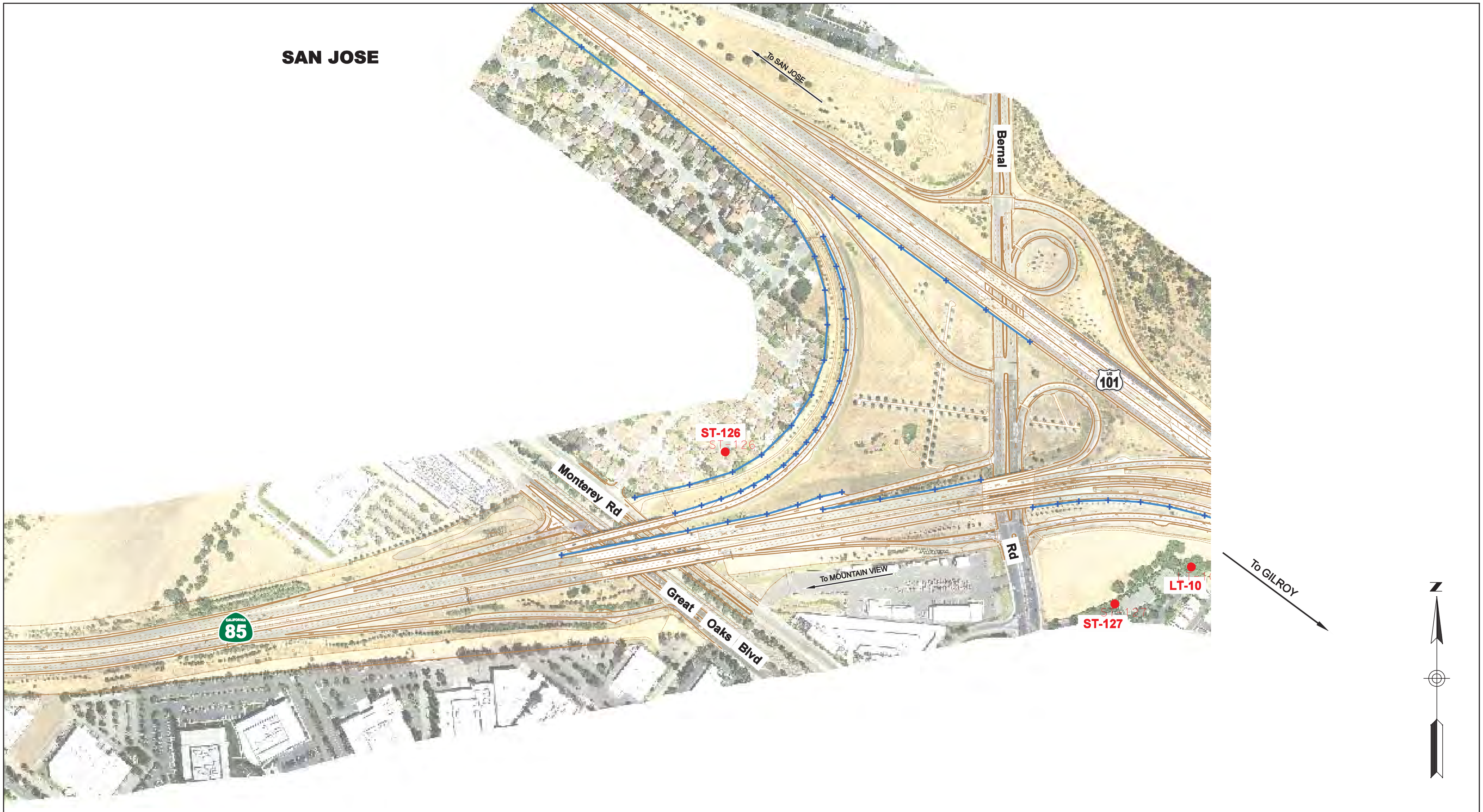
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

SHEET NO. 21 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 22 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 23 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

SHEET NO. 24 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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FEET

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

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6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

SHEET NO. 26 OF 26

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Appendix B CEQA Checklist

Supporting documentation of all California Environmental Quality Act (CEQA) checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment (IS/EA). Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

CEQA Environmental Checklist

04-SCL-85 **04-SCL-101**	**PM 0.0/24.1** **PM 23.1/28.6, 47.9/52.0**	**04-4A7900**
Dist.-Co.-Rte.	PM/PM	E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

VII. GREENHOUSE GAS EMISSIONS: Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of 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?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
XI. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county Transportation Commission for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Appendix C Consultation and Coordination

This appendix includes the following consultation and correspondence regarding the proposed project.

- Project Assessment Form for $PM_{2.5}$ Interagency Consultation and MTC Air Quality Conformity Task Force determination that the project is not a Project of Air Quality Concern.
- USFWS species list, dated February 17, 2015.
- The Department's Section 106 Completion Memorandum, dated August 22, 2013.
- USFWS Biological Opinion, dated March 10, 2015.
- FHWA Conformity Determination, dated April 14, 2015.

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Project Assessment Form for PM2.5 Interagency Consultation and MTC Air Quality Conformity Task Force Determination

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Attachment A
Project Assessment Form for $PM_{2.5}$ Interagency Consultation

The San Francisco Bay Area is designated as nonattainment for the 24-hour $PM_{2.5}$ standard. Beginning December 14, 2010, certain projects are required to engage in interagency consultation and complete $PM_{2.5}$ hot-spot analysis as part of the project-level conformity determination process.

The purpose of this form is for the project sponsor to provide sufficient information to allow the Air Quality Conformity Task Force to determine if a project is considered a project of air quality concern and therefore requires a project-level $PM_{2.5}$ hot-spot analysis pursuant to Federal Conformity Regulations.

A project of air quality concern is defined in 40 CRF 93.123(b)(1) as follows:

(i). New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
(ii). Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
(iii). New bus and rail terminals and transfer points than have a significant number of diesel vehicles congregating at a single location;
(iv). Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
(v). Projects in or affecting locations, areas, or categories of sites which are identified in the PM10 or PM2.5 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The form is <u>not</u> required under the following circumstances:

The project does not require a project-level PM hot spot analysis since it:

- Is exempt pursuant to 40 CFR 93.126; or
- Is a traffic signal synchronization project under 40 CFR 93.128; or
- Uses no Federal funds AND requires no Federal approval from FHWA or FTA after December 14, 2010.

Instructions

The project sponsor is responsible for taking the following actions:

1. **Fill out this form in its entirety** and ensure that there is a sufficient level of detail about the project for the Air Quality Conformity Task Force to make an informed decision on whether or not a project requires a project-level $PM_{2.5}$ hot-spot analysis. For road projects, make sure to include all of the following pieces of information in the project area: level-of-service, annual average daily truck volume, truck counts, truck percentages. For transit projects, make sure to include all of the following pieces of information: current level of service for the transit routes, proposed changes to level of service for transit routes, number of diesel bus vehicles along the route and congregating, number of overall transit vehicles, ridership.
2. Project sponsors are required to supplement the assessment form with the attachments listed below within the limited qualities listed. Both the Task Force and project sponsors have found that these materials help to better explain the project and its potential impacts.
    - o 1-2 maps or graphics which illustrate the project site and the surrounding land uses;

- 1-2 tables or charts which details information about the ADT and truck volumes
- Links to the draft environmental document and/or traffic studies
- A prepared summary of how criteria for a project of air quality concern (defined in 40 CRF 93.123(b)(1)) does or does not apply to the project. See Example 1: Application of Criteria for a Project of Air Quality Concern. This is only intended as a one page summary with emphasis on the third section of the example.

3. Upload and submit this completed form to MTC via FMS so that MTC can schedule this project for interagency consultation by the Air Quality Conformity Task Force. In addition to this form, the project sponsor may upload the $PM_{2.5}$ hot-spot analysis via FMS for review by the Conformity Task Force.
4. Ensure a representative is available to discuss the project at the Air Quality Conformity Task Force meeting if necessary.

Application of Criteria for a Project of Air Quality Concern

Project Title: SR 85 Express Lanes Project

Project Summary for Air Quality Conformity Task Force Meeting: October 27, 2011

Description

- Project will convert existing High-Occupancy Vehicle (HOV) lanes on State Route (SR) 85 to High-Occupancy Toll (HOT) lanes (hereafter known as express lanes)
- A second express lane would be included in both directions of SR 85 between SR 87 and I-280 to address existing and forecasted future HOV lane congestion
- The project would also install new signage, striping, vehicle detection sensor units, and dynamic message signs
- Trucks over 9,000 pounds are and would continue to be prohibited on SR 85 between US 101 (in southern San Jose) and I-280 (PM 0.00 to 18.45; corridor ends at PM 24.1), except for maintenance and emergency vehicles, buses, and recreational vehicles

Background

- Technical studies are in preparation to support NEPA process for Initial Study/Environmental Assessment (IS/EA)
- Public review for scheduled for July to August 2012
- Seeking project-level air quality conformity determination on or before September 2012

Not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

(i) New or expanded highway projects with significant number/increase in diesel vehicles?

- The project would not add capacity for diesel vehicles. Trucks over 9,000 pounds are prohibited on most of the SR 85 corridor, except for maintenance and emergency vehicles, buses, and recreational vehicles.
- Caltrans truck count data for 2009 indicate that truck percentages on SR 85 range from 0.25% to 3.05%, well below the significance threshold.
- Projected 2015 and 2035 annual average daily truck traffic data are below the United States Environmental Protection Agency significance threshold even for the highest-volume freeway segment.

(ii) Affects intersections at LOS D, E, or F with a significant number of diesel vehicles? —Not Applicable

(iii) New bus and rail terminals and transfer points?—Not Applicable

(iv) Expanded bus and rail terminals and transfer points?—Not Applicable

(v) Affects areas identified in PM_{10} or $PM_{2.5}$ implementation plan as site of violation?

- No state implementation plan for $PM_{2.5}$ (due by December 2012)
- Therefore, not identified in plan as an area of potential violation

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

RTIP ID# *(required)* 230674

TIP ID# *(required)* SCL090030

Air Quality Conformity Task Force Consideration Date
October 27, 2011

Project Description *(clearly describe project)*
The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to convert the existing High-Occupancy Vehicle (HOV) lanes on State Route (SR) 85 to High-Occupancy Toll (HOT) lanes (hereafter known as express lanes). The express lanes would allow HOVs to continue to use the lanes without cost and eligible single-occupant vehicles (SOVs) to pay a toll. The express lanes would be implemented on northbound and southbound SR 85 from US 101 in southern San Jose to US 101 in Mountain View in Santa Clara County (Figures 1 and 2). The project would also include the continuation of the express lanes for 3.3 miles on US 101 in southern San Jose and 4.1 miles in Mountain View, for a total of 30.8 miles. Work on the US 101 segments will mainly consist of striping and signing and will not include widening or any changes in system or HOV lane access. The project does not require any right-of-way acquisition.

SR 85 typically has three lanes in each direction: two mixed-flow lanes and one HOV lane. Trucks are prohibited on the majority of the SR 85 corridor (Post Miles [PM] 0.00 to 18.45; corridor ends at PM 24.1). The project proposes to convert the existing HOV lanes on northbound and southbound SR 85 into express lane facilities that would have one lane between US 101 in southern San Jose and SR 87, two lanes between SR 87 and I-280, and one lane between I-280 and US 101 in Mountain View. In the section between SR 87 and I-280, where the median width is approximately 46 feet, pavement widening would be conducted in the median to accommodate the second express lane. The project would also install new signage, striping, vehicle detection sensor units, and dynamic message signs.

Type of Project: Change to existing State highway

County
Santa Clara

Narrative Location/Route & Postmiles
On SR 85 from PM 0.0 to 24.1. The project limits also include PM 25.3 to 28.6 and PM 47.9 to 52.0 on US 101, adjacent to the northern and southern termini of SR 85, to allow for striping and signage modifications.

Caltrans Projects – EA# 04-4A7900

Lead Agency: Santa Clara Valley Transportation Authority (VTA)

Contact Person	**Phone#**	**Fax#**	**Email**
Roy Molseed	408 321-5784	408 321-5787	Roy.molseed @vta.org

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

Categorical Exclusion (NEPA)	**EA or Draft EIS**	X **FONSI or Final EIS**	**PS&E or Construction**	**Other**

Scheduled Date of Federal Action: December 2012

NEPA Delegation – Project Type *(check appropriate box)* Not applicable

Exempt	**Section 6004 – Categorical Exemption**	**Section 6005 – Non-Categorical Exemption**

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	October 2010	January 2013	January 2014	June 2014
End	December 2012	December 2013	March 2014	July 2015

$PM_{2.5}$ Project Assessment Form for Interagency Consultation

Project Purpose and Need (Summary): *(please be brief)*

Purpose

The purpose of the project is to:

- Utilize excess capacity in the SR 85 HOV lanes,
- Manage traffic congestion in the most congested HOV segments of the freeway between SR 87 and I-280, and
- Maintain consistency with provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in the SR 85 corridor.

Need

The proposed project is needed for the following reasons:

- During the peak hours (7 a.m. to 8 a.m. in the northbound direction and 5 p.m. to 6 p.m. in the southbound direction), SR 85 cannot accommodate all of the traffic demand in the corridor. Bottlenecks result in long backups in the mixed-flow lanes. Throughout the SR 85 corridor, the northbound mixed-flow lanes operate below the posted speed limit during the a.m. peak period, and the southbound mixed-flow lanes function below the posted speed limit during the p.m. peak period.
- In segments where the existing single HOV lane segments north of I-280 and south of SR 87 have additional capacity, the project would maximize the efficiency of the system by allowing SOVs into the HOV/express lane, therefore alleviating some of the congestion in the mixed-flow lanes in those segments.
- Between SR 87 and I-280, however, drivers in the HOV lane experience significant delays due to lack of HOV capacity. The existing wide median provides the opportunity to construct a second HOV/express lane and provide some congestion relief for both the HOV and mixed-flow lanes by allowing the SOVs in the mixed-flow lanes to pay a toll for use of the express lanes facility.
- Traffic conditions are expected to worsen in the future with continued development in the region and along the SR 85 corridor. Over the next 25 years, Santa Clara County is predicted to grow by over 500,000 residents and 400,000 jobs, increases of 27.5 and 45.6 percent, respectively. Over the same period, the County expects to increase the capacity of the roadway system by 5 to 6 percent. Traffic on SR 85 is also projected to increase in the form of both regional trips using SR 85 to bypass US 101 and local trips to and from locations on the SR 85 corridor.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

SR 85 passes through Cupertino, Saratoga, Campbell, Los Gatos, San Jose's Cambrian Park, and the neighborhoods of Almaden Valley, Blossom Valley, and Santa Teresa (Figure 2). Development adjacent to the freeway includes commercial, industrial, research and development, institutional, residential, and open spaces. VTA's Light Rail runs within the SR 85 median south of SR 87.

The project would not change land uses in any way that would result in additional diesel truck traffic to or from the study area. Trucks over 9,000 pounds are prohibited on SR 85 between US 101 in southern San Jose and I-280 (PM 0.00 to 18.45; corridor ends at PM 24.1), except for maintenance and emergency vehicles, buses, and recreational vehicles. Therefore, truck volumes on SR 85 as a whole are low (3.05% or less of total traffic), and would remain so with or without the project.

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

Brief summary of assumptions and methodology used for conducting analysis *(please keep this concise – specifics may include date of when traffic counts were conducted, studies where truck percentages were derived)*

Traffic volumes for the peak period were developed based on Caltrans 24-hour traffic volumes for the freeway mainline and at the on/off-ramps for Year 2007. URS conducted additional traffic counts in May 2010 to determine the throughput of existing bottlenecks during the peak hours. Annual average daily traffic (AADT) presented below represent both directions of SR 85.

As trucks over 9,000 pounds are prohibited on SR 85 between US 101 in southern San Jose and I-280 (PM 0.00 to 18.45; corridor ends at PM 24.1), truck percentages on SR 85 range from 0.25% to 3.05%, depending on location (http://traffic-counts.dot.ca.gov/2009all/docs/2009truckpublication.pdf). To be conservative, this analysis assumes a truck percentage of 3.50% for the SR 85 corridor.

The SR 85 corridor can be broken into four major segments between successive system interchanges as follows: 1) between US 101 at the southern project limit and SR 87, 2) between SR 87 and I-880/SR-17, 3) between I-880/SR-17 and I-280, and 4) between I-280 and US 101 at the northern project limit. Because truck traffic percentage is not expected to change significantly within each of these four major segments, the four sub-segments of SR 85 evaluated below were chosen to represent each of the major segments listed above.

Opening Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Year 2015

Segment		No Build AADT		Build AADT	
From	To	Total	Trucks	Total	Trucks
Blossom Hill	SR 87	148,900	5,212	153,400	5,369
Union	Bascom	139,100	4,869	149,300	5,226
Saratoga	Sunnyvale/DeAnza	113,400	3,969	122,200	4,277
Fremont	El Camino	125,100	4,379	125,800	4,403

Source: Total AADT from Wilbur Smith Associates 2011.
Note: Truck percentage assumed at 3.50%.

RTP Horizon Year / Design Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Year 2035

Segment		No Build AADT		Build AADT	
From	To	Total	Trucks	Total	Trucks
Blossom Hill	SR 87	184,900	6,472	187,300	6,556
Union	Bascom	164,700	5,765	175,800	6,153
Saratoga	Sunnyvale/DeAnza	138,900	4,862	150,800	5,278
Fremont	El Camino	146,200	5,117	143,600	5,026

Source: Total AADT from Wilbur Smith Associates 2011.
Note: Truck percentage assumed at 3.50%.

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
Not applicable

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
Not applicable

Opening Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses
Not applicable

RTP Horizon Year / Design Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses
Not applicable

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*

The project would not have adverse traffic redistribution effects. As a result of the existing truck restrictions that would continue to apply with the project, no significant changes in truck traffic would occur at local interchanges. Furthermore, the data for the study segments indicates that no significant changes in truck traffic would occur from the major system interchanges along the corridor (between US 101 at the southern project limit and SR 87, between SR 87 and I-880/SR-17, between I-880/SR-17 and I-280, and between I-280 and US 101 at the northern project limit). Even in the SR 85 segment where no truck restrictions are in place, truck AADTs and percentages would remain well below the 10,000 AADT/8% threshold established by the United States Environmental Protection Agency for projects of air quality concern.[1]

Buses and transit providers will be able to use the express lanes for free. The project will not affect VTA's Light Rail that currently runs within the SR 85 median south of SR 87.

[1] Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas, Appendix A, United States Environmental Protection Agency and Federal Highway Administration, EPA420-B-06-902, March 2006.

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

Comments/Explanation/Details *(please be brief)*

The project does not qualify as a POAQC for the following reasons:

1. It is not a new or expanded highway project that would have a significant number of or increase in the number of diesel vehicles (40 CFR Section 93.123(b)(1)(i)).

- The project would not add capacity for diesel vehicles. Trucks over 9,000 pounds are prohibited on most of the SR 85 corridor, except for maintenance and emergency vehicles, buses, and recreational vehicles.
- Caltrans truck count data for 2009 indicate that truck percentages on SR 85 range from 0.25% to 3.05%, well below the significance threshold.
- Projected 2015 and 2035 annual average daily truck traffic data are below the United States Environmental Protection Agency significance threshold even for the highest-volume freeway segment.

2. The project does not affect any intersections (40 CFR Section 93.123(b)(1)(ii)).

3. It is not a new bus or rail terminal or transfer point (40 CFR Section 93.123(b)(1)(iii)).

4. It is not an expansion of an existing bus or rail terminal or transfer point (40 CFR Section 93.123(b)(1) (iv)).

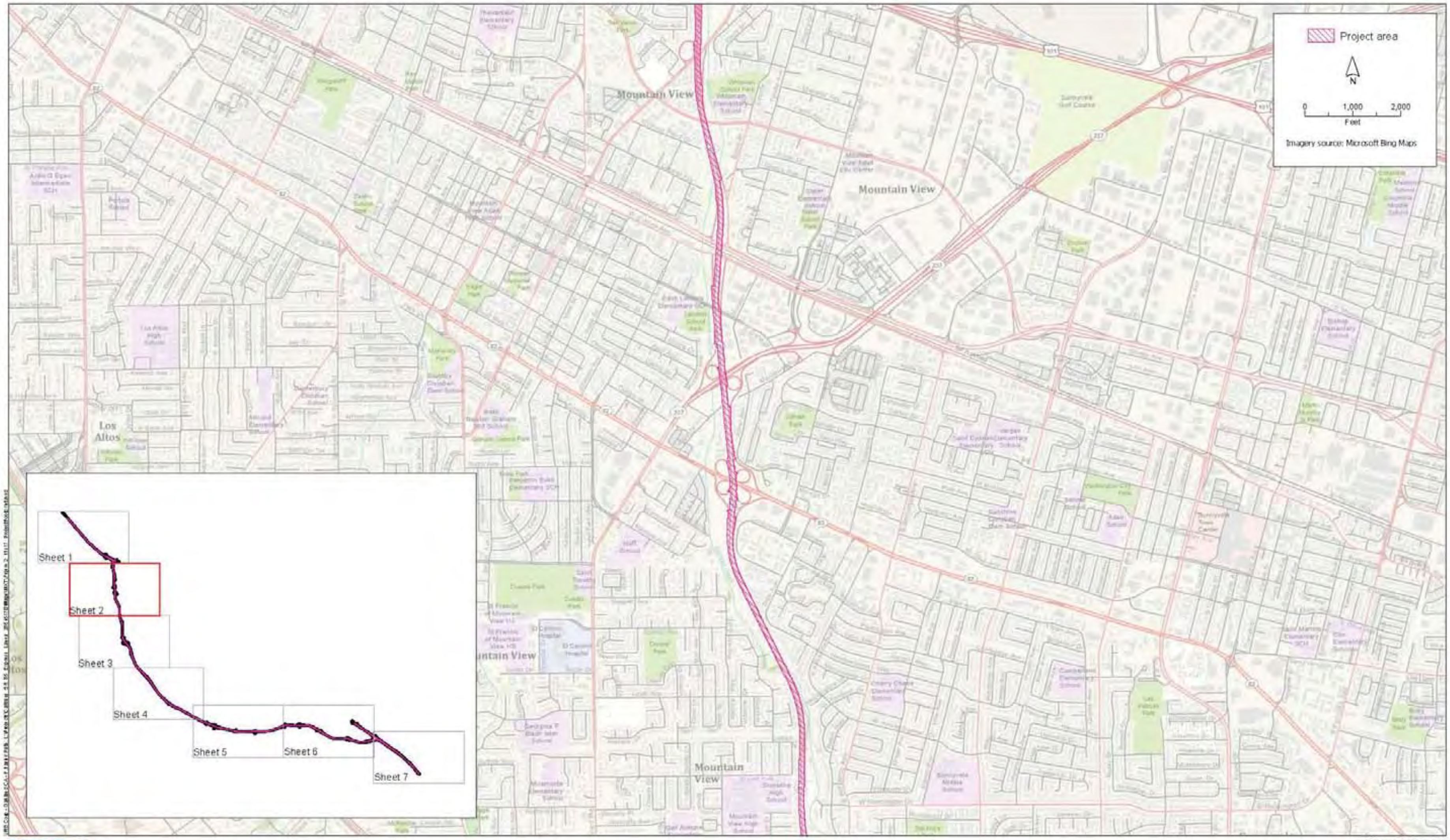
5. There is no state implementation plan for PM2.5, and the project area is therefore not identified in an implementation plan as an area of potential violation (40 CFR Section 93.123(b)(1)(v)).

Therefore, the proposed project meets the Clean Air Act requirements and 40 CFR 93.116 without any explicit hotspot analysis. The proposed project would not create a new, or worsen an existing, PM2.5 violation.

Figure 1. SR 85 Express Lanes Project Vicinity

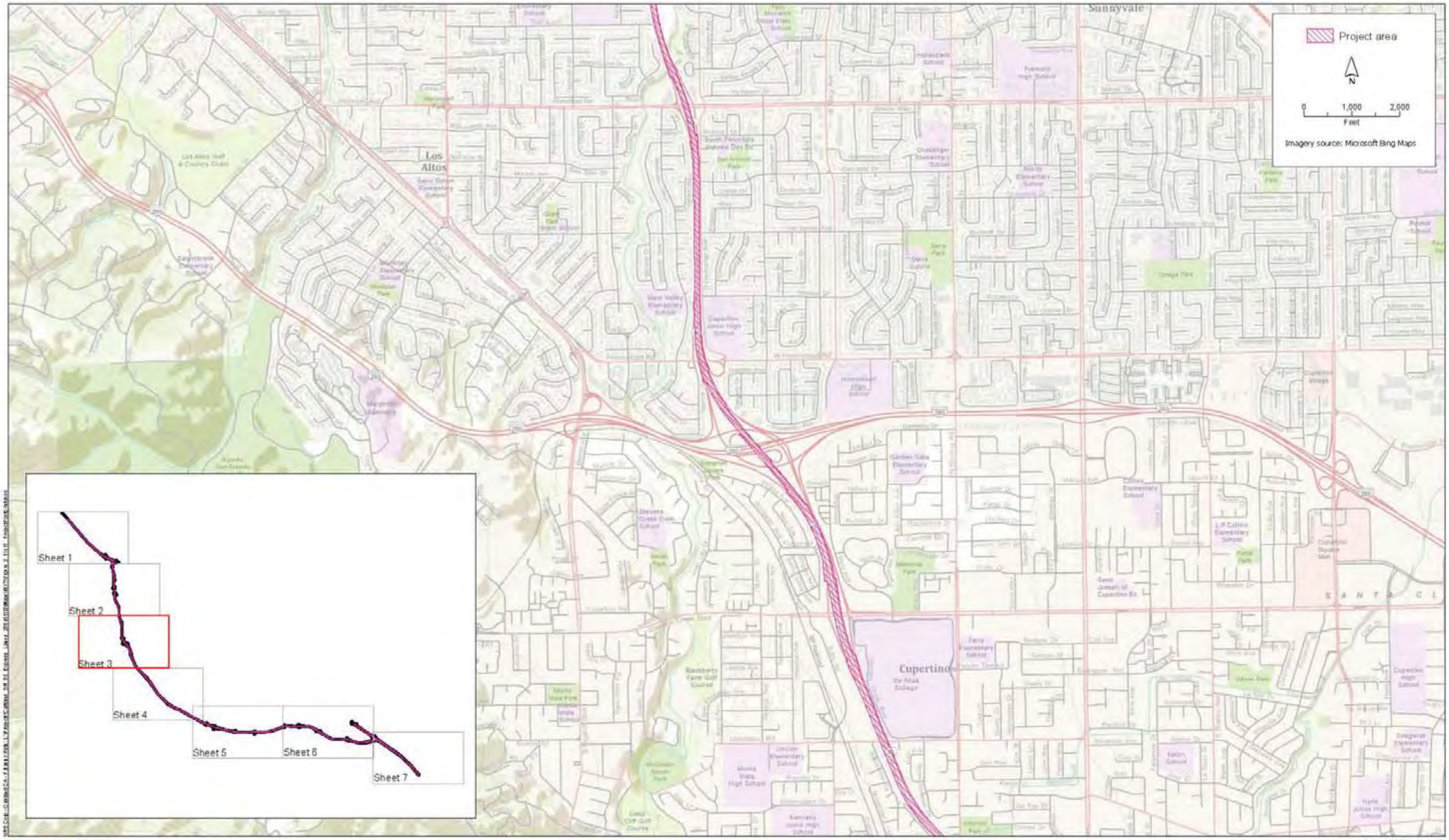
URS Caltrans
State Route 85 Express Lanes

Figure 2, Sheet 1
Project area



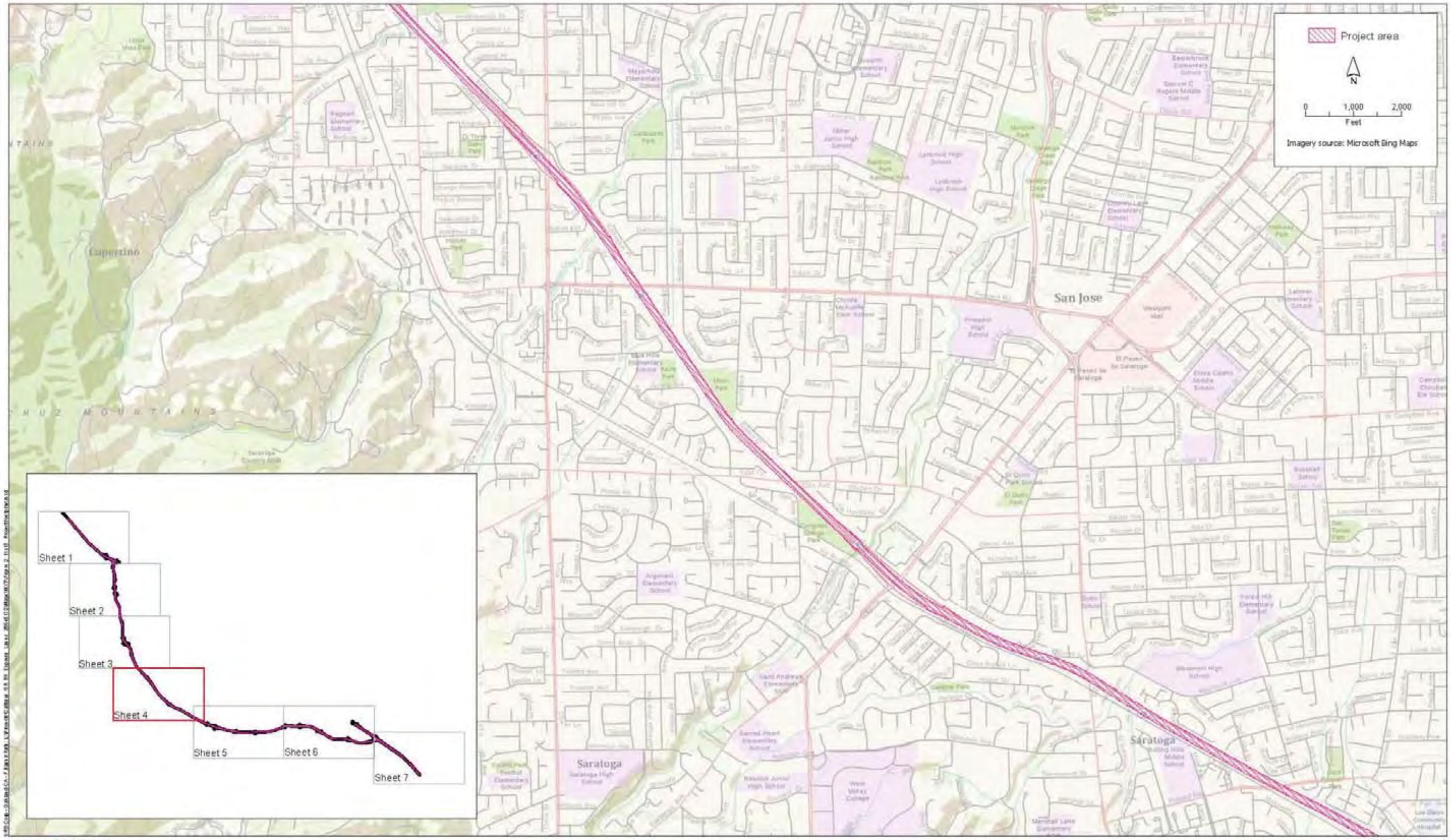
URS Caltrans
State Route 85 Express Lanes

Figure 2 Sheet 2
Project area



URS Caltrans
State Route 85 Express Lanes

Figure 2, Sheet 3
Project area



URS Caltrans
State Route 85 Express Lanes

Figure 2, Sheet 4
Project area

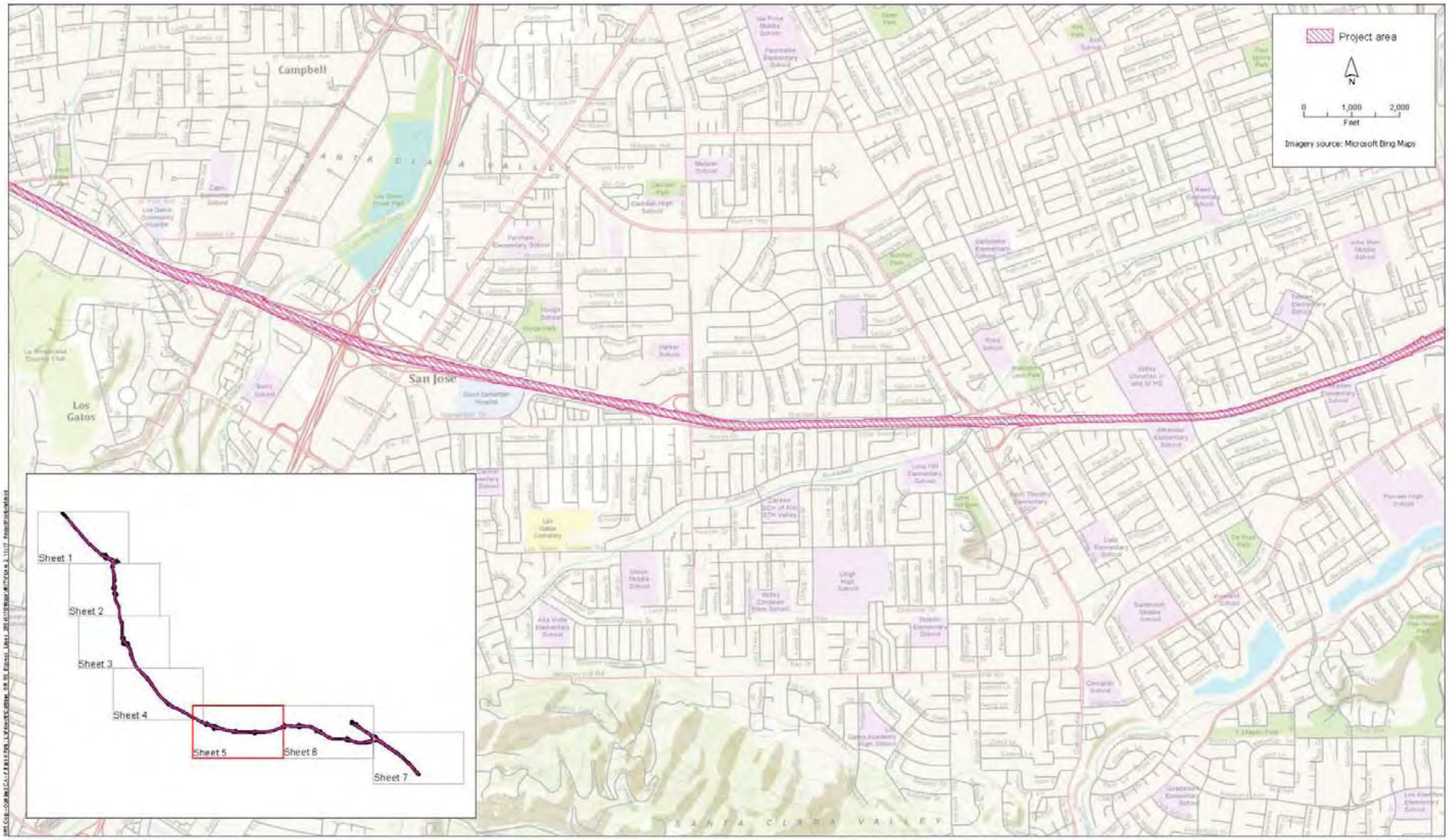
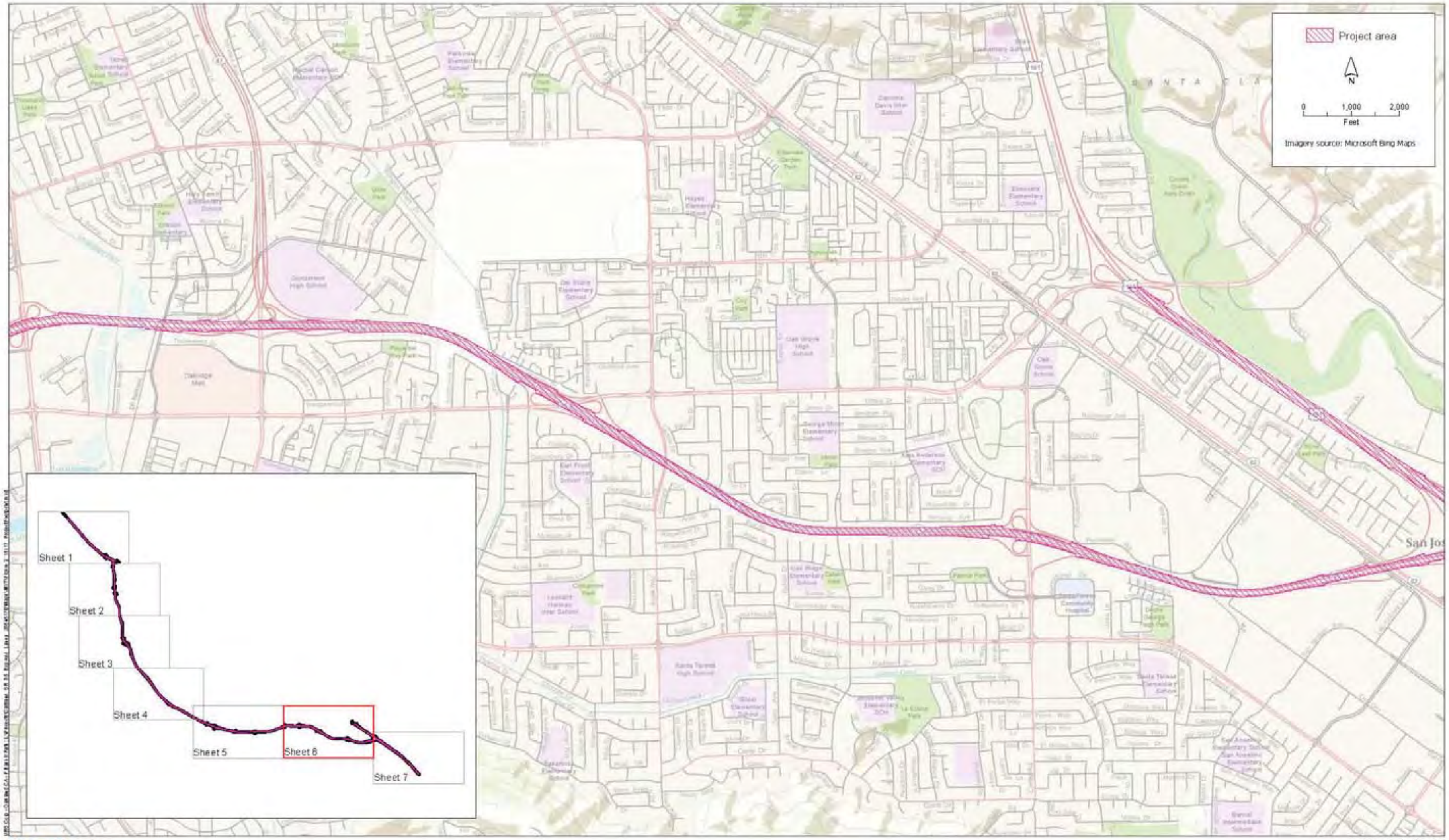
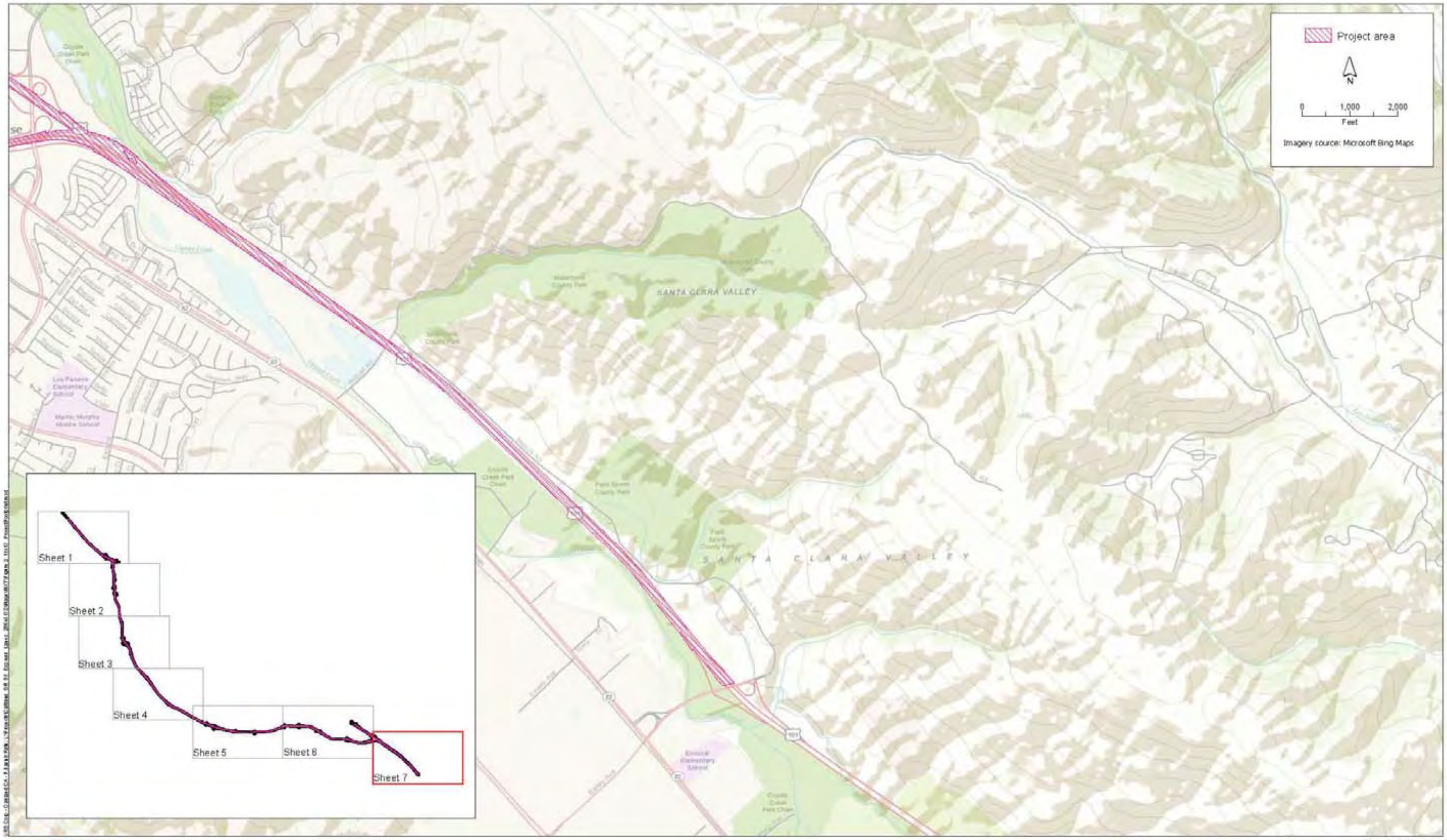


Figure 2, Sheet 5
Project area



URS Caltrans
State Route 85 Express Lanes

Figure 2, Sheet 6
Project area



URS Caltrans
State Route 85 Express Lanes

Figure 2, Sheet 7
Project area

Air Quality Conformity Task Force
Summary Meeting Notes
October 27, 2011

Attendance:
Mike Brady – Caltrans
Ginger Vagenas – EPA
Ted Matley – FTA
Stew Sonnenberg– FHWA
Roy Molseed – VTA
Lynn McIntyre – URS
Stefanie Hom - MTC
Ashley Nguyen – MTC
Sri Srinivasan - MTC

1. **Welcome and Self Introductions**: Stefanie Hom (MTC) called the meeting to order at 9:30 am. See attendance roster above.

2. **$PM_{2.5}$ Interagency Consultations:** To begin the interagency consultations for $PM_{2.5}$ project level conformity, Stefanie Hom (MTC) asked the project sponsor to give a brief overview of the project prior to opening up the project for questions by the Task Force.

POAQC Status Determinations
Santa Clara Valley Transportation Authority (VTA): SR-85 Express Lanes Project
Roy Molseed (VTA) gave an overview of the project. The project would convert existing High-Occupancy Vehicle (HOV) lanes on State Route (SR) 85 to High-Occupancy Toll (HOT) lanes. The express lanes would be implemented on northbound and southbound SR-85 from US-101 in southern San Jose to US-101 in Mountain View in Santa Clara County. The project would also include the continuation of the express lanes for 3.3 miles on US-101 in southern San Jose and 4.1 miles in Mountain View, for a total of 30.8 miles. Work includes the installation of new signage, striping, vehicle detection sensor units, and dynamic message signs.

Roy indicated that the purpose of the project would be to maintain consistency with legislation to implement express lanes in the SR-85 corridor, utilize existing HOV capacity, and manage traffic congestions. The Draft EIR is expected to be released in the summer of 2012 and completed by the end of 2012.

Lynn McIntyre (URS), working with VTA on the project, indicated that on SR-85, between US-101 at the southern terminus of SR-85 and I-280 in the north, trucks over 9,000 pounds are and will continue to be prohibited. The only trucks allowed on this span are maintenance vehicles, emergency vehicles, buses, and RVs. Since the truck restriction went into effect, truck percentages have been low, ranging from 0.25 percent to 3.05 percent. The express lanes project would not provide additional capacity for trucks. Even when the project is projected out to the years 2015 and 2035, the overall number of trucks remains low on the corridor.

Lynn further explained that the 9 percent increase in truck traffic between the build scenario in 2035 and the no-build scenario is due to the fact that overall AADT is increasing, since single occupancy vehicles would now be allowed to use the express lanes. The increase in trucks is related to overall increase in vehicles as result of additional express lanes.

Lynn added that they conducted a sensitivity analysis to calculate how high truck percentages would need to be on SR-85 before they go beyond the 10,000 AADT truck threshold. In 2015, the percentage would need to be at 7.3 percent, which would more than double the truck percentage. In 2035, truck percentages would need to be at 6.15 percent, which would more than double the existing highest truck percentage in the corridor. This project would not be able to accommodate this increase in truck traffic. Therefore, they believe that the SR-85 Express Lanes Project is not a POAQC.

Dick Fahey (Caltrans), who offered comments through email, was concerned about the increase in truck traffic, which would be as much as 9 percent between the no-build and build scenarios in 2035.

Mike Brady (Caltrans) indicated that the increase in truck traffic may have to do with how traffic numbers were derived. If the truck numbers were derived using a flat percentage applied to AADT, then it would show an increase in trucks because there would be more traffic in the HOV lane. He was not sure if traditional traffic studies are able to show if truck traffic actually increases like that.

Lynn responded that they applied a constant of 3.5 percent to derive truck AADT. They also looked at overall truck AADT in the corridor since it opened; in the years since the truck restriction went into place, the percentage of trucks has never been above 3.05 percent, which is why the 3.5 percent assumption is conservative.

Mike agreed that if VTA is applying a flat percentage to calculate AADT, the AADT assumptions are probably conservative for a HOV project because they are adding a lane that trucks are not supposed to be in.

Ginger Vagenas (EPA) indicated that the truck restriction is only for three-quarters length of the project. There is likely to be a difference in numbers outside of that area where the restrictions do not apply.

Lynn responded that they looked at that issue and do not believe there would be an increase in truck traffic since historical data has shown that truck traffic has remained low in the areas where there are no restrictions. It is not worth it for many trucks to travel on that segment of SR-85 for a short distance when they cannot exit to a major destination.

Mike indicated that it would have been helpful to know the boundaries of truck restriction. Lynn indicated that the truck restrictions do not apply on SR-85 between Fremont and El Camino.

Stew Sonnenberg (FHWA) indicated that even from the Fremont to El Camino section, truck traffic would be about 3.5 percent.

Final Determination: FHWA, Caltrans, EPA, FTA, and MTC concurred that this project is not a POAQC.

$PM_{2.5}$ Conformity Exempt List Review

Stefanie (MTC) indicated that there were 5 projects on the exempt list. Ashley (MTC) added that two of the projects were HSIP projects, and one bicycle/pedestrian projects. Stefanie asked for questions on any of these projects.

Mike (Caltrans) indicated that if the projects listed on the exempt list were not HSIP projects, then the first four projects would not be exempt.

Final Determination: FHWA, Caltrans, EPA, FTA, and MTC concurred that the projects on the exempt list are exempt from project level PM 2.5 conformity.

3. Consent Calendar

Stefanie (MTC) asked for questions on any items on the exempt calendar.

There were no questions on any items on the consent calendar.

Final Determination: All items on the consent calendar were approved by FHWA, Caltrans, EPA, FTA and MTC.

4. Other Business/Adjourn

Stefanie (MTC) reminded everyone to fill out the online Doodle poll sent out by Ashley (MTC) and Brenda (MTC) so they could assess the group's availability and schedule next month's meeting.

Ted Matley (FTA) suggested putting the issue of thresholds for minor transit projects on the next agenda.

Stew (FHWA) indicated that he sent out letter about the next certification review, which will occur January 10 - 12, 2012. Ashley (MTC) indicated they are starting the review process internally.

Ashley indicated that MTC is hoping to consultant with federal agencies on demographic assumptions for the RTP in January. There are a lot of changes on how demographic forecasts are prepared and they want to run the methodology and approach by the group before starting the conformity analysis.

Ginger (EPA) requested that she would like to have any materials prepared on establishing thresholds on minor transit fleet expansions as far in advance as possible. OTAC is interested in providing comments, and EPA would like as much lead time as possible with them.

Ted and Ashley indicated that they would work together on the minor transit fleet expansions threshold materials and would forward them to Ginger.

Stefanie adjourned the meeting at approximately 10:00 am.

J:\SECTION\PLANNING\AIRQUAL\TSKFORCE\2011\11-30-11\Drafts\3a_AQCTF Meeting Notes Summary - 102711.docx

FMS Log in | Version 2.7.1

Project Manager Help

VIEW PROJECT: **SR 85 Express Lanes**

Project Detail | Funding | Contacts | Location | Lineage | Comments | Screening Criteria | Project Documents | Air Quality | << Back to project search res

TIP ID	SCL090030	**Status**	ACTIVE	**Project name**	SR 85 Express Lanes
FMS ID	4197.00	**Version**	5	**Sponsor**	VTA
County	Santa Clara	**Last updated**	07/05/2010	**Implementing Agency**	VTA

Regional Conformity

Air Quality Code	Air Quality Description
Non-Exempt	NON-EXEMPT

Air Basin	Air District
San Francisco Bay Area	Bay Area AQMD

TCM	TCM Number	VOC	NOX	CO	PM10	PM2.5	CO2
		0.0	0.0	0.0	0.0	0.0	0.0

Project Conformity

Overview: The San Francisco Bay Area has been designated as non-attainment for the 24-hour PM2.5 standard. Beginning December 14, 2010, certain projects are required to complete a PM2.5 hot-spot analysis as part of the project-level conformity determination process. Project sponsors must engage in interagency consultation on the PM2.5 hot-spot analysis through MTC's Air Quality Conformity Task Force. The Conformity Task Force will (1) determine if a project meets the definition of a project of air quality concern and if the project requires undergoing a project-level PM2.5 hot-spot analysis, and (2) review the methods, assumptions and analysis of the PM2.5 hot-spot analysis. The EPA and either FHWA or FTA must concur with the recommendations from the Conformity Task Force. Upon completion of the interagency consultation, project sponsors must seek approval from FHWA or FTA on the PM2.5 hot-spot analysis.

Project Conformity Analysis Summary

Milestone	Status	Details
Step 1 - Project Identified Exempt From PM2.5 Project Level Conformity	No	Step 1 - Project Identification completed, proceed with requirements for the next step for Interagency Consultation. Project is not exempt from PM 2.5 project level conformity and therefore requires interagency consultation.
Step 2 - Project Requires Interagency Consultation	Yes	Pending requirements for Step 2 - Interagency Consultatation. Project Assessment Form: SR 85 Express Lanes Project PM2.5 Form.pdf
Task Force Determination of POAQC	Not POAQC	Date of Consultation: 10/27/2011 Date of Action: 10/27/2011
Step 3 - Project Requires PM 2.5 Hot Spot Anaylsis Consultation	No	Hot Spot analysis is not required.

URS

Memorandum

Date: February 14, 2013

To: Brenda Dix, Metropolitan Transportation Commission

From: Roy Molseed, Senior Environmental Planner, VTA, and Lynn McIntyre, Project Manager/Environmental, URS

Subject: ***Request for Task Force Concurrence, State Route 85 Express Lanes Project, Santa Clara County, CA (SCL090030, FMS 4197.00)***

In October 2011, Santa Clara Valley Transportation Authority (VTA) consulted with the Air Quality Conformity Task Force on the SR 85 Express Lanes Project (TIP # SCL090030, FMS ID # 4197.00). The project was determined not to be a Project of Air Quality Concern (POAQC; see Attachment A). Public consultation on the Task Force determination will take place as part of the National Environmental Policy Act (NEPA) document circulation this spring.

Follow-on consultation with the Task Force is requested as a result of a recent project change. An auxiliary lane is proposed to be added in a 1.2-mile segment of northbound SR 85 between the existing South De Anza Boulevard northbound on-ramp and the Stevens Creek Boulevard northbound off-ramp in Cupertino. The purpose of the auxiliary lane is to improve traffic operations during peak periods in this segment. The existing pavement would be widened by up to 14 feet to the outside (northeast). No additional right-of-way would be required.

This project change will be included in the 2013 TIP which the Task Force will receive for comment at the March 2013 meeting.

Project-Level Conformity

Attachment A contains the Project Assessment Form for $PM_{2.5}$ Interagency Consultation submitted for the proposed project in October 2011. As shown in Attachment A, the project would not appreciably increase capacity for diesel vehicles. Trucks over 9,000 pounds are prohibited on SR 85 between US 101 in southern San Jose and I-280 (PM 0.00 to 18.45; corridor ends at PM 24.1), except for maintenance and emergency vehicles, buses, and recreational vehicles. Caltrans truck count data for 2009 indicate that truck percentages on SR 85 range from 0.25 percent to 3.05 percent. These percentages are consistent with Caltrans truck count data for 2011. The majority of trucks on SR 85 are two axle.

For both the opening year (2015) and construction year (2035), the Build Alternative had an average increase of approximately 200 trucks compared with No Build for the representative segments evaluated in Attachment A. Although the overall numbers were low, it was pointed out at the October 27, 2011, Task Force meeting that the change in truck traffic would be as much as 9 percent between the No Build and Build scenarios in 2035. The percentage increase is a result of how the truck AADT was calculated, using a conservative assumption of 3.50 percent trucks. The same percentage was applied to all freeway traffic, including the single HOV lane for No Build and the single and double express lanes for Build. As trucks cannot use HOV or express lanes, the potential truck increases are likely overestimated. In addition, overall truck AADT in the SR 85 corridor since the truck restriction went into place has never been above 3.05 percent.

As noted previously, the project proposes to add a 1.2-mile auxiliary lane in the northbound direction of SR 85 between South De Anza Boulevard and Stevens Creek Boulevard in Cupertino. Trucks are prohibited in this part of SR 85, and 2011 Caltrans truck count data show that trucks account for only 0.57 percent of total traffic at the Stevens Creek Boulevard interchange (truck AADT 701 at 085 04 SCL R17.699).

The proposed auxiliary lane would not appreciably change freeway capacity for diesel trucks or other vehicles because all traffic using the lane must either move into the adjacent lanes or exit at Stevens Creek Boulevard. Moreover, the auxiliary lane was added to the project to further improve traffic conditions. Therefore, this project change would not create a new, or worsen an existing, $PM_{2.5}$ violation. The proposed project meets the Clean Air Act requirements and 40 CFR 93.116 without any explicit hot spot analysis.

VTA is seeking the Task Force's confirmation that the addition of the proposed auxiliary lane does not change the previous determination that the project is not a POAQC.

Air Quality Conformity Task Force
Summary Meeting Notes
February 28, 2013

Participants:

Dick Fahey – Caltrans
Stew Sonnenberg - FHWA
Mike Brady – Caltrans
Ginger Vagenas – EPA
Jeff Buss – EPA
Lynn McIntyre – URS
Jennifer Schulte – URS
Gary Sidhu – ACTC
Glenn Kinoshita – Caltrans
Hossein Khodabakhsh - Caltrans
Matt Bomberg – Alameda CTC
Carolyn Clevenger – MTC
Brenda Dix – MTC
Stefanie Hom – MTC
Harold Brazil – MTC
Sri Srinivasan – MTC
Adam Crenshaw – MTC

1. **Welcome and Self Introductions**: Brenda Dix (MTC) called the meeting to order at 9:30 am. See attendance roster above. Ted Matley (FTA) was not in attendance and would provide comments through email.

2. **$PM_{2.5}$ Interagency Consultations**
   a. **$PM_{2.5}$ Conformity Exempt List Review**

      i. *City of San Mateo: SR-92/El Camino Real (SR-82) Ramp Modifications*

Hossein Khodabakhsh (Caltrans) provided an overview of the project. The project proposes to modify a four quadrant cloverleaf into a two quadrant partial cloverleaf to improve traffic operations of the 92/82 interchange and increase the performance of the on and off ramps which are currently creating secondary operational deficiencies on the SR-92 mainline. The SM 92/82 interchange serves as a major access point from Route 92 to commercial and residential areas on the El Camino Real (Route 82) in downtown San Mateo.

Glenn Kinoshita (Caltrans) added that the truck percentages are predicted to remain constant. The project is an operational improvement only and does not increase capacity on the mainline. It is intended to reduce congestion on El Camino Real. There will not be a significant number of diesel trucks that will use the intersections because trucks have other ways to get to El Camino Real.

Brenda Dix (MTC) indicated that there would be no change in AADT between the build and no-build scenarios. Truck volume numbers look low.

Mike Brady (MTC) indicated that this project does not change in the number of lanes going on and off the freeway, it just includes ramp channelization. The project is not a problem to start with because it is not changing the capacity and how it will affect the freeway, it is just operational.

Ginger Vagenas (EPA) added that this project is not a project of air quality concern.

Dick Fahey (Caltrans) indicated that this project is not a project of air quality concern.

Stew Sonnenberg (FHWA) indicated that this project is not a project of air quality concern.

On February, 28, 2013, Ted Matley (FTA), via email, indicated that this project is not a project of air quality concern.

The Task Force had a concurrent discussion about the methodology for the truck numbers used in the analysis.

On February 20, 2013, Ginger Vagenas (EPA) emailed the Task Force the following:

> "I just looked at the El Camino interchange project and noticed that the sponsor relies on the numbers of 3-axle vehicles as the basis for total diesel numbers in the project forms. While we understand that including all 2-axle trucks would inflate the numbers for diesel truck, ignoring them altogether biases the numbers in the other direction. There needs to be a way to somehow ensure the 2-axle diesels are included – maybe a conversion factor?? I am not sure if this would have to be done on a county level basis, or if there is a way of doing it for the entire Bay Area (as well as other areas throughout CA) but we do need a way to include all the diesel trucks in the analysis. "

On February 20, 2013, Mike Brady (Caltrans) emailed the Task Force the following:

> "Based on what EPA has said in the past, we clearly can't rely on 3-axle diesel trucks. 2-axle must be included. One possibility might be to use the diesel/gas proportion of LHD-MHD trucks from EMFAC and apply that to the 2-axle numbers? I know this has been discussed before but don't remember the results right now."

On February 21, 2013, Brenda Dix (MTC) emailed the Task Force following:

> "The last time this issue was raised we ended up waiving it aside since the overall AADT was very low at the project site. For the project in question we will work with the project sponsor to develop a ratio for them to apply to the counts that they have based on the EMFAC fleet mix for San Mateo county."

On February 27, 2013, Brenda emailed the Task Force revised truck numbers and indicated the following:

> "MTC's air quality modeler, Harold Brazil, was able to extract details on the truck fleet mix in San Mateo county from EMFAC in order to apply ratios to the 3-axle counts to extrapolate out to the total number of both gas and diesel trucks in the project corridor. The revised numbers are included in the attached project assessment form. Note that the rows in the new truck tables match the order of the rows in the original tables even though they are not fully labeled. This revised information will be posted to the online agenda as well."

On February 27, 2013, Ginger emailed the Task Force the following:

> "Assuming all the task force members are comfortable with this approach, I think the next steps would be for MTC to document its process so we could take it to OTAQ for review. Because this issue has come up in the past and will no doubt come up again, it seems like a good idea to have an agreed-upon approach to determining diesel truck traffic that could be shared with project sponsors."

At the meeting, Harold Brazil (MTC) indicated that MTC addressed the omission of diesel trucks less-than 3-axles by looking at vehicle fleet population numbers in EMFAC 2011 for the County of San Mateo in the years 2018 and 2035 (the last year in EMFAC2011). They developed ratios (the year 2035 EMFAC2011 numbers were used for 2038 the horizon year of the project) to apply to the Caltrans truck counts to extrapolate them to obtain the complete number of diesel trucks in the project area. A set of assumptions regarding the conversion between truck weight classes in EMFAC and the Caltrans axle counts had to be developed.

Brenda indicated that MTC will develop a complete write-up on the process to vet with the Task Force and to allow other project sponsors to use the methodology when required for their project. MTC will post it on their Air Quality Conformity Task Force page when it is available.

Mike suggested that MTC should circulate the reference document beyond the Task Force. This discussion has happened before in other regions since EMFAC defines vehicles by weight and everywhere else defines by axles. There does need to be a way to adjust between those two classifications, but there is not a universal methodology yet.

Ginger indicated that she supports creating a reference document to allow project sponsors to calculate truck counts that include less-than 3-axle trucks. This issue is something that applies more widely than just the Bay Area. She would like to involve OTAQ in the internal review of the document before it is posted.

Brenda indicated that she will provide the reference document for internal review, and then put it on the March Air Quality Conformity Task Force meeting agenda for discussion.

Final Determination: FHWA, Caltrans, EPA, FTA, and MTC concurred that the project is exempt from PM2.5 project level analysis. MTC will provide a document on the methodology for including diesel trucks that are less than 3-axels in truck counts for the Task Force to review, and then make it available on the MTC Air Quality Conformity Task Force webpage for other project sponsors to use.

ii. Alameda County Transportation Commission (ACTC): I-580 HOT Corridor Project

Gary Sidhu (ACTC) provided an overview of the project. Caltrans and the Alameda County Transportation Commission (ACTC) propose to convert the proposed single high occupancy vehicle (HOV) lane on westbound I-580 to a single high occupancy toll (HOT) lane. The HOT lane would be restricted to HOVs (which include automobiles with two or more persons, buses, and motorcycles) and vehicles that pay a toll. The project limits are from west of Greenville Road undercrossing to just east of the San Ramon Road/Foothill Road overcrossing in eastern Alameda County. The total length of the project is approximately 13.7 miles. The proposed HOT lane would not require any roadway expansion, placement of additional pavement, or acquisition of right-of-way. The HOT lane would use the same striping and alignment as the HOV lane. Tolling equipment and signage would be installed, and trenching along the outside edge of pavement would occur for installation of conduits. Construction of the westbound HOV lane and conversion to a HOT lane will be simultaneous, to allow the facility to open to traffic as a HOT lane. Consultation with the Air Quality Conformity Task Force was complete in February 2012 for the westbound HOV lane project. The project was found to reduce $PM_{2.5}$ emissions in both 2015 and 2035. The HOT lane would improve the overall level of service compared with the HOV lane (No Build condition) and is expected to further reduce $PM_{2.5}$ emissions.

Lynn McIntyre (URS) added that the single HOT lane would not allow for a significant increase in diesel vehicles. The majority of diesel trucks are restricted from using HOV lanes, even for passing. The estimated increase compared with the No Build condition is 4.3 percent in 2015 and 6.9 percent in 2035. This is not considered a significant increase. The project sponsor is looking for Task Force determination quickly so they can start construction. They have already prepared the proposed methodology for a $PM_{2.5}$ hot spot analysis to review if this project is found to be a project of air quality concern.

Mike Brady (Caltrans) asked what the difference is between an HOV and HOT lane.

Lynn responded that any regular vehicle with two or more occupants, electric vehicles (EVs), and busses can use HOV lanes. HOT lanes allow single-occupant vehicles to use the lanes by paying a toll.

Mike asked what the difference in volumes and speeds will be between the HOT and HOV lane.

Lynn indicated that they do not have that data at the moment. But data from other projects suggest that the HOV lane in the no-build scenario may have slightly higher operational function. But with HOV lane only, the mixed flow lanes will operate at a much worse level of service (LOS). With the HOT conversion, the mixed flow lanes improve. In the overall corridor, there would be no increases in speed in the HOT lane compared with the HOV lane.

Carolyn Clevenger (MTC) asked if the no-build scenario includes the HOV lane.

Lynn responded that the no-build scenario does include the HOV lane. It assumes the conversion to the HOT lane would not occur.

Stew Sonnenberg (FHWA) asked if the HOT lane will operate on peak hours.

Gary responded that the HOT lane will operate the same hours as the current HOV lane, which are peak hours.

Stew asked if the peak hours are 5:00 to 10:00 am and 3:00 to 7:00 pm, Monday through Friday.

Gary confirmed that those are the peak hours for the HOV lane.

Dick Fahey (Caltrans) asked if the no-build scenario includes last year's HOV AADT project numbers.

Lynn responded that they are not exactly the same numbers because there has been an updated traffic forecast and analysis. The no-build scenario includes the HOV lane.

Dick asked if the increase in AADT would be from the additional throughput.

Lynn confirmed that it would be. The AADT numbers were based on the data for the peak AM hours, which is the worst-case for that corridor.

Ginger Vagenas (EPA) indicated that she considers this a project of air quality concern because AADT would increase. Some of the increases in the project are significant. The impact may not be that significant, but it is not clear the project assessment form.

Mike indicated that there needs to be a quantitative screening step. He was on the fence about whether the project is a project of air quality concern. The project assessment form indicates that will be an increase of traffic and trucks. The project sponsor could do a more detailed traffic analysis as an interim step between the project assessment form and a hot spot analysis.

Jeff Buss (EPA) questioned if the AADT increase is significant. Most of the increase is for 2015. Some of the impacts could be mitigated. Fleet turnover could be a factor. He is not that concerned about the increase in AADT in the future because of fleet turnover, but if there is congestion in the immediate future, fleet turnover would not make that much of an impact. He was leaning toward considering this project a project of air quality concern.

Lynn indicated that the truck AADT shown on the project assessment form is a percentage of total truck AADT, since the numbers are for the AM peak only.

Mike indicated that the project is probably not a project of air quality concern, but he cannot justify it with just the data on the project assessment form. There is not enough information. He would like to see truck volumes by time of day and speed data in addition to just the truck percentages included in the form.

Lynn indicated that they will try to provide more information on the project.

Harold Brazil (MTC) indicated that speed data would be helpful to include.

Dick indicated that the project sponsor could look at doing 24-hour modeling, not just for the peak hour. There may not be such a large increase in AADT.

Brenda indicated that the project sponsor will pull together additional information about the project and then circulate it to the Task Force via email.

Final Determination: FHWA, Caltrans, EPA, FTA, and MTC concluded there was not enough information to make a determination. The project sponsor will provide more information to the Task Force via email.

b. Consultation on Hot Spot Analysis Methodology

i. Alameda County Transportation Commission (ACTC): I-580 HOT Corridor Project

No discussion required. See above.

c. Confirm Projects are Exempt from PM2.5 Conformity

Stew Sonnenberg (FHWA) asked if CC-110090, Contra Costa Blvd. Improvements, is considered a safety project, even though it includes the construction of a bike lane.

Brenda Dix (MTC) indicated that the project is receiving HSIP funding, so it is considered a safety project.

Dick Fahey (Caltrans) indicated that ALA-110119, AC Transit Spectrum Ridership Growth, sounds like it would increase ridership and questioned the use of the "planning study" exemption code for the project.

Sri Srinivasan (MTC) indicated that MTC did not know which exemption code to use for this project.

Dick indicated that he did not have any suggestions on alternate exemption codes that could be used.

Mike Brady (Caltrans) agreed that there was no other appropriate exemption code to use instead.

Brenda indicated that they would leave the exemption code for ALA-110119 as-is.

On February 28, 2013, Ted Matley (FTA), via email, indicated that he did not have any comments on the exempt list.

Final Determination: FHWA, Caltrans, EPA, FTA, and MTC concurred that all projects on the exempt list are exempt from PM2.5 project level analysis.

3. Consent Calendar

a. January 24, 2013 Air Quality Conformity Task Force Meeting Summary

b. SR-85 Express Lanes (SCL090030) Project Change

There were no comments on the consent calendar.

Final Determination: FHWA, Caltrans, EPA, FTA, and MTC concurred that all items on the consent calendar are approved.

4. Other Items

Brenda Dix (MTC) indicated that the use of EMFAC2011 has been approved by EPA.

Mike Brady (Caltrans) indicated that the statewide California Air Quality meeting is scheduled for Wednesday, March 13, 2013 from 10:00 am to 1:00 pm.

Brenda adjourned the meeting at approximately 10:20 am. The next Air Quality Conformity Task Force meeting is scheduled for Thursday, March 28, 2013 at 9:30 am.

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USFWS Species List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

February 17, 2015

Document Number: 150217022539

Nicole Rucker
AECOM
1333 Broadway Suite 800
Oakland, CA 94612

Subject: Species List for State Route 85 Express Lanes Project

Dear: Ms.

We are sending this official species list in response to your February 17, 2015 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 18, 2015.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found http://www.fws.gov/sacramento/es/Branch-Contacts/es_branch-contacts.htm.

Endangered Species Division

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 150217022539

Current as of: February 17, 2015

Quad Lists

Listed Species

Invertebrates

- Euphydryas editha bayensis
  - bay checkerspot butterfly (T)
  - Critical habitat, bay checkerspot butterfly (X)
- Incisalia mossii bayensis
  - San Bruno elfin butterfly (E)
- Lepidurus packardi
  - vernal pool tadpole shrimp (E)

Fish

- Acipenser medirostris
  - green sturgeon (T) (NMFS)
- Eucyclogobius newberryi
  - tidewater goby (E)
- Hypomesus transpacificus
  - delta smelt (T)
- Oncorhynchus kisutch
  - coho salmon - central CA coast (E) (NMFS)
- Oncorhynchus mykiss
  - Central California Coastal steelhead (T) (NMFS)
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central California coastal steelhead (X) (NMFS)
- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)
  - Critical habitat, CA tiger salamander, central population (X)
- Rana draytonii
  - California red-legged frog (T)
  - Critical habitat, California red-legged frog (X)

Reptiles

- Thamnophis sirtalis tetrataenia
  - San Francisco garter snake (E)

Birds

- Brachyramphus marmoratus
  - marbled murrelet (T)
- Charadrius alexandrinus nivosus
  - western snowy plover (T)

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (T)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Acanthomintha duttonii
San Mateo thornmint (E)

Castilleja affinis ssp. neglecta
Tiburon paintbrush (E)

Ceanothus ferrisae
Coyote ceanothus (E)

Chorizanthe robusta var. robusta
robust spineflower (E)

Cirsium fontinale var. fontinale
fountain thistle (E)

Dudleya setchellii
Santa Clara Valley dudleya (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Lasthenia conjugens
Contra Costa goldfields (E)

Streptanthus albidus ssp. albidus
Metcalf Canyon jewelflower (E)

Suaeda californica
California sea blite (E)

Trifolium amoenum
showy Indian clover (E)

Quads Containing Listed, Proposed or Candidate Species:

MORGAN HILL (406B)

SANTA TERESA HILLS (407A)

LOS GATOS (407B)

SAN JOSE WEST (427C)

SAN JOSE EAST (427D)

MOUNTAIN VIEW (428A)

PALO ALTO (428B)

CUPERTINO (428D)

County Lists

Alameda County

Listed Species

Invertebrates

Branchinecta conservatio
    Conservancy fairy shrimp (E)

Branchinecta longiantenna
    Critical habitat, longhorn fairy shrimp (X)
    longhorn fairy shrimp (E)

Branchinecta lynchi
    Critical habitat, vernal pool fairy shrimp (X)
    vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
    valley elderberry longhorn beetle (T)

Euphydryas editha bayensis
    bay checkerspot butterfly (T)

Icaricia icarioides missionensis
    mission blue butterfly (E)

Incisalia mossii bayensis
    San Bruno elfin butterfly (E)

Lepidurus packardi
    Critical habitat, vernal pool tadpole shrimp (X)
    vernal pool tadpole shrimp (E)

Speyeria callippe callippe
    callippe silverspot butterfly (E)

Fish

Acipenser medirostris
    green sturgeon (T) (NMFS)

Eucyclogobius newberryi
    tidewater goby (E)

Hypomesus transpacificus
    Critical habitat, delta smelt (X)
    delta smelt (T)

Oncorhynchus kisutch
    coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
    Central California Coastal steelhead (T) (NMFS)
    Central Valley steelhead (T) (NMFS)
    Critical habitat, Central California coastal steelhead (X) (NMFS)
    Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
    Central Valley spring-run chinook salmon (T) (NMFS)

Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
- California tiger salamander, central population (T)
- Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
- California red-legged frog (T)
- Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
- Alameda whipsnake [=striped racer] (T)
- Critical habitat, Alameda whipsnake (X)

Thamnophis gigas
- giant garter snake (T)

Thamnophis sirtalis tetrataenia
- San Francisco garter snake (E)

Birds

Charadrius alexandrinus nivosus
- western snowy plover (T)

Coccyzus americanus occidentalis
- Western yellow-billed cuckoo (T)

Pelecanus occidentalis californicus
- California brown pelican (E)

Rallus longirostris obsoletus
- California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
- California least tern (E)

Mammals

Reithrodontomys raviventris
- salt marsh harvest mouse (E)

Vulpes macrotis mutica
- San Joaquin kit fox (E)

Plants

Amsinckia grandiflora
- Critical habitat, large-flowered fiddleneck (X)
- large-flowered fiddleneck (E)

Arctostaphylos pallida
pallid manzanita (=Alameda or Oakland Hills manzanita) (T)

Chorizanthe robusta var. robusta
robust spineflower (E)

Clarkia franciscana
Presidio clarkia (E)

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Holocarpha macradenia
Critical habitat, Santa Cruz tarplant (X)
Santa Cruz tarplant (T)

Lasthenia conjugens
Contra Costa goldfields (E)
Critical habitat, Contra Costa goldfields (X)

Layia carnosa
beach layia (E)

Suaeda californica
California sea blite (E)

Key:

(E) Endangered - Listed as being in danger of extinction.
(T) Threatened - Listed as likely to become endangered within the foreseeable future.
(P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
(C) Candidate - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.

- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 18, 2015.

Section 106 Completion Memorandum

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State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: Cristin Hallissy
Branch Chief, Environmental Analysis
Office of Environmental Analysis, District 4

Attn: Ngoc Bui
Associate Environmental Planner
Office of Environmental Analysis, District 4

From: Kathryn Rose KR
Branch Chief, Archaeology
Office of Cultural Resources Studies, District 4

Date: August 22, 2013

File: 04-SCL-85 PM 0.0 - 24.1
04-SCL-101 PM 23.1 – 28.6
04-SCL-101 PM 47.9 - 52.0

EA: 4A7900
Project ID: 0400001163

Project: 85 Express Lanes Project

Subject: Section 106 Completion Memorandum for the 04-SCL - 85 PM 0.0 - 24.1, 04-SCL-101 PM 23.1 – 28.6, and 04-SCL-101 PM 47.9 - 52.0, Express Lanes Project in Santa Clara County, California.

This memorandum provides the Caltrans Office of Environmental Analysis with notification that this undertaking has been carried out in a manner consistent with Caltrans responsibilities under the 2004 *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (hereafter, the PA).

In order to complete Section 106 of the NHPA for this undertaking, a Historic Property Survey Report (HPSR), Archaeological Survey Report (ASR), Extended Phase One Report (XPI) and an Environmentally Sensitive Area Action Plan (ESA) were submitted to the Caltrans Office of Cultural Resources Studies (OCRS). In accordance with Stipulation X.B.2 (a)(ii) and (iii) of the PA, Caltrans determined that a ***Finding of No Adverse Effect with Standard Conditions – ESAs,*** is appropriate for this undertaking. In accordance with stipulation X.B.2 (b), when the forgoing Standard Conditions are imposed, Caltrans concurrently provides the SHPO with documented notification of the finding. Thereupon, the undertaking is not subject to further review under this agreement.

A letter from the Caltrans OCRS notifying the SHPO of the finding and a copy of the HPSR, ASR, XPI and ESA Action Plan were transmitted on June 21, 2013 and received by the SHPO on June 24, 2013.

During the Plans, Specifications and Estimates (PS&E) phase of project development, the VTA and their cultural resource consultant will need to ensure that the appropriate ESA method for protecting each of the sites within the Area of Potential Effects (APE) are clearly described in contract specifications and illustrated on project plans as early as possible during PS&E. The

Caltrans Archaeologist will review each PS&E submittal package (35%, 65%, 95% and 100%) to ensure that this undertaking is still being carried out in a manner consistent with Caltrans responsibilities under the 2004 PA.

Please note that if there are any changes to the proposed activities or if the project boundaries are extended, additional review by PQS staff within the Cultural Resource Studies Office will then be required. In the event of the unexpected discovery of cultural material, all guidelines outlined in the Standard Specifications Section 5.1 Archaeological Discoveries shall be followed.

Please find attached a copy of the SHPO transmittal letter for your records. Please contact Benjamin Harris, Co-Principal Investigator – Historic Archaeology at (510) 622-8827 or at Benjamin_Harris@dot.ca.gov or Kathryn Rose, Branch Chief, Archaeology at (510) 286-5630, or kathryn_rose@dot.ca.gov.

Cc: K. Rose (ecopy), C. Hallissy (ecopy), D. Bright (ecopy), N. Bui (ecopy), OCRS Files

USFWS Biological Opinion

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-
2014-F-0197-2

Ms. JoAnn Cullom
California Department of Transportation
Environmental Division, MS-8E
111 Grand Avenue
Oakland, California 94612

MAR 1 0 2015

Ann Calnan
Santa Clara Valley Transportation Authority
3331 North First Street
Building B-2
San Jose, California 95134

Subject: Section 7 Consultation for the State Route 85 Express Lanes Project, Santa Clara County, California (Caltrans EA 4A7900)

Dear Ms. Cullom and Ms. Calnan:

This letter is in response to the California Department of Transportation's (Caltrans) September 24, 2014, request for consultation with the U.S. Fish and Wildlife Service (Service) on the proposed State Route (SR) 85 Express Lanes Project in Santa Clara County, California. According to the project information provided by Caltrans, the purpose of the project is to decrease traffic congestion with a combination of converting high-occupancy vehicle (HOV) lanes to HOV/toll-fee express lanes and the addition of HOV/express lanes.

The project description portion of the consultation package was considered complete on December 17, 2014, following the Service's review of additional project information provided by the Santa Clara Valley Transportation Authority (VTA).

At issue are the effects of the proposed project on the threatened California red-legged frog (*Rana draytonii*). This response has been prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*)(Act). Critical habitat for the California red-legged frog is not designated within the action area.

Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law on July 6, 2012. Effective, October 1, 2012, MAP-21 includes provisions to promote streamlined and accelerated project delivery. Caltrans was approved to participate in the MAP-21 Surface Transportation Project Delivery Program through the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding (MOU). The MOU allows Caltrans to assume the Federal Highway Administration's (FHWA) responsibilities under NEPA as well as FHWA's consultation and coordination responsibilities under Federal environmental laws for most highway projects in

California. Caltrans is exercising this authority as the Federal nexus for section 7 consultation for this project.

The proposed project includes an action area both within and outside the Santa Clara Valley Habitat Plan (SCVHP) Permit Area (Figure 1). As partners for the overall project, Caltrans is acting as the Federal nexus regarding the action area outside the Permit Area, and VTA is engaged as a SCVHP permittee and plan participant for the remainder of the action. The SCVHP covered portion of the proposed project is referred to in Table 2-6 of the SCVHP Land Use and Covered Activities chapter (available at http://www.scv-habitatagency.org/DocumentCenter/Home/View/124) as the *S.R. 85 HOV/HOT lane* highway project.

The portions of the proposed project that are within the SCVHP Permit Area do not require a separate biological opinion, because they have been covered under the internal section 7 biological opinion for the SCVHP. For completeness, the entire action is described herein.

The information and conclusions in this letter are based on: (1) the December 19, 2013, Biological Assessment (BA); (2) additional project information received on July 9, August 28, September 24, and December 11, 2014; (3) edits to the February 17, 2015 draft BO received from Caltrans on March 4, 2015; and (4) other information available to the Service.

Consultation History

December 23, 2013	The Service received Caltrans' December 19, 2013, request for consultation which included a BA.
February 7, 2014	The Service sent Caltrans an electronic mail (e-mail) message regarding our review of the December 19, 2013, letter. The e-mail message included comments and a request for additional information to complete Caltran's consultation request. The Service recommended that the SCVHP covered activity portion of the project be permitted through the SCVHP. The Service's e-mail message was the equivalent of a 30-day letter.
March 26, 2014	The Service met with Caltrans and VTA to discuss the proposed project and the associated consultation process.
July 9, 2014	The Service received Caltrans' June 24, 2014 response to the Service's February 14, 2014 e-mail message and request for additional information.
August 7, 2014	The Service sent Caltrans an e-mail message confirming our recommendation that Caltrans seek formal consultation on the California red-legged frog for the proposed Saratoga Creek Bridge widening and seek consultation through the SCVHP process for the southern third of the proposed project. The Service provided Caltrans with project map notes to elicit additional project information.
August 28, 2014	The Service received project mapping from Caltrans attached to an e-mail message.
February 17, 2015	The Service issued a draft BO (Service File #08ESMF00-2014-F-0197-1).

March 4, 2015	The Service received comments from Caltrans/VTA regarding the February 17, 2015 draft BO.
September 24, 2014	The Service received an e-mail message from Caltrans expressing their request to pursue formal section 7 consultation on the portion of the project not covered in the SCVHP. According to Caltrans, VTA will be submitting a request to consult on the remaining portion of the project via the SCVHP.
October 6, 2014	The Service sent Caltrans a draft project description for the project actions outside the SCVHP for review and received Caltrans' e-mail message request for a draft BO for review in advance of a final.
November 14, 2014	The Service received Caltrans's and VTA's comments on the October 6, 2014 draft project description.
November 21, 2014	The Service received requested mapping of the project footprint outside the SCVHP via an e-mail message.
November 24, 2014	The Service participated in a phone conference with Caltrans and VTA regarding steps needed to complete consultation.
December 16, 2014	The Service received additional information regarding the project actions within the SCVHP and the associated measures that will be implemented in accordance with the SCVHP.

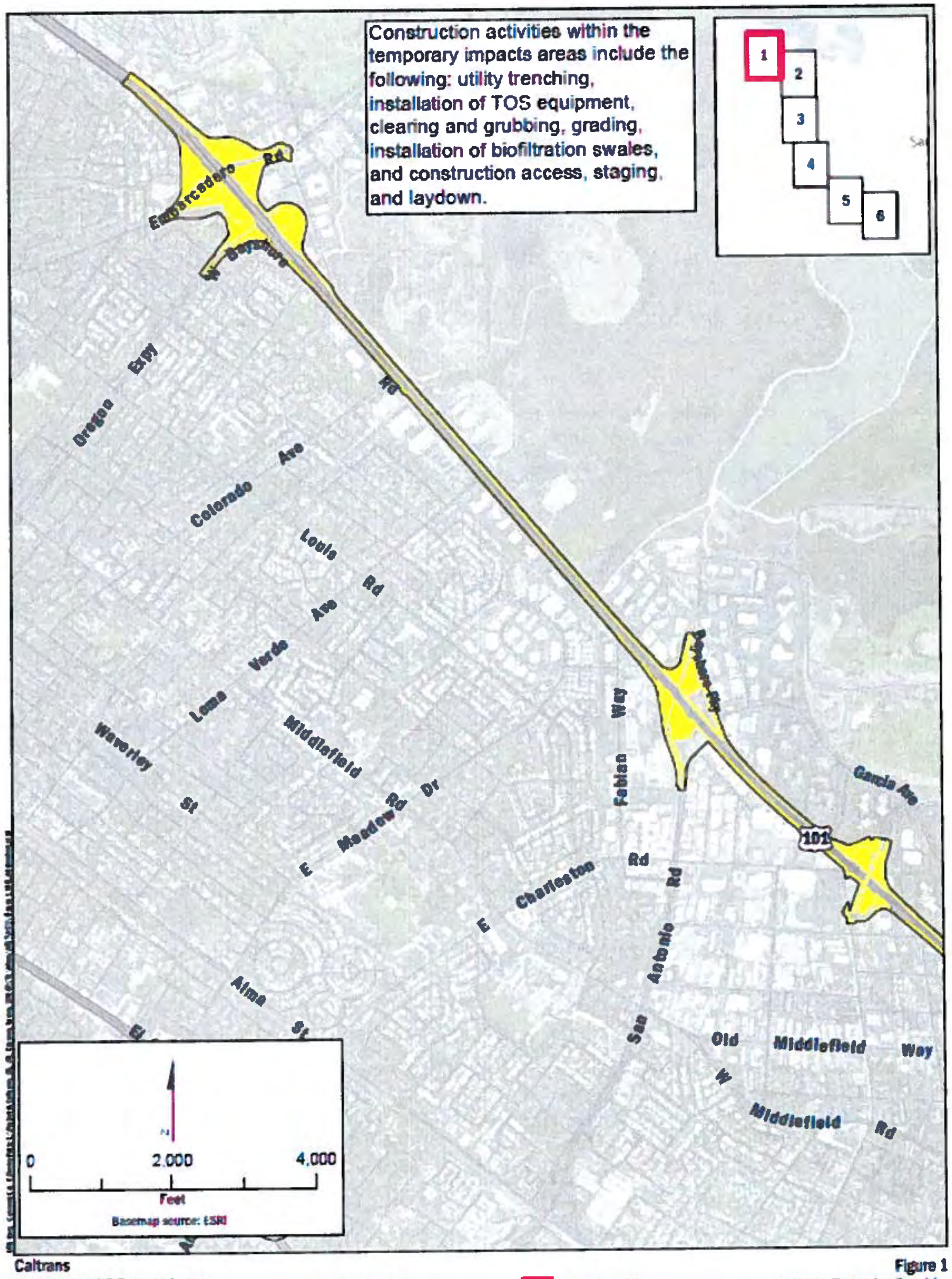
Description of the Action

According to Caltrans, the purpose of the project is to decrease traffic congestion by converting the high-occupancy vehicle (HOV) lanes on SR 85 to express lanes. Express lanes allow single-occupant vehicles to pay a toll to use the lanes, while HOVs continue to use the lanes for free. The project would also add a second express lane in both directions between SR 87 and Interstate 280 (I-280).

General conservation measures for the overall project include the following:

1. To the extent practicable, nighttime construction will be minimized. Except when necessary for construction, driver, or pedestrian safety, artificial lighting of the proposed project site during nighttime hours will be minimized to the maximum extent practicable.

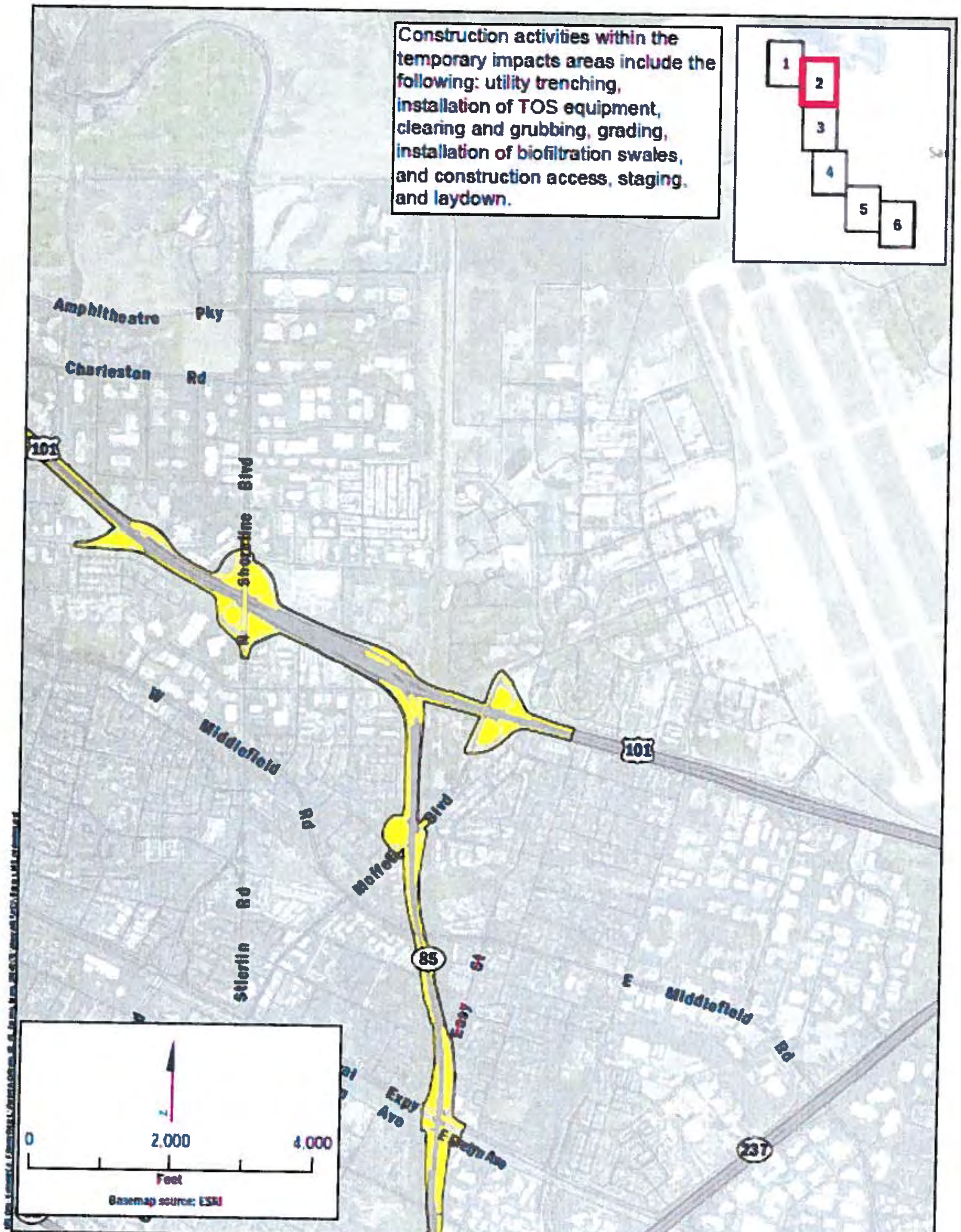
2. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for construction activities. This will increase the possibility that plants that reproduce vegetatively will resprout. All vegetation clearing and grubbing of woody vegetation will occur by hand or using light construction equipment such as backhoes. If vegetation clearing and grubbing occurs between February 15 and August 31, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 50 feet for passerines and 300 feet for raptors before vegetation clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Codes will be observed. All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site.



Caltrans
State Route 85 Express Lanes

Project Footprint
Santa Clara Valley HCP Study Area
Permanent Impact
Temporary Impact

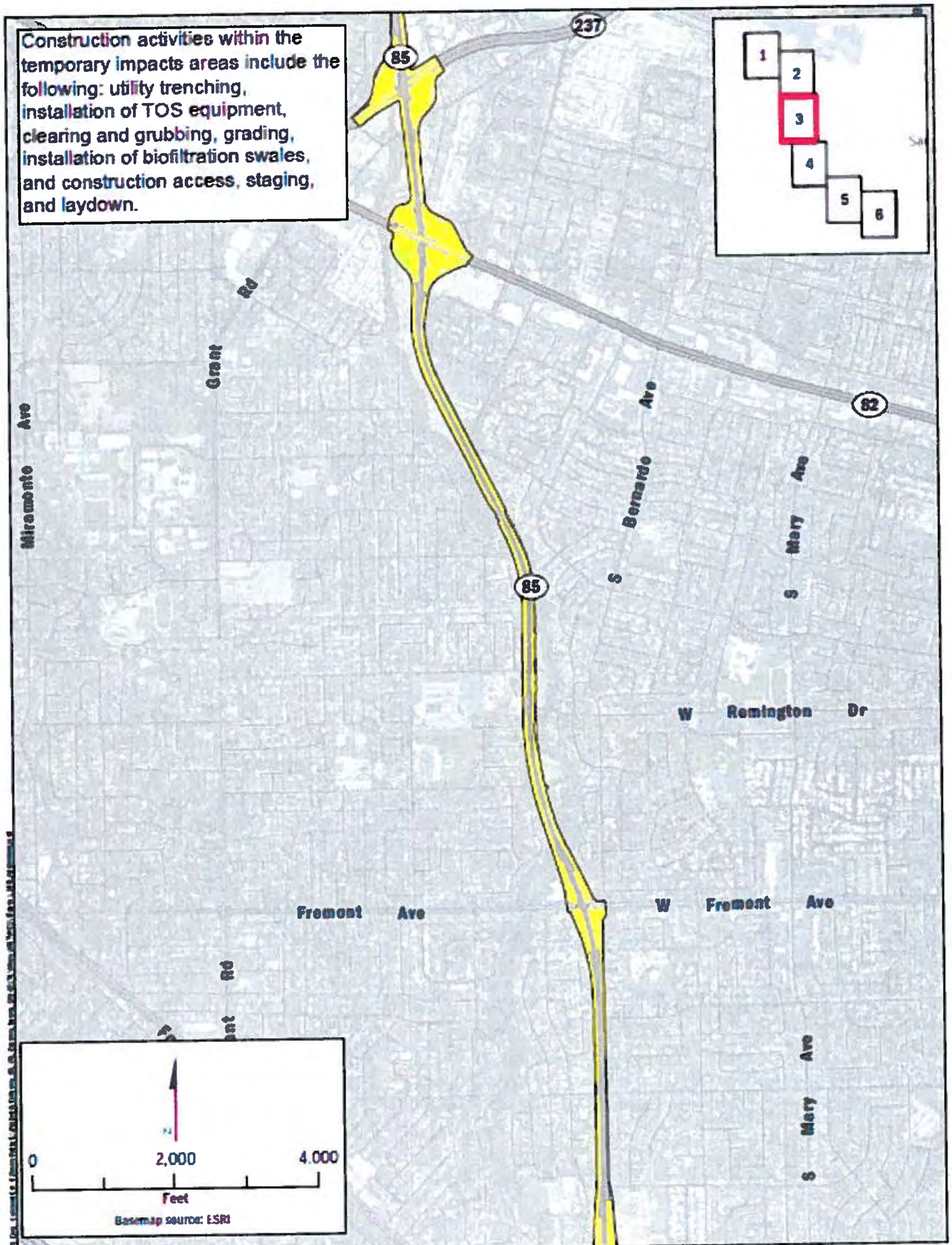
Figure 1
Project Footprint Outside the Santa Clara Valley HCP Study Area
Sheet 1 of 6



Caltrans
State Route 85 Express Lanes

Project Footprint
Santa Clara Valley HCP Study Area
Permanent Impact
Temporary Impact

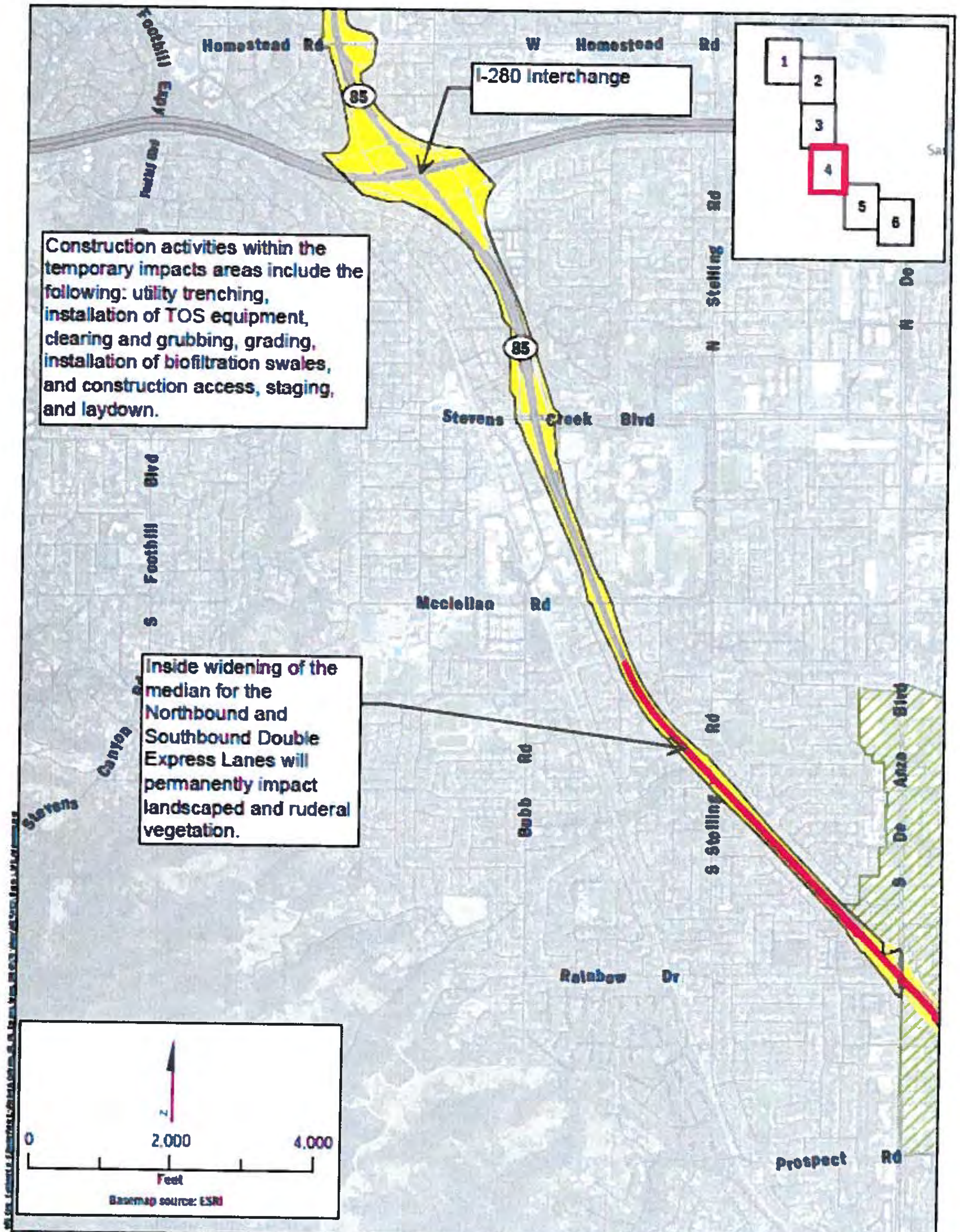
Figure 1
Project Footprint Outside the Santa Clara Valley HCP Study Area
Sheet 2 of 6



Caltrans
State Route 85 Express Lanes

Project Footprint
Santa Clara Valley HCP Study Area
Permanent Impact
Temporary Impact

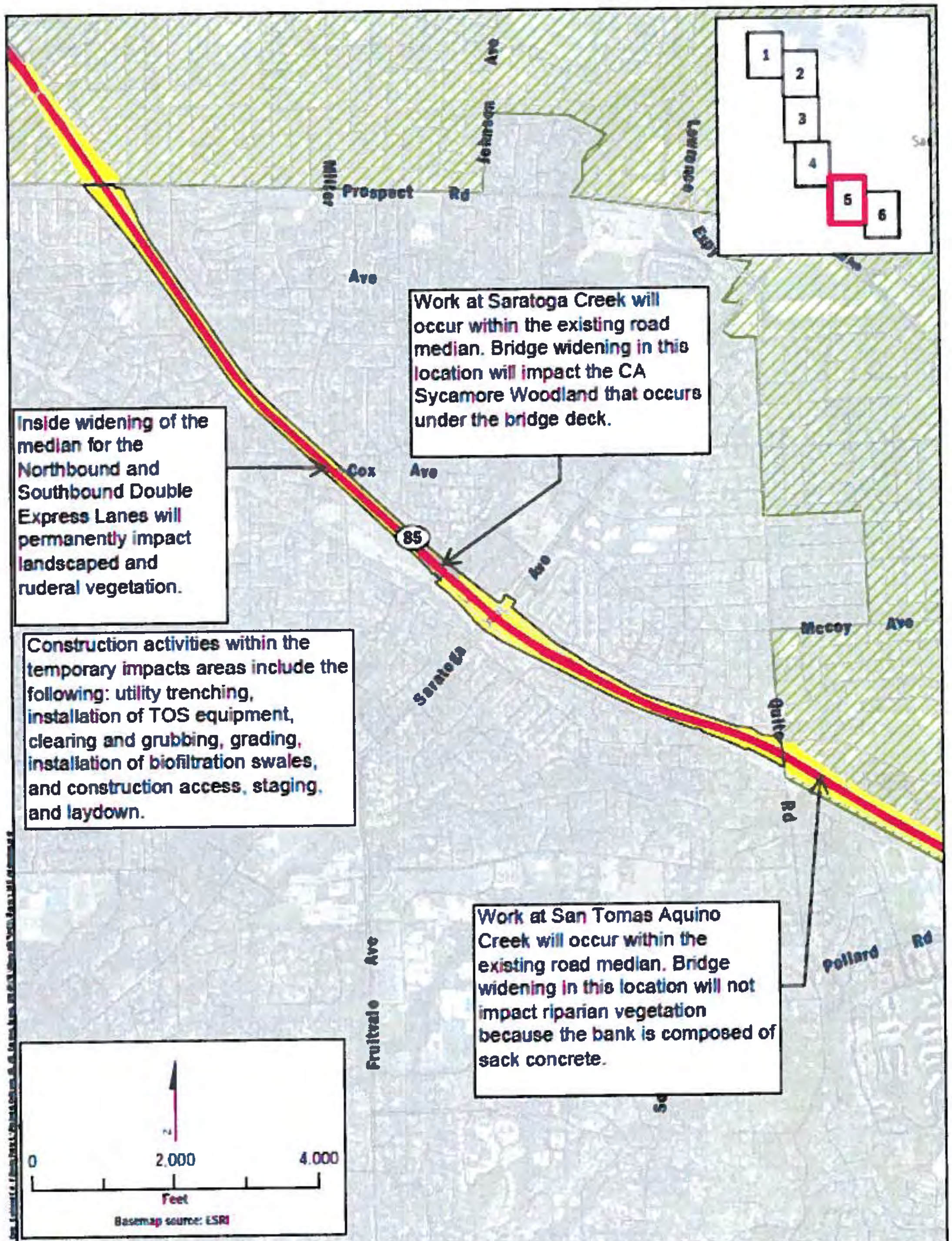
Figure 1
Project Footprint Outside the Santa Clara Valley HCP Study Area
Sheet 3 of 6



Caltrans
State Route 85 Express Lanes

Project Footprint
Santa Clara Valley HCP Study Area
Permanent Impact
Temporary Impact

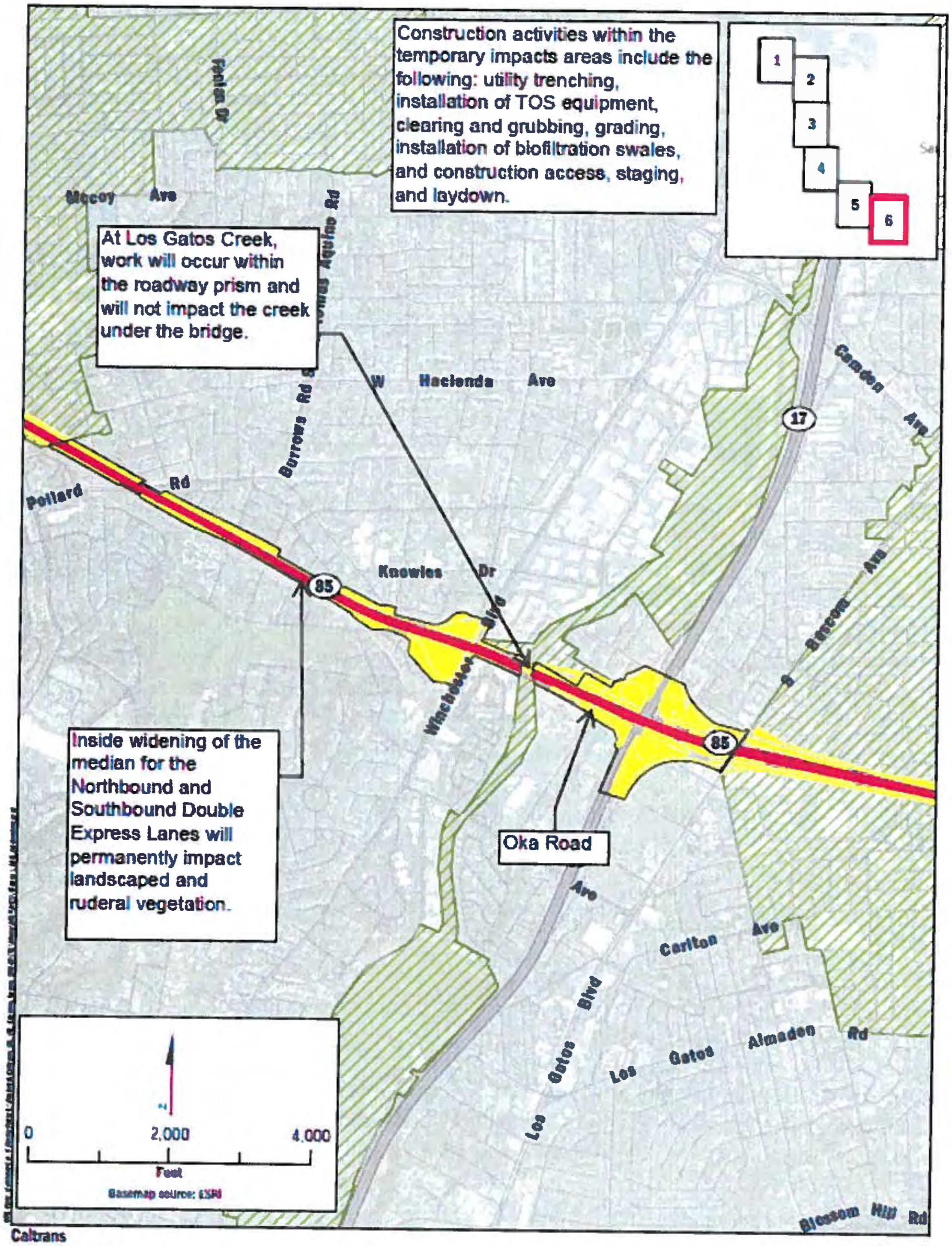
Figure 1
Project Footprint Outside the Santa Clara Valley HCP Study Area
Sheet 4 of 6



Caltrans
State Route 85 Express Lanes

Project Footprint
Santa Clara Valley HCP Study Area
Permanent Impact
Temporary Impact

Figure 1
Project Footprint Outside the Santa Clara Valley HCP Study Area
Sheet 5 of 6



Caltrans
State Route 85 Express Lanes

Project Footprint
Santa Clara Valley HCP Study Area
Permanent Impact
Temporary Impact

Figure 1
Project Footprint Outside the Santa Clara Valley HCP Study Area
Sheet 6 of 6

3. Environmentally Sensitive Areas, such as wetlands, waters, and trees will be delineated for avoidance with orange fencing. The fencing will be routinely monitored and maintained and will not be removed until ground activities in the proximity have been completed. Fence locations will be identified on contact plans and discussed in the Special Provisions. Project plans will include the installation specifications.

4. Project employees will be provided with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.

5. All food related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed as necessary from the project area.

6. Caltrans standard BMPs, a Water Pollution Control Plan, and a Storm Water Pollution Prevention Plan (SWPPP) will be implemented. These plans will include, but are not limited to, the following:

   a. Appropriate erosion control measures will be used to reduce siltation and runoff of contaminants into wetlands and adjacent, ponds, streams, or riparian woodland/scrub habitat. The contractor will not be allowed to stockpile brush, loose soils, or other debris material on stream banks. Only native plant species will be used in erosion control or revegetation seed mix. Any hydroseed mulch used for revegetation will also be certified weed-free. Dry-farmed straw will not be used, and certified weed-free straw will be required where erosion control straw is to be used. Filter fences and mesh will be of a material that will not entrap reptiles and amphibians. Erosion-control measures will be placed between a water body or wetland and the outer edge of the project site.

   b. All off-road construction equipment will be cleaned of potential noxious weed sources (mud, vegetation) before entry into the project footprint. Equipment will be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.

   c. Vehicles and equipment will be parked on pavement, existing roads, or specified staging areas when not in use.

   d. No construction or maintenance vehicles will be refueled within 200 feet of wetlands and ponds unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.

7. Disturbed areas and staging areas will be cleaned up and recontoured to original grade. Permanent erosion control, including soil stabilization measures such as hydroseeding and coir netting will be applied to all temporarily affected areas within the project footprint to minimize erosion after construction. All construction-related materials, including exclusion and project boundary fencing, will be removed after construction, site clean-up, and restoration activities are complete.

8. Vegetation and trees removed by construction operations within the project limits will be replaced according to Caltrans policy. Appropriate native species will be used to the maximum extent possible, and trees, shrubs, and groundcover will be selected for drought tolerance and disease resistance. Mulch will be applied to planted areas to reduce weed

growth, conserve moisture, and minimize maintenance operations. Reclaimed water is not available for irrigation along the project corridor. Re-vegetation will take place under a separate landscape contract after completion of the roadway construction contract. The landscape contract will be funded by the parent project and will include a 3-year plant establishment period.

This consultation includes project activities in the following areas (Figure 1):

Inside the SCVHP Permit Area

The action area inside the SCVHP Permit Area includes the following.

1. An approximately 3.3-mile segment of US 101 between Bailey Avenue to the south and the SR 85 interchange in southern San Jose to the north.

2. Four noncontiguous segments of SR 85 between the US 101 interchange in southern San Jose to the south and South De Anza Boulevard to the north:

    a. An approximately 10.4-mile segment of SR 85, between the US 101 interchange in southern San Jose and Los Gatos Boulevard.

    b. The Los Gatos Creek corridor (just west of SR 17).

    c. An approximately 0.6-mile segment of SR 85, starting just north of Pollard Road to Quito Road.

    d. An approximately 0.6-mile segment of SR 85, between Prospect Road and South De Anza Boulevard.

Activities within this portion of the project include the following.

1. New striping will be installed throughout.

2. Bridge widening will occur at San Tomas Aquino Creek.

3. The overcrossings at Almaden Expressway and Camden Avenue will be widened.

4. New overhead signs and tolling devices will be installed within the median.

5. A new controller cabinet will be installed within the roadway shoulder, across from the Metcalf Power Plant.

6. New Traffic Operations Systems (TOS) equipment including traffic monitoring stations, closed circuit television cameras, cabinets, and controllers will be installed adjacent to the road shoulder throughout. Work will include trenching and installation of associated conduits.

7. Biofiltration swales will be installed within the SR 85 interchanges at Cottle Road, Blossom Hill Road, Santa Teresa Boulevard, Almaden Expressway, Camden Avenue, Union Avenue, and South De Anza Boulevard.

The following provisions will be implemented for the covered activity. The referenced conditions below are described in Chapter 6 of the SCVHP document (available at http://www.scv-habitatagency.org/DocumentCenter/Home/View/128).

VTA complies with all Conditions appropriate for the proposed project:

a. Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species.

b. Condition 2. Incorporate Urban-Reserve System Interface Design Requirements.

c. Condition 3. Maintain Hydrologic Conditions and Protect Water Quality.

d. Condition 6. Design and Construction Requirements for Covered Transportation Projects.

e. Conditions 11. Stream and Riparian Setbacks.

f. Condition 12. Wetland and Pond Avoidance and Minimization.

g. Condition 13. Serpentine and Associated Covered Species Avoidance and Minimization.

h. Condition 17. Tricolored Blackbird.

i. Condition 20. Avoid and Minimize Impacts to Covered Plant Occurrences.

2. VTA pays all applicable development fees to the Implementing Entity prior to implementing the covered activity. The estimated development fees for the project are listed in Table 1 and amount to $242,472.96. The fee amount is based on the Habitat Plan fee schedule as of August 2014. The fee schedule is adjusted annually. The fee amount may be adjusted based on various factors, including changes in impact acreage and project scheduling.

Table 1. SCVHP Development Fee Calculation

Habitat Plan Fee Type	Permanent habitat loss (acres)	Fee per acre	Total	Temporary habitat loss (acre)	Fee per acre x fee multiplication factor	Total	**TOTAL**
Land Cover Fee Fee Zone A (Ranchlands and Natural Lands)	0.45	$17,028.00	$7,662.60	1.1	$17,028.00 x 0.04	$19,411.92	**$27,074.52**
Fee Zone B (Agricultural and Valley Floor Lands)	0.43	$11,806.00	$5,076.58	12.95	$11,806.00 x 0.04	$152,887.70	**$157,964.28**
Fee Zone C (Small Vacant Sites Under 10 Acres)	0	$4,313.00	0	8.68	$4,313.00 x 0.04	$37,436.84	**$37,436.84**
Wetland Fee Willow Riparian Forest and Mixed Riparian	0	$142,838.00	0	0.14	$142,838.00	$19,997.32	**$19,997.32**
TOTAL	0.88		$12,739.18	22.87		$229,733.78	**$242,472.96**

The SCVHP requires specific avoidance and minimization measures for covered activities that have the potential to affect SCVHP covered species, sensitive habitats, natural communities, and jurisdictional wetlands and other waters in Santa Clara County. Therefore, VTA will implement all protection measures for the affected species as set forth in the SCVHP.

In addition to avoidance and minimization measures, the SCVHP utilizes a variety of development-based fess to fund mitigation that will offset losses of land cover types, covered species habitat, and other biological values. VTA will pay all applicable development fees as listed in Table 1 to the Santa Clara Valley Habitat Agency as identified and described in Chapter 9.4.1 of the SCVHP (available at http://www.scv-habitatagency.org/DocumentCenter/Home/View/131).

If implemented as described in the project description, the proposed project activities within the SCVHP Permit Area comply with the applicable conditions required by the SCVHP.

Outside the SCVHP Permit Area

The action area outside the SCVHP Permit Area includes the following.

1. An approximately 4.1-mile segment of US 101 from the Santa Clara County line at the San Francisquito Creek Bridge to Moffett Boulevard.

2. Four noncontiguous segments of SR 85 between Los Gatos Boulevard to the south and the US 101 interchange in Mountain View to the north:

    a. An approximately 0.6-mile segment from Los Gatos Boulevard to just south of the Los Gatos Creek crossing (just west of SR 17).

    b. An approximately 1.4-mile segment from just north of the Los Gatos Creek crossing (just west of SR 17) and just north of Pollard Road.

    c. An approximately 2.4-mile segment between Quito Road and Prospect Road.

    d. An approximately 8-mile segment between South De Anza Boulevard and the US 101/SR 85 Interchange in Mountain View.

Activities within this portion of the project include the following.

1. Bridge widening at Saratoga Creek.

2. Widening of the Pollard Road, Saratoga Avenue, and Oka Road overcrossings.

3. Inside widening of the median between SR 87 and I-280.

4. An auxiliary lane will be added to a 1.1-mile segment of northbound SR 85 between the existing South De Anza Boulevard northbound on-ramp and Stevens Creek Boulevard northbound off-ramp.

5. New striping will be installed throughout.

6. New overhead signs and tolling devices will be installed in the highway median throughout.

7. New TOS equipment including traffic monitoring stations, closed circuit television cameras, cabinets, and controllers will be installed adjacent to the road shoulder throughout. Work will include trenching and installation of associated conduits.

8. Biofiltration swales will be installed within the SR 85 interchanges at SR 17 and I-280.

The proposed roadway widening includes expansion of the existing SR 85 Saratoga Creek Bridge. This bridge widening is the component of the project that the Service believes may result in take of the California red-legged frog. Therefore the following BO portion of this letter will be focused upon the activities associated with Saratoga Creek Bridge construction.

The existing SR 85 Saratoga Creek crossing includes separate bridges for the north and southbound lanes. There is an open gap between these two bridges. The proposed project will allow HOV/express lane additions in both directions by expanding towards the median and closing the gap. The existing crossings consist of cast-in-place, pre-stressed concrete box girders. The existing approximately 100-foot long, single-span structures are supported on diaphragm type abutments founded on a single row of driven concrete piles.

The bridge addition will be a cast-in-place pre-stressed concrete box girder, designed to match the existing structures on either side. The addition will be constructed on falsework and the supports will be located above the Saratoga Creek high water mark. Construction will take place below the bridge deck, within the riparian corridor, but outside the high water mark. Construction will include the removal of riprap between the existing abutments with a backhoe positioned above the stream bank. Access and construction will likely require the removal of riparian trees, including arroyo willow, big-leaf maple, California sycamore, and associated understory vegetation.

Construction Schedule
Caltrans anticipates a 45-day construction period to complete the Saratoga Creek Bridge widening. Work will occur between June 15 and October 15. Construction at this location may begin as early as 2016 but an actual construction date is unknown at this point.

Staging and Access
SR 85 will be used to access the Saratoga Creek Bridge widening work area. From SR 85, the north abutment will be accessed from a rock/gravel area between the southbound bridge and the adjacent southbound off-ramp. The south abutment will be accessed from the rock/gravel/dirt area between the northbound bridge and the northbound on-ramp. Some grading may be required to prepare the access. Dirt will be placed on top the existing riprap for access and staging under the bridge.

Equipment
The equipment that will likely be needed to complete the bridge widening includes a backhoe, a compact tractor, crane, dump truck, and compressors.

Conservation Measures
Caltrans proposes to reduce adverse effects to the California red-legged frog by implementing the following measures:

1. At least 15 days prior to the onset of any construction-related activities covered in this consultation, Caltrans will submit to the Service, for approval, the name(s) and credentials of biologists it wishes to conduct activities specified for the Saratoga Creek Bridge widening. Information in the request for authorization will include, at a minimum: (1) relevant education; (2) relevant training concerning California red-legged frog identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized for such activities by the Service; (3) a summary of field experience conducting requested activities (to include

project/research information); (4) a summary of BOs under which they were authorized by the Service to work with the California red-legged frog and at what level (such as construction monitoring versus handling), this will also include the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) a list of Federal Recovery Permits [10(a)1(A)] held or under which are authorized to work with the California red-legged frog (to include permit number, authorized activities, and name of permit holder); and (6) any relevant professional references with contact information. No project construction will begin until Caltrans has received written Service approval for biologists to conduct specified activities.

2. A Service-approved biologist will be present during all vegetation clearing and ground-disturbing activities for the Saratoga Creek Bridge work.

3. No more than 20 calendar days prior to any ground disturbance for the bridge widening, pre-construction surveys will be conducted by a Service-approved biologist for the California red-legged frog throughout the bridge widening work area. These efforts will consist of walking surveys of the project limits, including access routes, and accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential California red-legged frog cover sites. This includes thorough investigation of mammal burrows, appropriately sized soil cracks, space between riprap, and debris. Native vertebrates found in the cover sites will be documented and safely relocated to an adequate cover site in the action area vicinity. The entrances and other refuge features within areas of the project limits that will be subject to ground disturbance will be collapsed or removed following investigation and clearance.

4. The Service-approved biologist will perform a California red-legged frog clearance survey immediately prior to the initial ground disturbance. Safety permitting, the Service-approved biologist(s) will investigate areas of disturbed soil for signs of the listed species within 30 minutes following the initial disturbance of that given area.

5. The Service-approved biologist will conduct clearance surveys at the beginning of each day within or adjacent to suitable listed species habitat and regularly throughout the workday.

6. The Service-approved biologist will permanently and humanely remove, from the project site, any aquatic exotic wildlife species, such as bullfrogs and crayfish, to the extent possible.

7. The Service-approved biologist will have the authority to halt work through coordination with the Resident Engineer in the event that a California red-legged frog gains access to the project work area. Work will resume once the frog leaves the site voluntarily, is removed by the biologist to a release site using Service-approved handling techniques, or it is determined that the frog is not being harassed by construction activities. If take of a frog occurs, the biologist will notify the Service by telephone and e-mail within one working day.

8. Adult and juvenile frogs captured by the Service-approved biologist will be relocated to appropriate habitat within the Saratoga Creek riparian corridor but outside the work area. The priority will be to move the frog out of harm's way but as close to the capture location as possible.

9. All construction personnel will attend an environmental education program delivered by a Service-approved biologist prior to working on the Saratoga Creek Bridge. The program will

include an explanation of how to best avoid the incidental take of the California red-legged frog. The field meeting will include topics on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of project maps showing areas where avoidance and minimization measures are to be implemented. The program will include an explanation of applicable Federal and state laws protecting endangered species as well as the importance of compliance with Caltrans and various resource agency conditions.

10. The boundaries of the Saratoga Creek Bridge construction area will be delineated with high-visibility construction fencing to prevent the encroachment of construction personnel and equipment beyond the described construction footprint. The fencing will be removed only when all construction equipment is removed from the job site.

11. Caltrans does not anticipate the need for nighttime work. If nighttime work is needed to avoid safety issues or to complete work within the allotted construction season, all lighting will be directed towards the construction work taking place.

12. No pets or firearms, except those used by law enforcement personnel, will be permitted into the action area.

13. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be subject to excavation. Vegetation clearing and grubbing will be done by hand or light construction equipment.

14. Cutting of trees and other woody vegetation within the Saratoga Creek riparian corridor will be limited to between June 15 and October 15.

15. Brush, loose soils, and other debris material will not be stockpiled on the creek bank.

16. Only native plant species will be used in the erosion control or revegetation seed mix. Any hydroseed mulch will be certified weed-free. Dry-farmed straw will not be used, and certified weed-free straw will be required where erosion control straw is to be used.

17. All off-road construction equipment will be cleaned of potential noxious weed sources (mud, vegetation) before entry into the work area.

18. Vehicles and equipment will be parked on pavement, existing roads, or specified staging areas when not in use.

19. All areas of temporary disturbance associated with the Saratoga Creek Bridge widening will be returned to pre-project or ecologically improved conditions within one year of the initial ground breaking at this location.

20. Dedicated fueling and refueling practices will be designated as part of the approved SWPPP. No construction or maintenance vehicles will be refueled within 200 feet of Saratoga Creek unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill. Drip pans or absorbent pads will be used during on-site vehicle and equipment fueling.

21. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any downstream riparian habitat, aquatic habitat, culvert, or drainage feature.

22. To prevent the inadvertent entrapment of the California red-legged frog, all excavated, steep-walled holes or trenches more than 1-foot deep will be covered at the close of each working day by plywood or similar materials. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks will be installed. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. If at any time a trapped animal is discovered, the biologist will immediately remove and relocate it. The Service will be notified of the incident by telephone and e-mail within one working day.

23. Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

24. If requested, before, during, or upon completion of groundbreaking and construction activities, Caltrans will allow access by Service personnel into the project footprint to inspect the project and its activities. Caltrans requests that all agency representatives contact the Resident Engineer prior to accessing the work site and review and sign the Safe Work Code of Practices, prior to accessing the work site for the first time.

25. Injured California red-legged frogs will be cared for by a Service-approved biologist or a licensed veterinarian, if necessary. Dead California red-legged frogs will be preserved according to standard museum techniques and held in a secure location. The Service will be notified within one working day of the discovery of a death or an injury to a frog resulting from project-related activities. Notification will include the date, time, and location of the incident or of the finding of a dead or injured animal clearly indicated on a United States Geological Survey (USGS) 7.5-minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information.

26. Caltrans will submit post-construction compliance reports prepared by the Service-approved biologist to the Service within 60 calendar days following completion of Saratoga Creek Bridge construction or within 60 calendar days of any break in construction activity at the Saratoga Creek Bridge lasting more than 60 calendar days. This report will detail (1) dates that relevant project activities occurred; (2) pertinent information concerning the success of the project in implementing avoidance and minimization measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the California red-legged frog; (5) occurrences of incidental take of any listed species; (6) documentation of employee environmental education; and (7) other pertinent information.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of the effects assessment, the action area encompasses the 0.14-acre SR 85 Saratoga Creek Bridge widening construction footprint and a 300-foot buffer area up and downstream of the construction footprint which will be affected by noise, visual disturbance, and potential discharge.

Analytical Framework for the Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this BO relies on four components: (1) the *Status of the Species*, which evaluates the California red-legged frog range-wide conditions, the factors responsible for that conditions, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the listed species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the listed species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the California red-legged frog; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the listed species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the California red-legged frog's current status, taking into account any cumulative effects, to determine if implementation of the action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The jeopardy analysis in this BO places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and the role of the action area in the survival and recovery of this listed species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Status of the Species

California Red-Legged Frog

Listing Status

The California red-legged frog was listed as a threatened species on May 23, 1996 (Service 1996). Critical habitat was re-designated for this species on March 17, 2010 (Service 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

Description

The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. California red-legged frogs have paired vocal sacs and vocalize in air (Hayes and Krempels 1986). Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Distribution

The historic range of the red-legged frog extended coastally from the vicinity of Elk Creek in Mendocino County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985; Hayes and Krempels 1986; Fellers 2005). The red-legged frog was historically documented in 46 California counties but the taxon now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the Central Coast. Within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast Range, northern Transverse Ranges, southern Transverse Ranges, and Peninsular Ranges.

Status and Natural History

California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and man-made ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, California red-legged frogs also have been found in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. California red-legged frogs also can be found in disturbed areas such as channelized creeks and drainage ditches in urban and agricultural areas. For example, an adult California red-legged frog was observed in a shallow isolated pool on North Slough Creek in the American Canyon area of Napa County (C. Gaber, PG&E, pers. comm., 2008). This frog location was surrounded by vineyard development. Another adult California red-legged frog was observed under debris in an unpaved parking lot in a heavily industrial area of Burlingame (P. Kobernus, Coast Ridge Ecology, pers. comm., 2008). This frog was likely utilizing a nearby drainage ditch. Caltrans also has discovered California red-legged frog adults, tadpoles, and egg masses within a storm drainage system within a major cloverleaf intersection of Millbrae Avenue and SR 101 in a heavily developed area of San Mateo County (Caltrans 2007). California red-legged frog has the potential to persist in disturbed areas as long as those locations provide at least one or more of their life history requirements.

California red-legged frogs typically breed between November and April in still or slow-moving water at least 2.5 feet in depth with emergent vegetation, such as cattails, tules or overhanging willows (Hayes and Jennings 1988). There are earlier breeding records from the southern portion of their range (Storer 1925). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984). Individuals occurring in coastal areas are active year-round (Jennings *et al.* 1992), whereas those found in interior sites are normally less active during the cold and dry seasons.

During other parts of the year, habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer (Fellers 2005). According to Fellers (2005), this can include vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees. Sometimes the non-breeding habitat used by California red-legged frogs is extremely limited in size. For example, non-breeding California red-legged frogs have been found in a 6-foot wide coyote brush thicket growing along a small intermittent creek surrounded by heavily grazed grassland (Fellers 2005). Sheltering habitat for California red-legged frogs is potentially all aquatic, riparian, and upland areas within the range of the species and includes any landscape features that provide cover, such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned structures, or hay stacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adult frogs are often associated with permanent bodies of water. Some frogs remain at breeding sites all year while others disperse. Dispersal distances are typically less than 0.5 mile, with other individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred over one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, *i.e.* California blackberry, poison oak and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25-mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area in eastern Contra Costa County stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. This study reported a peak of seasonal terrestrial movement occurring in the fall months, with movement commencing with the first 0.2 inch of precipitation. Movements away from the source pools tapered off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the bases of trees or rocks, logs, and a downed barn door; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1-4 days; however, an adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Uplands closer to aquatic sites were used more often and frog refugia were more commonly associated with areas exhibiting higher object cover (*e.g.*, woody debris, rocks, and vegetative cover). Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000-5,000 eggs are attached to vegetation below the surface and hatch after 6-14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand results in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5-7 months following hatching and reach sexual maturity at 2-3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). Sexual maturity normally is reached at 3-4 years of age (Storer 1925; Jennings and Hayes 1985). California red-legged frogs may live 8-10 years (Jennings *et al.* 1992). Populations of California red-legged frogs fluctuate from year to year. When conditions are favorable California red-legged frogs can experience extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, California red-legged frogs may temporarily disappear from an area when conditions are stressful (*e.g.*, drought).

California red-legged frogs have a diverse diet which changes as they mature. The diet of larval California red-legged frogs is not well studied, but is likely similar to that of other ranid frogs, which feed on algae, diatoms, and detritus by grazing on the surfaces of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific tree frogs, three-spined stickleback and to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination; feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

Metapopulation and Patch Dynamics

The direction and type of habitat used by dispersing animals is especially important in fragmented environments (Forys and Humphrey 1996). Models of habitat patch geometry predict that individual animals will exit patches at more "permeable" areas (Buechner 1987; Stamps *et al.* 1987). A landscape corridor may increase the patch-edge permeability by extending patch habitat (La Polla and Barrett 1993), and allow individuals to move from one patch to another. The geometric and habitat features that constitute a "corridor" must be determined from the perspective of the animal (Forys and Humphrey 1996).

Because their habitats have been fragmented, many endangered and threatened species exist as metapopulations (Verboom and Apeldorn 1990; Verboom *et al.* 1991). A metapopulation is a collection of spatially discrete subpopulations that are connected by the dispersal movements of the individuals (Levins 1970; Hanski 1991). For metapopulations of listed species, a prerequisite to recovery is determining if unoccupied habitat patches are vacant due to the attributes of the habitat patch (food, cover, and patch area) or due to patch context (distance of the patch to other patches and distance of the patch to other features). Subpopulations of patches with higher quality food and cover are more likely to persist because they can support more individuals. Large populations have less of a chance of extinction due to stochastic events (Gilpin and Soule 1986). Similarly, small patches will support fewer individuals, increasing the rate of extinction. Patches that are near occupied patches are more likely to be recolonized when local extinction occurs and may benefit from emigration of individuals via the "rescue" effect (Hanski 1982; Fahrig and Merriam 1985; Gotelli 1991; Holt 1993). For the metapopulation to persist, the rate of patches being colonized must exceed the rate of patches going extinct (Levins 1970). If some subpopulations go extinct regardless of patch context, recovery actions should be placed on patch attributes. Patches could be managed to increase the availability of food and/or cover.

Movements and dispersal corridors likely are critical to California red-legged frog population dynamics, particularly because the animals likely currently persist as metapopulations with disjunct population centers. Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition, and also they are important for facilitating the recolonization of areas where the animal has been extirpated. Movement between population centers maintains gene flow and reduced genetic isolation. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects. The survival of wildlife species in fragmented habitats may ultimately depend on their ability to move among patches to access necessary resources, retain genetic diversity, and maintain reproductive capacity within populations (Petit *et al.* 1995; Buza *et al.* 2000; Hilty and Merenlender 2004).

Most metapopulation or metapopulation-like models of patchy populations do not directly include the effects of dispersal mortality on population dynamics (Hanski 1994; With and Crist 1995; Lindenmayer and Possingham 1996). Based on these models, it has become a widely held notion that more vagile species have a higher tolerance to habitat loss and fragmentation than less vagile species. But models that include dispersal mortality predict the opposite: more vagile species should be more vulnerable to habitat loss and fragmentation because they are more susceptible to dispersal mortality (Fahrig 1998; Casagrandi and Gatto 1999). This prediction is supported by Gibbs (1998), who examined the presence-absence of five amphibian species across a gradient of habitat loss. He found that species with low dispersal rates are better able than more vagile species to persist in landscapes with low habitat cover. Gibbs (1998) postulated that the land between habitats serves as a demographic "drain" for many amphibians. Furthermore, Bonnet *et al.* (1999) found that snake species that use frequent long-distance movements have higher mortality rates than do sedentary species.

Threats

Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern California red-legged frogs (*Rana aurora*) in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976, Barry 1992, Hunt 1993, Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern California red-legged frogs, and suggested that bullfrogs could prey on subadult northern California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with red-legged frog reproduction. Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat. Both California and northern California red-legged frogs have also been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990; Jennings 1993; Twedt 1993).

The urbanization of land within and adjacent to red-legged frog habitat has also adversely affected California red-legged frogs. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks red-legged frog dispersal, and the introduction of predatory fishes and bullfrogs.

Diseases may also pose a significant threat though the specific effects of diseases on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat to the red-legged frog because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2003). Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2005). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (*i.e.*, contaminated boots or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease. Disease will likely become a growing threat because of the relatively small and fragmented remaining California red-legged frog breeding sites, the many stresses on these sites due to habitat losses and alterations, and the many other potential disease-enhancing anthropogenic changes that have occurred both inside and outside the species' range.

Negative effects to wildlife populations from roads and pavement may extend some distance from the actual road. The phenomenon can result from any of the effects already described in this BO, such as vehicle-related mortality, habitat degradation, and invasive exotic species. Forman and Deblinger (1998, 2000) described the area affected as the "road effect" zone. Along a 4-lane road in Massachusetts, they determined that this zone extend for an average of approximately 980 feet to either side of the road for an average total zone width of approximately 1,970 feet. They describe the boundaries of this zone as asymmetric and in some areas diminished wildlife use attributed to road effects was detected greater than 0.6 mile from Massachusetts Route 2. The "road-zone" effect can also be subtle. Van der Zande *et al.* (1980) reported that lapwings and black-tailed godwits feeding at 1,575-6,560 feet from roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of female bighorn sheep increase near roads (MacArthur *et al.* 1979). Trombulak and Frossell (2000) described another type of "road-zone' effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads, but elevated levels of metals in both soil and plants were detected at 660 feet of roads. The "road-zone" apparently varies with habitat type and traffic volume. Based on responses by birds, Forman (2000) estimated the effect zone along primary roads of 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The "road-zone" effect with regard to California red-legged frogs has not been adequately investigated.

The necessity of moving between multiple habitats and breeding ponds means that many amphibian species, such as the California red-legged frog, are especially vulnerable to roads and well-used large paved areas in the landscape. Van Gelder (1973) and Cooke (1995) have examined the effect of roads on amphibians and found that because of their activity patterns, population structure, and preferred habitats, aquatic breeding amphibians are more vulnerable to traffic mortality than some other species. Large, high-volume highways pose a nearly impenetrable barrier to amphibians and result in mortality to individual animals as well as significantly fragmenting habitat. Hels and Buchwald (2001) found that mortality rates for anurans on high traffic roads are higher than on low traffic roads. Vos and Chardon (1998) found a significant negative effect of road density on the occupation probability of ponds by the moor frog (*Rana arvalis*) in the Netherlands. In addition, incidents of very large numbers of road-killed frogs are well documented (*e.g.*, Ashley and Robinson 1996), and studies have shown strong population level effects of traffic density (Carr and Fahrig 2001) and high traffic roads on these amphibians (Van Gelder 1973; Vos and Chardon 1998). Most studies regularly count road kills from slow moving vehicles (Hansen 1982; Rosen and Lowe 1994; Drews 1995; Mallick *et al.* 1998) or by foot (Munguira and Thomas 1992). These studies assume that every victim is observed, which may be true for large conspicuous mammals, but it certainly is not true for small animals, such as the California red-legged frog. Amphibians appear especially vulnerable to traffic mortality because they readily attempt to cross roads, are slow-moving and small, and thus cannot easily be avoided by drivers (Carr and Fahrig 2001).

Environmental Baseline

The action area is located with the range of the California red-legged frog. A map depicting the species' range is included in the Service's online profile for the species at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D02D. The action area is also within the California red-legged frog's South and East San Francisco Bay Recovery Area (Area 5) (Service 2002).

The SR 85 Saratoga Creek Bridge crossing is located in the City of Saratoga. The creek originates on the eastern slope of the Santa Cruz Mountains and passes through the project area before flowing into San Tomas Aquino Creek, which continues through the Santa Clara Valley to the Lower South San Francisco Bay. The Saratoga Creek corridor becomes increasingly confined by urban development as it approaches the Santa Clara Valley. The action area defines a relative transition where portions of the channel are increasingly subject to engineering, as evidenced by more frequent stabilization structures as well as bridge and culvert crossings. The creek maintains a narrow riparian corridor despite the urban setting. The riparian and aquatic habitats remain occupied by native fish and other native wildlife species.

Although confined and lacking extensive upland habitat, urban creeks in the Bay Area such as Saratoga Creek continue to provide suitable habitat for the California red-legged frog. The listed frog has remained resilient in the Bay Area. Despite significant habitat loss and degradation, the frog and other riparian dwellers can be sustained in less than ideal situations given the availability of basic life history resources such as cover, prey availability, and sufficient aquatic resources.

The construction footprint includes riparian trees and an associated understory as well as riprap that provide cover for the California red-legged frog and their prey. Flow is likely augmented by urban runoff and provides aquatic habitat for frogs, fish, and other wildlife, including their prey. It is uncertain where the closest California red-legged frog breeding habitat occurs in relation to the action area but the Saratoga Creek corridor provides an extensive movement corridor for access to resources up and downstream of the construction footprint. California red-legged frog breeding habitat has been documented in the neighboring Calabasas Creek and similar habitat conditions may exist in Saratoga Creek (CDFW 2014a and b, Occurrence #961). At its closest, Calabasas Creek is approximately 0.85 mile from Saratoga Creek over open upland habitat.

The California Natural Diversity Database (CNDDB) includes a California red-legged frog record approximately 2.4 miles upstream of the construction footprint (CDFW 2014a and b, Occurrence #211). The record included a California red-legged frog discovered under debris, adjacent to a seep and Saratoga Creek. The previously referenced observation in Calabasas Creek is approximately 2.8 miles west of the construction footprint (CDFW 2014a and b, Occurrence #961). The record included the observation of adult and tadpole frogs, confirming breeding with the creek.

The Service believes that the California red-legged frog is reasonably certain to occur within the action area because: (1) the project is located within the species' range and current distribution; (2) the species has been documented in Saratoga Creek; (3) there are no significant barriers to frog movement between the recorded occurrence and the action area; (4) the action areas includes suitable riparian and aquatic habitat for cover, forage, and movement; and (5) the biology and ecology of the animal.

Effects of the Action

Direct effects of the proposed project are effects occurring within the action area during the construction activity phase. Direct effects may be temporary (lasting less than 1 year) or permanent (lasting more than one year). Indirect effects are the effects of the proposed project generally occurring later in time after construction has been completed (*e.g.*, degradation of habitat due to the spread of invasive plant species; barriers to dispersal due to the installation of retaining walls). An interrelated activity is an activity that is part of the proposed project and depends on the proposed project for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation.

The action area provides suitable habitat for the California red-legged frog. As quantified in the December 19, 2013 BA, the Saratoga Creek Bridge widening, including staging and access, will be contained within a 0.14-acre activity footprint. Staging and access will be located on areas of compacted soil and gravel. Equipment working below the bridge will be positioned on top of compacted soil and existing riprap. Ground disturbing activities will include vegetation clearing and the construction of temporary falsework support structures within the Saratoga Creek riparian area. Riprap will be removed for the falsework and the temporary work areas where vegetation was removed will be stabilized and treated with a native hydroseed mix. Ultimately, the project will result in additional shading of the creek and riparian area due to the widening.

Caltrans proposes to minimize adverse effects related to the proposed project by implementing the *Conservation Measures* included in the *Description of the Action* section of this BO. Effective implementation of the *Conservation Measures* will likely minimize but not prevent adverse effects to the California red-legged frog.

Staging, access, and the activities associated with the ground work will result in adverse effects to the California red-legged frog. Project activities will occur within confined riparian habitat immediately adjacent to Saratoga Creek. The project activities are most likely to directly affect adult and juvenile California red-legged frog. Frog eggs and larval frogs could be adversely affected by project-related discharge if breeding habitat occurs downstream. However, implementation of proposed conservation measures, standard Caltrans BMPs, and the SWPPP are expected to result in reasonable avoidance of in-stream discharge. The Service concludes that the California red-legged frog could be encountered throughout the 0.14-acre Saratoga Creek Bridge construction footprint.

Access by construction equipment and personnel and ground disturbing activities could result in the disturbance and potential death of individual frogs. It will be important that the Service-approved biologist "clear" sites to avoid crushing or otherwise harming frogs above ground, below ground, or under cover sites such as riprap or debris. This can be especially difficult in areas of vegetative cover and amongst widely distributed riprap rocks.

Biological monitoring will include pre-construction surveys as well as an active presence during construction. The project is situated within a riparian corridor in which frogs would routinely move through as well as back and forth between the creek and riparian area. Frogs may be actively moving around, through, or within the work area during the evening as well as when work is taking place. This places greater emphasis on thorough biological clearance of work areas and under staged equipment and materials prior to the start of each day's activities.

If unrestricted, biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus, may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (*e.g.*, water pH) that reduce normal immune response capabilities (Bosch *et al.* 2001, Weldon *et al.* 2004).

California red-legged frogs and their prey could also be affected by contamination due to chemical or sediment discharge. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants, or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. However, Caltrans proposes to reduce these risks by implementing a SWPPP, standardized BMPs, and erosion and dust control measures. These measures will include refueling, oiling, or cleaning of vehicles and equipment a minimum of 200 feet from Saratoga Creek; installing coir rolls, straw wattles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the aquatic habitat; and locating staging, storage and parking areas away from aquatic habitat.

Discovery, capture, and relocation of individual California red-legged frogs may avoid injury or mortality due to construction activities; however, capturing and handling animals may result in stress and/or inadvertent injury during handling, containment, and transport.

Construction noise, vibration, increased human activity, and artificial lighting during the project may interfere with normal behaviors such as feeding, sheltering, movement between resources, and other essential behaviors. This can result in avoidance of areas that have suitable habitat but intolerable levels of disturbance. Proper trash disposal is often difficult to enforce and is a common non-compliance issue. Improperly disposed edible trash could attract predators, such as raccoons, crows, and ravens, to the site, which could subsequently prey on the listed herpetofauna.

Caltrans' commitment to use erosion control devices other than mono-filament should be effective in avoiding the associated risk of entrapment that can result in death by predation, starvation, or desiccation (Stuart *et al.* 2001).

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the SR 85 Express Lanes Project are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of specific projects that might affect the California red-legged frog in the action area that are currently under review by State, county, or local authorities. The remainder of the larger SR 85 Express Lanes Project is addressed in an earlier section of this document as a covered activity under the Santa Clara Valley HCP.

Conclusion

After reviewing the current status of the California red-legged frog, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects on the species, it is the Service's biological opinion that the SR 85 Express Lanes Project, outside the SCVHP Permit Area, as described herein, is not likely to jeopardize the continued existence of the species. We base this conclusion on the following: (1) the effects to listed species are likely limited to the Saratoga Creek Bridge widening component; (2) the activity period will be relatively short; (3) the activity and resulting bridge widening is unlikely to further degrade baseline habitat conditions; (4) work will not occur within the bed and bank of Saratoga Creek and will not require in-water work; and (5) successful implementation of the described *Conservation Measures* is likely to reduce the potential for proposed construction activities to result in disruption of normal behavior or risk of injury.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this *Incidental Take Statement.*

The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to Caltrans as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this *Incidental Take Statement.* If Caltrans (1) fails to assume and implement the *Terms and Conditions* or (2) fails to adhere to the *Terms and Conditions* of the *Incidental Take Statement* through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the *Incidental Take Statement* [50 CFR §402.14(i)(3)].

Amount or Extent of Take

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect due to their small size, wariness, and cryptic nature. When California red-legged frogs are not in their aquatic breeding sites, they may be taking cover in burrows, dense vegetation, or other cover sites a distance from the breeding habitat. Finding an injured or dead California red-legged frog is unlikely due to their relatively small body size, rapid carcass deterioration, and likelihood that the remains will be removed by a scavenger. Losses of this species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury, and mortality as a result of the proposed construction activities, the permanent and temporary loss/degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as: (1) the injury and mortality of one adult or juvenile California red-legged frog; and (2) the capture, harm and harassment of all California red-legged frogs within the described action area associated with the defined Saratoga Creek Bridge widening action area.

Upon implementation of the following *Reasonable and Prudent Measures*, take of the California red-legged frog, within the action area in proportion to the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

The Service has determined that this level of anticipated take for the California red-legged frog is not likely to jeopardize the continued existence of the species.

Reasonable and Prudent Measure

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effect of the action on the California red-legged frog. Caltrans will be responsible for the implementation and compliance with this measure:

1. Minimize the adverse effects to the California red-legged frog and its habitat in the action area by implementing the proposed project, including the conservation measures as described, with the following terms and conditions.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. The following *Terms and Conditions* implement *Reasonable and Prudent Measure* one (1):

    a. Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of the project footprint identified in this BO, including vehicle parking, staging, laydown areas, and access.

    b. Each California red-legged frog encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured animal if it is not in danger or (2) move the frog to a nearby location if it is in danger.

    These two options are further described as follows:

    1) When a California red-legged frog is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the biologist needs to assess the situation in order to select a course of action that will minimize adverse effects to the individual. Contact the Service once the site is secure. The contacts for this situation are Ryan Olah (*ryan_olah@fws.gov*) or John Cleckler (*john_cleckler@fws.gov*). They can also be reached at (916) 414-6600. If you get voicemail messages for these contacts then contact John Cleckler on his cell phone at (916) 712-6784. Contact the Service prior to the start of construction to confirm the status of this contact information.

       The first priority is to avoid contact with the animal and allow it to move out of the action area and hazardous situation on its own to a safe location. The animal should not be picked up and moved because it is not moving fast enough or it is inconvenient for the construction schedule. This guidance only applies to situations where a California red-legged frog is encountered on the move during conditions that make their upland travel feasible. This does not apply to animals that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the California red-legged frog should they move outside the construction footprint.

Avoidance is the preferred option if the animal is not moving and is using aquatic habitat or is within some sort of burrow or other refugia. The area should be well marked for avoidance by construction and a Service-approved biologist should be assigned to the area when work is taking place nearby.

2) The animal should be captured and moved when it is the only option to prevent its death or injury.

If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the frog should not be moved outside of the area it would have traveled on its own. Under no circumstances should a frog be relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission.

The release must be coordinated with the Service and will depend on where the individual was found and the opportunities for nearby release. In most situations the release location is likely to be into the mouth of a small burrow or other suitable refugia and in certain circumstances pools without non-native predators may be suitable.

Only Service-approved biologists for the project can capture California red-legged frogs. Nets or bare hands may be used to capture California red-legged frogs. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within 2 hours before and during periods when they are capturing and relocating California red-legged frogs. To avoid transferring disease or pathogens between sites during the course of surveys or handling of amphibians, Service-approved biologists must use the following guidance for disinfecting equipment and clothing. These recommendations are adapted from the *Declining Amphibian Population Task Force's Code* (http://www.open.ac.uk/daptf/).

i. All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, must be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water and/or an amphibian. Cleaned items should be rinsed with fresh water before leaving each site.

ii. Boots, nets, traps, etc., must then be scrubbed with either a 70 percent ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6 percent sodium hypochlorite 3 solution and rinsed clean with water between sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland. All traces of the disinfectant must be removed before entering the next aquatic habitat.

iii. Used cleaning materials (liquids, etc.) must be disposed of safely, and if necessary, taken back to the lab for proper disposal.

iv. Service-approved biologists must limit the duration of handling and captivity. While in captivity, California red-legged frogs shall be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. Containers used for holding or transporting should not contain any standing water.

Reporting Requirements
In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5-minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the following *Disposition of Individuals Taken* section.

2. Sightings of any listed or sensitive animal species should be reported to the CNDDB (http://www.dfg.ca.gov/biogeodata/cnddb/).

Disposition of Individuals Taken
Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.

2. Caltrans should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California Red-legged Frog* (Service 2002).

3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California red-legged frog, other listed species, and sensitive species.

4. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog. Such banking systems also could possibly be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.

5. Roadways can constitute a major barrier to critical wildlife movement. Therefore, Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by the California red-legged frog, other listed animals, and wildlife. Photographs, plans, and other information should be included in the BAs if "wildlife friendly" crossings are incorporated into projects. Efforts should be made to establish upland culverts designed specifically for wildlife movement rather than accommodations for hydrology. Transportation agencies should also acknowledge the value of enhancing human safety by providing safe passage for wildlife in their early project design.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION--CLOSING STATEMENT

This concludes consultation on the SR 85 Express Lanes Project. As provided in 50 CFR § 402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this letter, including work outside of the project footprint analyzed in this letter and including vehicle parking, staging, lay down areas, and access roads; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this letter including use of rodenticides or herbicides; relocation of utilities; and use of vehicle parking, staging, lay down areas, and access roads; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 of the Act, pending reinitiation.

If you have questions concerning this letter, please contact John Cleckler, Caltrans Liaison (*john_cleckler@fws.gov*) or Ryan Olah, Coast-Bay Division Chief (*ryan_olah@fws.gov*), at the letterhead address, (916) 414-6600, or by e-mail.

Sincerely,

Cay C. Goude

Cay C. Goude
Assistant Field Supervisor

cc:
Melissa Escaron, California Department of Fish and Wildlife, Napa, California
Frances Malamud-Roam and Kim Mattson, Caltrans District 4, Oakland, California

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FHWA Conformity Determination

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U.S. Department
of Transportation
Federal Highway
Administration

Federal Highway Administration
California Division

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
(916) 498-5001
(916) 498-5008 (fax)

April 14, 2015

In Reply Refer To:
HDA-CA

Mr. Bijan Sartipi
District Director California Department of Transportation,
District 4
P.O. Box 23660, Oakland, CA 94623-0660

Attention: Ray Boyer

SUBJECT: Project Level Conformity Determination for the SR 85 Express Lane Project (SCL090030)

Dear Mr. Sartipi:

On March 10, 2015, the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a complete request for a project level conformity determination for the SR 85 Express Lane Project. The project is in an area that is designated Non-Attainment or Maintenance for Carbon Monoxide (CO), Ozone and Particulate Matter (PM 2.5).

The project level conformity analysis submitted by Caltrans indicates that the project-level transportation conformity requirements of 40 CFR Part 93 have been met. The project is included in the Metropolitan Transportation Commission's (MTC) current Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), as amended. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

As required by 40 CFR 93.116 and 93.123, the localized PM analyses are included in the documentation. The analyses demonstrate that the project will not create any new violations of the standards or increase the severity or number of existing violations.

Based on the information provided, FHWA finds that the SR 85 Express Lane project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

If you have any questions pertaining to this conformity finding, please contact Joseph Vaughn at (916) 498-5346 or by email at Joseph.Vaughn@dot.gov.

Sincerely,

For: Vincent P. Mammano
Division Administrator

Appendix D Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
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March 2013

NON-DISCRIMINATION
POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"

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Appendix E Environmental Commitment Record

Table E-1 Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
Cultural Resources			
Designate all previously determined eligible and unevaluated sites as ESAs for the duration of the project in accordance with the requirements set forth in the *Environmentally Sensitive Area Action Plan* (URS 2013h). The requirements include conducting a preconstruction meeting with construction personnel to ensure that ESAs are properly understood, and coordinating/monitoring ESA installation by the contractor. In addition, an archaeologist will conduct field reviews of the ESAs to ensure that they remain intact and are not compromised.	2-53	Department, VTA, and Construction Contractor	Final design, construction
Limit all construction to the defined project area. ESAs adjacent to the project area will be identified on contract plans and discussed in the Special Provisions. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent to sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts. Contractor encroachment into ESAs will be prohibited (including the staging/operation of heavy equipment or casting of excavation materials). ESA provisions will be implemented as a first order of work and remain in place until all construction is completed.	2-53	VTA, Resident Engineer, Construction Contractor	Final design, construction
If cultural materials are discovered during construction, divert all earth-moving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find.	2-53	VTA, Resident Engineer, Construction Contractor	Construction
Contact the County Coroner if human remains are discovered and stop disturbances and activities in any area or nearby area suspected to overlie remains. Follow provisions of California Public Resources Code Section 5097.98 as applicable.	2-53	VTA, Resident Engineer, Construction Contractor	Construction
Water Quality and Storm Water Runoff			
Initiate early consultation with the Department's Branch of Water Pollution Control regarding the handling and disposal of this groundwater encountered during construction.	2-68	VTA, Construction Contractor	Final design
Prepare a SWPPP that would include storm water BMPs applicable to construction of the proposed project. The SWPPP must also comply with the goals and restrictions identified in the San Francisco RWQCB's Basin Plan. Standard Special Provision (SSP) 07-345 will be included in the PS&E to address the preparation of the SWPPP document and the implementation of the SWPPP during construction.	2-68	VTA, Construction Contractor	Final design
Implement short-term (construction) and long-term (permanent) BMPs outlined in the statewide Department SWMP and in IS/EA Section 2.2.2.4.	2-68	VTA, Construction Contractor	Final design, construction

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
Incorporate BMPs to maintain or restore pre-project hydrology in accordance with hydromodification requirements per the SCVURPPP. For the outfalls susceptible to hydromodification impacts, evaluate increase in impervious surface by using computer modeling and by evaluating a watershed for cumulative effects from impervious surface and pollutant runoff.	2-70	VTA, Resident Engineer	Project design
Geology and Soils			
Design and construct project elements to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions (liquefaction, settlement, and corrosion).	2-75	VTA, Construction Contractor	Final design
Perform additional geotechnical subsurface and design investigations during final project design and engineering phase, including site-specific evaluation of subsurface conditions (such as potential for liquefaction and lateral spreading) at the location of proposed foundation features.	2-75	VTA	Final design
Paleontology			
Include Caltrans Standard Specification 14-7.02 in the construction specifications.	2-77	VTA	Final design
Include a specification in the construction contract stating that paleontological monitoring will occur in accordance with the Paleontological Mitigation Plan.	2-77	VTA	Preconstruction
Update and finalize the Paleontological Mitigation Plan for implementation during construction.	2-77	VTA	Final design
Hazardous Waste and Materials			
Further investigation of the sites identified in IS/EA Table 2.2.5-1 is recommended due to the potential presence of petroleum hydrocarbons, solvents, and ADL in soil and/or groundwater.	2-82	VTA	Final design
For project excavations that extend to groundwater, conduct groundwater sampling, analysis, and characterization before construction commences. Determine treatment and disposal options for extracted groundwater prior to any dewatering of excavations.	2-82	VTA	Final design
If soil excavation is planned near properties where petroleum hydrocarbon-impacted soils may be present, sample, test, and characterize the soil.	2-83	VTA	Final design
If soil excavation is planned near properties where chlorinated compounds may be present, sample, test, and characterize the soil and groundwater for chlorinated compounds.	2-83	VTA, Construction Contractor	Final design
Where surface soils will be excavated, sample and test for lead, pesticides, VOCs, and PCBs.	2-83	VTA, Construction Contractor	Final design
Perform soil sampling for naturally occurring asbestos at several locations throughout the project site from deeper soil samples associated with the placement of signs.	2-83	VTA, Construction Contractor	Final design
Soil sampling for ADL is recommended at interchanges only along SR 85 between I-280 and US 101 in southern San Jose, and where surface soils will be excavated elsewhere along US 101 and SR 85.	2-83	VTA, Construction Contractor	Final design

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
Properly characterize and dispose of contaminated soil, groundwater, and other hazardous materials at an appropriate facility per applicable regulations.	2-83	VTA, Construction Contractor	Final design (testing), construction (disposal)
Air Quality			
Ensure that the construction contractor complies with the Department's Special Provisions and Standard Specifications in Section 14 (2010).	2-94	VTA, Department	Final design, construction
Noise			
Limit pile driving activities to daytime hours only.	2-125	VTA, Resident Engineer, Construction Contractor	Final design, construction
Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.	2-125	VTA, Resident Engineer, Construction Contractor	Final design, construction
Prohibit unnecessary idling of internal combustion engines within 100 feet of residences.	2-125	VTA, Resident Engineer, Construction Contractor	Final design, construction
Use "quiet" air compressors and other "quiet" equipment where such technology exists.	2-125	VTA, Resident Engineer, Construction Contractor	Final design, construction
Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems as far practical from noise sensitive residences.	2-125	VTA, Resident Engineer, Construction Contractor	Final design, construction
Require all construction equipment to conform to Section 14-8.02, Noise Control, of the latest Department Standard Specifications.	2-125	VTA, Resident Engineer, Construction Contractor	Final design, construction
Prepare a detailed construction plan identifying the schedule for major noise-generating construction activities and distribute this plan to adjacent noise-sensitive receptors. The construction plan should also list the construction noise reduction measures identified in this section.	2-125	Construction contractor	Final design, construction
Natural Communities			
Vegetation and trees removed by construction operations within the project limits will be replaced according to Caltrans policy. Appropriate native species will be used to the maximum extent possible, and trees, shrubs, and groundcover will be selected for drought tolerance and disease resistance.	2-130	Department Landscape Design	Final design. Post-construction
Remove trees before the start of the nesting season for raptors and migratory birds (February 15) to avoid impacts to birds that are protected under the MBTA.	2-130	VTA, Construction Contractor	Preconstruction
Preserve vegetation where no construction is planned.	2-130	VTA, Construction Contractor	Preconstruction, Construction

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
Environmentally Sensitive Areas, such as wetlands, waters, and trees will be delineated for avoidance with orange fencing. The fencing will be routinely monitored and maintained and will not be removed until ground activities in the proximity have been completed. Fence locations will be identified on contract plans and discussed in the Special Provisions. Project plans will include the installation specifications.	Appendix C, Biological Opinion, 10	VTA, Resident Engineer, Construction Contractor	Final design, Preconstruction, Construction
Disturbed areas and staging areas will be cleaned up and recontoured to original grade. Permanent erosion control, including soil stabilization measures such as hydroseeding and coir netting will be applied to all temporarily affected areas within the project footprint to minimize erosion after construction. All construction-related materials, including exclusion and project boundary fencing, will be removed after construction, site clean-up, and restoration activities are complete.	Appendix C, Biological Opinion, 10	VTA, Resident Engineer, Construction Contractor	Construction, Post construction
Place an approximate 5-foot buffer around serpentine grasslands using ESA fencing prior to the start of construction. Conduct preconstruction surveys for serpentine grasslands before construction begins on US 101 south of the SR 85/US 101 interchange in San Jose to identify where ESA fencing should be placed.	2-131	VTA, Construction Contractor	Preconstruction
Mark ordinary high water of San Tomas Aquino and Saratoga creeks with ESA fencing before construction, and prohibit contractor access during construction.	2-131	VTA, Construction Contractor	Preconstruction, Construction
Minimize impacts to riparian areas through payment of an in-lieu fee to the HCP/NCCP or implement other measures (mitigation/conservation banks, in-lieu fee programs, and permittee-responsible mitigation) in coordination with the RWQCB.	2-131	VTA	Final design
Wetlands and Other Waters of the United States			
Limit all construction to the defined project area. ESAs adjacent to the project area will be identified on contract plans and discussed in the Special Provisions. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent to sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts. Contractor encroachment into ESAs will be prohibited (including the staging/operation of heavy equipment or casting of excavation materials). ESA provisions will be implemented as a first order of work and remain in place until all construction is completed.	2-136	VTA, Resident Engineer, Construction Contractor	Final design, construction
Develop and implement a SWPPP.	2-136	VTA, Resident Engineer, Construction Contractor	Final design
Fence off wetlands in the project area using ESA fencing. The fencing will be placed 5 feet away from each wetland feature.	2-136	VTA, Resident Engineer, Construction Contractor	Preconstruction

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
The boundaries of the Saratoga Creek Bridge construction area will be delineated with high-visibility construction fencing to prevent the encroachment of construction personnel and equipment beyond the described construction footprint. The fencing will be removed only when all construction equipment is removed from the job site.	Appendix C, Biological Opinion, 16	VTA, Resident Engineer, Construction Contractor	Preconstruction
Cutting of trees and other woody vegetation within the Saratoga Creek riparian corridor will be limited to between June 15 and October 15.	2-135	VTA, Resident Engineer, Construction Contractor	Preconstruction, Construction
Use appropriate erosion control measures to reduce siltation and runoff of contaminants into wetlands and adjacent, ponds, streams, or riparian woodland/scrub. The contractor will not be allowed to stockpile brush, loose soils, or other debris material on stream banks. Only native plant species will be used in erosion control or revegetation seed mix. Any hydroseed mulch used for revegetation must also be certified weed-free. Dry-farmed straw will not be used, and certified weed-free straw will be required where erosion control straw is to be used. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion-control measures will be placed between a water or wetland and the outer edge of the project site.	2-136	VTA, Construction Contractor	Final design, preconstruction, construction
Clean all off-road construction equipment of potential noxious weed sources (mud, vegetation) before entry into the work area. Equipment will be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.	2-136	Construction Contractor	Construction
Vehicles and equipment will be parked on pavement, existing roads, or specified staging areas when not in use.	2-136	Construction Contractor	Construction
Promptly and properly remove trash from the site.	2-136	Construction Contractor	Construction
Do not refuel construction or maintenance vehicles within 200 feet of wetlands and ponds unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.	2-136	Construction Contractor	Construction
Place equipment storage, fueling, and staging areas in disturbed areas or on non-sensitive nonnative grassland land cover types, when these sites are available, to minimize risk of direct discharge into riparian areas or other sensitive land cover types.	2-137	Construction Contractor	Construction
On US 101 south of the SR 85/US 101 interchange in San Jose, return all temporarily disturbed areas, such as staging areas, to pre-project or ecologically improved conditions within 1 year of the completing construction or the impact will be considered permanent. Alternatively, if active restoration is used to restore the site within 5 years and the restoration is successful, the impact will be considered temporary.	2-137	VTA, Resident Engineer, Construction Contractor	Construction, post construction

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
All areas of temporary disturbance associated with the Saratoga Creek Bridge widening will be returned to pre-project or ecologically improved conditions within one year of the initial ground breaking at this location.	Appendix C, Biological Opinion, 16	VTA, Resident Engineer, Construction Contractor	Post construction
Caltrans will submit post-construction compliance reports prepared by the USFWS-approved biologist to the USFWS within 60 calendar days following completion of the Saratoga Creek Bridge construction or within 60 calendar days of any break in construction activity at Saratoga Creek Bridge lasting more than 60 calendar days.	Appendix C, Biological Opinion, 17	VTA, Resident Engineer	Post construction
Animal Species			
If vegetation clearing and grubbing occurs between February 15 and August 31, have a qualified biologist(s) survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 50 feet for passerines and 300 feet for raptors before vegetation clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code will be observed. If an active nest is found, CDFW will be consulted to determine the appropriate buffer area to be established around the nesting site and the type of buffer to be used, which typically is ESA fencing. If establishment of a buffer is not feasible, CDFW will be contacted for further avoidance and minimization guidelines.	2-142	VTA	Preconstruction
Have a qualified biologist conduct weekly monitoring to evaluate nests for potential disturbances associated with construction activities. Construction within the buffer is prohibited until the qualified biologist determines the nest is no longer active.	2-143	VTA, Resident Engineer, Construction Contractor	Construction
If an active nest is found after construction begins, stop construction activities in the vicinity of the nest until a qualified biologist has evaluated the nest and established the appropriate buffer around the nest. If establishment of the buffer is not feasible, contact CDFW for further avoidance and minimization guidelines.	2-143	VTA, Resident Engineer, Construction Contractor	Construction
During the nesting season (February 15 through August 31), have a qualified biologist conduct preconstruction surveys for nesting migratory birds in the project area no more than three days prior to the start of ground disturbing activities in the BSA. If preconstruction surveys indicate the presence of any migratory bird nests where activities would directly result in bird injury or death, a buffer zone of 50 feet will be placed around the nest.	2-143	VTA	Preconstruction

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
During the nesting season (February 15 through August 31), establish buffers around active migratory bird nests where project activities would directly result in bird injury or death. The size of the buffer may vary for different species and will be determined in coordination with CDFW. A qualified biologist will delineate the buffer using ESA fencing, pin flags, and/or yellow caution tape. The buffer zone will be maintained around all active nest sites until the young have fledged and are foraging independently. In the event that an active nest is found after the completion of preconstruction surveys and after construction begins, all construction activities within a 50-foot radius will be stopped until a qualified biologist has evaluated the nest and erected the appropriate buffer around it.	2-143	VTA	Construction
If an active nest is found in an area after construction begins, construction activities in the vicinity of the nest will stop until a qualified biologist has evaluated the nest and established the appropriate buffer around the nest. If establishment of the buffer is not feasible, CDFW will be contacted for further avoidance and minimization guidelines.	2-143	VTA	Preconstruction
No more than three days prior to the start of ground disturbing activities, have a qualified biologist survey the trees and man-made structures in the BSA for evidence of bat roosts (e.g., bat guano). If bat roosts are located during preconstruction surveys, the roosts will be flagged and avoided during construction.	2-143	VTA	Preconstruction
Threatened and Endangered Species			
In addition to the measures below, implement any subsequent measures and modifications from USFWS Biological Opinion 08ESMF00-2014-F-0197-1.	Appendix C	VTA, Resident Engineer, Construction Contractor	Final design, construction
Limit construction to the dry season (June 15 to October 15) in all active ground disturbance and construction areas along US 101 south of the SR 85/US 101 interchange in San Jose.	2-150	VTA, Resident Engineer, Construction Contractor	Final design, construction
At Saratoga Creek, Caltrans does not anticipate the need for nighttime work. If nighttime work is needed to avoid safety issues or to complete work within the allotted construction season, all lighting will be directed towards the construction work taking place.	2-151	VTA, Construction Contractor	Post construction

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
Prior to any construction on US 101 south of the SR 85/US 101 interchange in San Jose and at the Saratoga Creek Bridge, a USFWS-approved biologist will conduct an environmental education program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of CRLF and their habitats; associated habitats within the action area south of the SR 85/US 101 interchange in San Jose and at the Saratoga Creek Bridge; an explanation of the status of these species and protection under the FESA; the measures to be implemented; communication and work stoppage procedures in case a listed species is observed within the action area south of the SR 85/US 101 interchange in San Jose and at the Saratoga Creek Bridge; and an explanation of the ESAs and wildlife exclusion fencing (WEF) and the importance of maintaining these structures.	2-151	VTA, Resident Engineer, Construction Contractor	Final design, construction
Only USFWS-approved biological monitors will implement the monitoring duties outlined in the BO including delivery of the Worker Environmental Awareness Training Program.	2-151	VTA, Resident Engineer, Construction Contractor	Final design, construction
Through communication with the Resident Engineer or their designee, the biologist may stop work if deemed necessary for any reason to protect CRLF and will advise the Resident Engineer or designee on how to proceed accordingly. If a CRLF or CTS is found, work will be halted and will not resume until the species has exited the work area on its own. CRLF and CTS will not be handled without authorization by the USFWS and CDFW.	2-151	VTA, Construction Contractor	Preconstruction
No more than two days prior to the start of ground disturbing activities on US 101 south of the SR 85/US 101 interchange in San Jose, focused preconstruction surveys for CRLF will be completed by a USFWS-approved biologist in all suitable upland dispersal habitat areas. If CRLF are found during focused preconstruction surveys, the USFWS will be contacted within one working day, and work activities along US 101 in suitable upland dispersal habitat will be suspended until the CRLF has exited the area on its own. CRLF and CTS will not be handled without authorization by the USFWS and CDFW.	2-151	VTA, Construction Contractor	Preconstruction
At Saratoga Creek, no more than 20 calendar days prior to any ground disturbance for the bridge widening, preconstruction surveys will be conducted by a USFWS-approved biologist for the CRLF throughout the bridge widening work area.	2-151	VTA, Construction Contractor	Preconstruction
The USFWS-approved biologist will perform a CRLF clearance survey immediately prior to the initial ground disturbance at Saratoga Creek. In the same area, the USWS-approved biologist will conduct clearance surveys at the beginning of each day within or adjacent to suitable listed species habitat and regularly throughout the workday.	2-151	VTA, Construction Contractor	Preconstruction

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
WEF will be installed around CRLF habitat prior to any construction during the dry season (June 15 through October 15), when CRLF are not actively dispersing or foraging. The WEF would be placed 10 feet from the edge of pavement along US 101, south of the SR 85/US 101 interchange in San Jose. The location, fencing materials, installation specifications, and monitoring and repair criteria will be submitted to the USFWS for approval prior to the start of the project. Caltrans will include the WEF specifications on the final project plans. Caltrans will include the WEF specifications including installation and maintenance criteria in the bid package special provisions. The WEF will remain in place until all project activities in the vicinity of suitable upland and dispersal habitat are completed. The WEF will be regularly inspected and fully maintained. Repairs to the WEF will be made within 24 hours of discovery. Upon completion of the project, the WEF will be completely removed and the area cleaned of debris and trash, and returned to natural conditions.	2-151	VTA, Resident Engineer, Construction Contractor	Construction
A USFWS-approved biologist will be present during all vegetation clearing and ground-disturbing activities for the Saratoga Creek Bridge work.	2-152	VTA, Resident Engineer, Construction Contractor	Construction
To prevent CRLF from becoming entangled or trapped in erosion control materials, plastic monofilament netting (erosion control matting) or similar material will not be used for erosion control. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.	2-152	VTA, Construction Contractor	Final design, construction
To prevent inadvertent entrapment of CRLF and other wildlife during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks will be installed. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. If at any time a trapped animal is discovered, the USFWS-approved biologist will immediately remove and relocate it.	2-152	VTA, Construction Contractor	Construction
Rodenticides and herbicides will be utilized in such a manner to prevent primary or secondary poisoning of listed species, and depletion of prey populations on which they depend. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Pesticide Regulation, and other appropriate state and federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS or the CDFW.	2-152	VTA, Construction Contractor	Construction
No firearms will be allowed in the BSA except for those carried by authorized security personnel, or local, state, or federal law enforcement officials.	2-152	VTA, Construction Contractor	Construction

Table E-1 Summary of Minimization and/or Mitigation Measures, continued

Minimization and/or Mitigation Measure	Page Reference in IS/EA	Responsible Party	Timing
No pets will be permitted in the BSA.	2-152	VTA, Construction Contractor	Construction
Before construction commences, conduct a preconstruction survey for serpentine grassland and the host plants to determine the presence and extent of the bay checkerspot butterfly's host plants (dwarf plantain and purple owl's clover) within the BSA south of the SR 85/US 101 interchange in San Jose. Serpentine grassland and host plants that are present in the limits of construction will be fenced off prior to construction using ESA fencing (including an approximate 5-foot buffer) to avoid any direct impacts to bay checkerspot butterfly. The preconstruction survey will be conducted during the host plants' blooming period (March through early May), when the plants are identifiable.	2-153	VTA, Construction Contractor	Preconstruction
To avoid impacting dispersing adult butterflies, construction activities will not occur during the flight season (March through early May)	2-153	VTA, Construction Contractor	Construction
During ground-disturbing construction activities, the construction contractor will implement dust control measures including regular watering of exposed soils to reduce the amount of dust and particulate matter in the air. The control measures will be consistent with Caltrans Standard Specifications, Section 14-9.01 (Air Pollution Control) and Section 14-9.02 (Dust Control).	2-153	VTA	Preconstruction
Conduct preconstruction surveys for Metcalf Canyon jewel-flower between April and July, before construction begins on US 101 south of the SR 85/US 101 interchange to identify where ESA fencing should be placed.	2-153	VTA, Construction Contractor	Construction
Fence off Metcalf Canyon jewel-flower plants that are present in the limits of construction prior to construction using ESA fencing (including an approximate 5-foot buffer).	2-153	VTA, Construction Contractor	Construction
Invasive Species			
Do not use species listed as noxious weeds in project landscaping and erosion control.	2-154	VTA, Construction Contractor	Construction
No disposal of soil and plant materials should be allowed from areas that support invasive species to areas dominated by native vegetation.	2-154	VTA, Resident Engineer, Construction Contractor	Construction
Resident Engineers should be educated on weed identification and the importance of controlling and preventing the spread of identified invasive nonnative species.	2-154	VTA	Construction
Gravel and/or fill material to be placed in relatively weed-free areas should come from weed-free sources. Certified weed-free imported materials (or rice straw in upland areas) will be used.	2-154	VTA, Construction Contractor	Construction

Appendix F List of Acronyms

AADT	Annual Average Daily Traffic
ABAG	Association of Bay Area Governments
ACS	American Community Survey
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
APE	Area of Potential Effects
ARB	California Air Resources Board
ARPA	Archaeological Resources Protection Act of 1979
ASR	Archaeological Survey Report
BAAQMD	Bay Area Air Quality Management District
BATA	Bay Area Toll Authority
BCDC	Bay Conservation and Development Commission
BMP	Best Management Practice
BO	Biological Opinion
BSA	Biological Study Area
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERFA	Community Environmental Response Facilitation Act of 1992
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CIDH	cast-in-drilled-hole
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CPS	Central Processing System
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CTS	California tiger salamander
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
Department	California Department of Transportation
DMS	Dynamic Message Signs
DMV	Department of Motor Vehicles (California)
DNL	Day-Night Level

DPM	diesel particulate matter
DPS	distinct population segment
DSA	Disturbed Soil Area
DTSC	Department of Toxic Substances Control
EDR	Environmental Data Resources, Inc
EJ	Environmental Justice
EO	Executive Order
ESA	Environmentally Sensitive Area
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRMs	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
GHG	greenhouse gas
Guidelines	Section 404(b)(1) Guidelines
H_2S	hydrogen sulfide
HCP	Habitat Conservation Plan
HCP/NCCP	Habitat Conservation Plan/Natural Communities Conservation Plan
HOT	high-occupancy toll
HOV	high-occupancy vehicle
HPSR	Historic Property Survey Report
I-280	Interstate 280
IPCC	Intergovernmental Panel on Climate Change
ISA	Initial Site Assessment
IS	Initial Study
IS/EA	Initial Study/Environmental Assessment
ITS	intelligent transportation systems
$L_{eq[h]}$	Equivalent Sound Level over one hour
LED	Light-emitting diode
LEDPA	least environmentally damaging practicable alternative
LOS	level of service
M	moment magnitude
MBTA	Migratory Bird Treaty Act
MEW	Middlefield, Ellis, Whisman
MLD	most likely descendent
mph	miles per hour
MS4	municipal separate storm sewer systems
MSAT	Mobile Source Air Toxics
MTC	Metropolitan Transportation Commission
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
NB	northbound

ND	Negative Declaration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NPL	national priorities list
NWIC	Northwest Information Center
O_3	ozone
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Act
OSTP	Office of Science and Technology Policy
PA	Programmatic Agreement
PCB	Polychlorinated biphenyls
PER	Paleontological Evaluation Report
PDT	Project Development Team
PG&E	Pacific Gas and Electric
PIR	Paleontological Identification Report
PM	post mile
$PM_{2.5}$	particulate matter less than 2.5 micrometers in diameter
PM_{10}	particulate matter less than 10 micrometers in diameter
PMP	Paleontological Mitigation Plan
PMR	Paleontological Mitigation Report
ppm	parts per million
Protocol	Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects
PS&E	Plans, Specifications and Estimates
PSR	Project Study Report
PRC	Public Resources Code
RCRA	Resource Conservation and Recovery Act of 1976
RCSC	Regional Customer Service Center
ROG	Reactive Organic Gases
RTP	regional transportation plan
RWQCB	Regional Water Quality Control Board
SB	southbound
SCL	Santa Clara
SCVURPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SCVWD	Santa Clara Valley Water District
SDC	seismic design criteria
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOV	single-occupant vehicle
SO_2	sulfur dioxide
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan

SWRCB	State Water Resources Control Board
SWMP	Statewide Storm Water Management Plan
TAC	Toxic Air Contaminant
TDM	Traffic Demand Alternative
TIP	Transportation Improvement Programs
TMDL	Total Maximum Daily Load
TMP	Transportation Management Plan
TNM	Traffic Noise Model
TOAR	Traffic Operations Analysis Report (URS and DKS 2013)
TOS	Traffic Operations Systems
TSCA	Toxic Substances Control Act
TSM	Traffic Systems Management
UCMP	University of California Museum of Paleontology
U.S.	United States
US 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USC	United States Code
U.S. EPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
USDOT	U.S. Department of Transportation
UST	underground storage tank
VMT	vehicle miles traveled
VOCs	volatile organic compounds
vph	vehicles per hour
VTA	Santa Clara Valley Transportation Authority
WDR	Waste Discharge
WPCP	Water Pollution Control Plan

Appendix G List of Technical Studies

Air Quality Impact Assessment (URS 2013l)
Archaeological Survey Report (URS 2013e)
Request for a Letter of Concurrence from the USFWS (URS 2013p)
Community Impact Assessment (URS 2012b)
Environmentally Sensitive Area Action Plan (URS 2013h)
Existing Conditions Traffic Operational Analysis (URS 2012a)
Extended Phase 1 Study (URS 2013g)
Historic Property Survey Report (URS 2013f)
Initial Site Assessment (URS 2011b)
Jurisdictional Delineation (URS 2013o)
Location Hydraulic Study (WRECO 2013a)
Mobile Source Air Toxics (URS 2013m)
Natural Environment Study (URS 2013d)
Noise Study Report (Illingworth and Rodkin 2012)
Noise Abatement Decision Report (URS 2012e)
Paleontological Evaluation Report and Mitigation Plan (URS 2012d)
Paleontological Identification Report (URS 2012c)
Preliminary Geotechnical Report (URS 2011a)
Storm Water Data Report (WRECO 2013c)
Supplement to the Final Initial Site Assessment (URS 2013k)
Supplement to the Noise Study Report and Noise Abatement Decision Report (URS 2013n)
Supplement to the Paleontological Evaluation Report and Mitigation Plan (URS 2013j)
Supplement to the Preliminary Geotechnical Report (URS 2013i)
Supplement to the Visual Impact Assessment (URS 2013c)
Traffic Operations Analysis Report (URS and DKS 2013)
Traffic Operations Analysis Report Addendum 1: Local Street Supplemental Analysis – Base Year Intersection Volumes (DKS 2014a)
Traffic Operations Analysis Report Addendum 2: Local Street Supplemental Analysis – Future Year Demand Forecasts (DKS 2014b)
Traffic Operations Analysis Report Addendum 3: Local Street Supplemental Analysis – Future Year Intersection Analysis Results (DKS 2015)
Visual Impact Assessment (URS 2013b)
Water Quality Study Report (WRECO 2013b)

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