

U.S. 101 Auxiliary Lanes from State Route 85 to Embarcadero Road

**Santa Clara County, California
District 4 - SCL - 101 (PM 52.17 - 48.97)
4A3300**

Initial Study With Proposed Mitigated Negative Declaration



**Prepared by the
State of California Department of Transportation**



February 2009

General Information About This Document

What's in this document:

The California Department of Transportation (Caltrans) has prepared this Initial Study (IS), which examines the potential environmental impacts of a proposal to construct auxiliary lanes on U.S. 101 in Santa Clara County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization, and/or compensation measures.

What you should do:

- ▣ Please read this Initial Study. Additional copies of this document as well as the technical studies are available for review at:

- **Caltrans District 4**
Division of Environmental Planning & Engineering
111 Grand Avenue, Oakland, CA 94612
- **Santa Clara Valley Transportation Authority**
Environmental Programs and Resources Management Dept.
3331 North First Street, Building B, San Jose, CA 95134
- **Mountain View Public Library**
585 Franklin Street, Mountain View, CA 94041
- **Palo Alto Public Library**
1213 Newell Road, Palo Alto, CA 94303

- ▣ We welcome your comments. If you have any comments regarding the proposed project, please attend the March 9, 2009 public meeting and/or send your written comments by postal mail, e-mail, or fax to:

Santa Clara Valley Transportation Authority
Environmental Programs and Resources Management Dept.
Attn: Christina Jaworski
3331 North First Street - Building B-2
San Jose, California 95134-1906
christina.jaworski@vta.org
Fax (408) 321-5787

Deadline for Receipt of Comments: March 27, 2009

What happens next:

After comments are received from the public and reviewing agencies, Caltrans may: (1) give environmental approval to the proposed project, (2) undertake additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to the Santa Clara Valley Transportation Authority, Environmental Programs and Resources Management Dept., Attn: Christina Jaworski, 3331 North First Street - Building B-2, San Jose, CA 95134-1906; (408) 321-5789 Voice, or use the California Relay Service 1 (408) 321-2330 (TDD only).

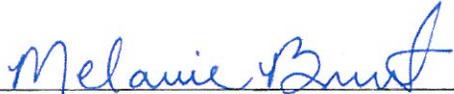
**Construct Auxiliary Lanes on U.S. 101
from
State Route 85 to Embarcadero Road
[postmile 52.17 to postmile 48.97]

Santa Clara County, California**

**INITIAL STUDY with
PROPOSED MITIGATED NEGATIVE DECLARATION**

Submitted Pursuant to: (State) Division 13, California Public Resources Code

**THE STATE OF CALIFORNIA
Department of Transportation**


MELANIE BRENT, Chief
Office of Environmental Analysis
California Department of Transportation

2/24/09
Date

Proposed Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to construct auxiliary lanes, lengthen existing HOV lanes, widen several ramps, and install ramp metering on U.S. 101 between State Route 85 on the south and Embarcadero Road on the north. The project is located within the Cities of Mountain View and Palo Alto, Santa Clara County.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt a MND for this project. This does not mean that Caltrans' decision regarding the project is final. This MND is subject to modification based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project, and pending public review, expects to determine 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 farmlands, timberlands, relocations, community cohesion, paleontology, coastal zones, wild & scenic rivers, utilities, cultural resources, natural communities, special status plant species, or endangered/threatened species.

In addition, the proposed project would have no significant effect on land use, growth, visual resources, flooding, water quality, geology, air quality, noise, wetlands, and cumulative impacts.

The proposed project would have no significant adverse effect on traffic, hazardous materials, and special status animal species because the following mitigation measures would reduce potential effects to insignificance:

Traffic

MM-TRAN-2.1: Southbound U.S. 101 Ramps/Rengstorff Avenue Intersection: The project will restripe the westbound approach from left, through, and right lanes to a left, left-through, and right lane. This will reduce the average vehicle delay in 2035 at this intersection during the AM and PM peak-hours to 88.3 seconds and 113.9 seconds, respectively.

MM-TRAN-2.2: Rengstorff Avenue/Leghorn Street Intersection: Operations at this intersection and the Southbound U.S. 101 Ramps/Rengstorff Avenue intersection are closely related. Therefore, the impact at this intersection is also mitigated by MM-TRAN-2.1 listed above and revised signal coordination. This will reduce the average vehicle delay in 2035 at this intersection during the PM peak-hour to 121.3 seconds.

MM-TRANS-2.3: San Antonio Road/East Bayshore Road Intersection: The project will implement an eastbound right-turn overlap phase and will construct a second westbound left-turn lane. This will reduce the average vehicle delay in 2035 at this intersection during the AM and PM peak-hours to 45.1 seconds and 112.6 seconds, respectively.

Hazardous Materials

MM-HAZ-1.1: Prior to project development, a soil investigation will be conducted to determine whether aurally-deposited lead (ADL) or volatile organic compounds (VOCs) have affected soils that will be excavated as part of the proposed project. The investigation for ADL will be performed in accordance with the Caltrans' Lead Testing Guidance Procedure. The analytical results will be compared against applicable hazardous waste criteria. Based on analytical results, the investigation will provide recommendations regarding management and disposal of affected soils in the project area including the reuse potential of VOC-affected soil during project development. The provisions of a variance granted to Caltrans by the California Department of Toxic Substances Control (DTSC) on September 22, 2000 (or any subsequent variance in effect when the project is constructed) regarding aurally-deposited lead will be followed.

MM-HAZ-1.2: Prior to project development, a groundwater investigation will be performed to determine whether groundwater has been affected by VOCs or other contaminants in areas if the proposed excavation is expected to encounter groundwater. In addition, groundwater depths will be determined in areas that may be proposed to receive lead-affected soils. Under the DTSC variance for lead-affected soil, soil impacted with ADL can be reused as construction fill provided that it is placed at least five feet above maximum groundwater level. If dewatering is anticipated by the proposed project, the investigation report will provide recommendations regarding proper treatment, if necessary, and disposal or reuse of affected groundwater.

Special Status Animal Species (Roosting Bats)

MM-ANMAL-2.1: If pile driving, jack hammering on the bridge abutments, intense lighting under the bridge or near the roost cavities, or other extreme disturbances will occur, the bats will be evicted from the roost during the non-breeding season preceding these extreme disturbances. A qualified bat biologist will exclude the roosting bats using one-way doors fixed to roost entrances. Eviction of bats will occur at night, so that bats will have less potential for predation compared to daytime roost abandonment. Eviction will occur between September 1st and March 31st, outside the maternity season, but will not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey are not available or bats are in torpor. The one-way doors used to evict the bats will be inspected periodically and

maintained from the time of installation through the completion of the extreme disturbance to ensure that they are functioning properly. The exclusion devices will be removed following the conclusion of the extreme disturbance, as determined by the bat biologist.

MM-ANMAL-2.2: To avoid the long-term abandonment of the colony and minimize the loss of evicted individuals, an appropriate bat condominium, as specified by a bat biologist in consultation with the California Department of Fish & Game (CDFG), will be placed by VTA in a suitable, conspicuous location (e.g., the edge of a marsh or other open area) between 500 and 1,000 feet from the existing roost. The bat condominium will be installed one year before the commencement of construction (under both the extreme or minimal disturbance scenarios) and at least six months before bats are excluded from the existing roost (under the extreme disturbance scenario). The existing roost and the bat condominium will be visually checked by a qualified bat biologist within five days prior to exclusion to ascertain whether bats have occupied the condominium in advance of construction. The bridge roost and the condominium would also be checked visually at least once during the maternity season for up to three years after the completion of construction. Monitoring will cease prior to Year-3 if it is determined that one structure or the other has been occupied by bats during the maternity season.

MM-ANMAL-2.3: If construction can occur without extreme disturbances, the colony will not be excluded, since the exclusion could have more of an adverse effect on the bat colony than maintaining the bats' access to the colony and subjecting them to some increase in disturbance during construction. To study the impact assessment of, and the development of impact minimization measures for, similar projects in the future, some minimal information on the increase in disturbance to which bats are subjected during construction and on the bats' response to that disturbance will be collected. A qualified biologist will determine the status of the colony (i.e., whether it is active, and the approximate numbers of bats) by a visual inspection of the bridge within five days prior to the initiation of construction. Baseline data on the vibration and sound levels at the bridge site will also be collected for a minimum of two days within five days of construction commencement. Following this pre-construction, baseline monitoring, the colony will then be monitored every night during construction using acoustic surveying methods, such as Anabat equipment, to determine the status of the colony (i.e., to determine if the colony abandons the roost). The majority of this construction monitoring will be done remotely with acoustic surveying equipment and will not require a surveyor to be present every night during construction. Monitoring equipment will also be used to sample construction-related increases in noise and vibration. Project implementation will not have to be modified based on the findings of this monitoring, even if the bats abandon the roost. However, these data will allow for a determination of whether or not the bats remained at the bridge during construction and/or changed their activity patterns in relation to varying levels of noise and vibration.

Special Status Animal Species (Nesting Birds)

MM-ANMAL-3.1: Vegetation that will be impacted by the project will be removed during the nonbreeding season (i.e., September 1st to February 14th), if feasible, to help preclude nesting. If it is not feasible to schedule vegetation removal during the nonbreeding season, then pre-construction surveys for nesting birds will be conducted by a qualified ornithologist to ensure that no nests will be disturbed

during project implementation. This survey will be conducted no more than seven days prior to the initiation of construction activities. During this survey, the ornithologist will inspect all trees, shrubs, and other potential nesting habitats in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist, in consultation with CDFG, will determine the extent of a buffer zone to be established around the nest, typically 300 feet for raptors and 50 feet for other birds.

- MM-ANMAL-3.2:** At the Adobe Creek and Matadero Creek bridges, to avoid impacts to nesting swallows and black phoebes, old nests should be removed prior to February 15th, or after February 15th if a qualified ornithologist determines that the nests are not active. Maintaining bridges free from nesting birds may require the placement of netting or other structures over the underside of the bridges to prevent swallows and other birds from accessing suitable nesting substrate. Alternatively, nest starts may be removed on a regular basis (e.g., every other day) to prevent active nests from becoming established.

Air Quality Impacts During Construction

- MM-CON-4.1:** The project will follow Caltrans Standard Specification 7-1.01F, Standard Specification 10, and Standard Specification 18, which address the requirements of BAAQMD and dust control and dust palliative application, respectively.
- MM-CON-4.2:** The project will implement all feasible PM10 construction emissions control measures required by the BAAQMD.

Noise Impacts During Construction

- MM-CON-5.1:** All internal combustion engine driven equipment will be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- MM-CON-5.2:** Unnecessary idling of internal combustion engines within 100 feet of residences will be strictly prohibited.
- MM-CON-5.3:** Staging of construction equipment within 200 feet of residences will be avoided. All stationary noise-generating construction equipment, such as air compressors and portable power generators, will be located as far practical from residences.
- MM-CON-5.4:** All construction equipment will be required to conform to Section 7-1.01I - Sound Control Requirements of the latest Standard Specifications.
- MM-CON-5.5:** Nighttime construction work within 225 feet of residential land uses will be avoided where feasible.
- MM-CON-5.6:** Demolition and pile driving activities should be limited to daytime hours only. If nighttime, impulsive work is required, a construction noise monitoring program will be implemented to provide additional mitigation as necessary (in the form of noise control blankets or other temporary noise barriers, etc.) for affected receivers.

Water Quality Impacts During Construction

- MM-CON-6.1:** Active paved construction areas will be swept and washed as needed.
- MM-CON-6.2:** Silt fencing will be used to retain sediment on the project site.
- MM-CON-6.3:** Temporary cover of disturbed surfaces or temporary slope protection measures will be provided per regulatory requirements and Caltrans' guidelines to help control erosion. Permanent cover/revegetation will be provided to stabilize the disturbed surfaces after construction has been completed.
- MM-CON-6.4:** No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products, or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into any waterways.
- MM-CON-6.5:** Best Management Practices (BMPs) will be utilized by the contractor(s) during construction. The BMPs will be incorporated into a Stormwater Pollution Prevention Plan for the project, as required by the Caltrans NPDES permit.

JAMES B. RICHARDS, Deputy District Director
District 4
California Department of Transportation

Date

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CHAPTER 1 PROPOSED PROJECT

1.1 INTRODUCTION

The proposed project is located on U.S. 101 in the Cities of Mountain View and Palo Alto, Santa Clara County, California. As shown on Figure 1, the project limits extend from State Route (SR) 85 on the south to Embarcadero Road on the north, a distance of approximately 3.2 miles.¹

Within the project limits, the U.S. 101 freeway is three mixed-flow lanes and one high occupancy vehicle (HOV) lane in each direction. Full-access interchanges are located at SR 85, Shoreline Boulevard, Rengstorff Avenue/Amphitheatre Parkway, Oregon Expressway, and Embarcadero Road. Partial access interchanges are located at Old Middlefield Way, Charleston Road, and San Antonio Road. There is also a direct HOV connector ramp between U.S. 101 and SR 85.

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to construct auxiliary lanes, lengthen existing HOV lanes, widen several ramps, and install ramp metering on U.S. 101 within the above-described project limits. The improvements are shown on Figure 2. The detailed project description is found in Section 1.3.

The auxiliary lanes will improve traffic operations and improve safety on U.S. 101 by providing more room for traffic entering and exiting the freeway at each interchange to merge, and by allowing local traffic that is only going from one interchange to the next to use the freeway without impacting the main through lanes. The lengthening of the existing double HOV lane will also allow more room for the projected future HOV demand volumes.

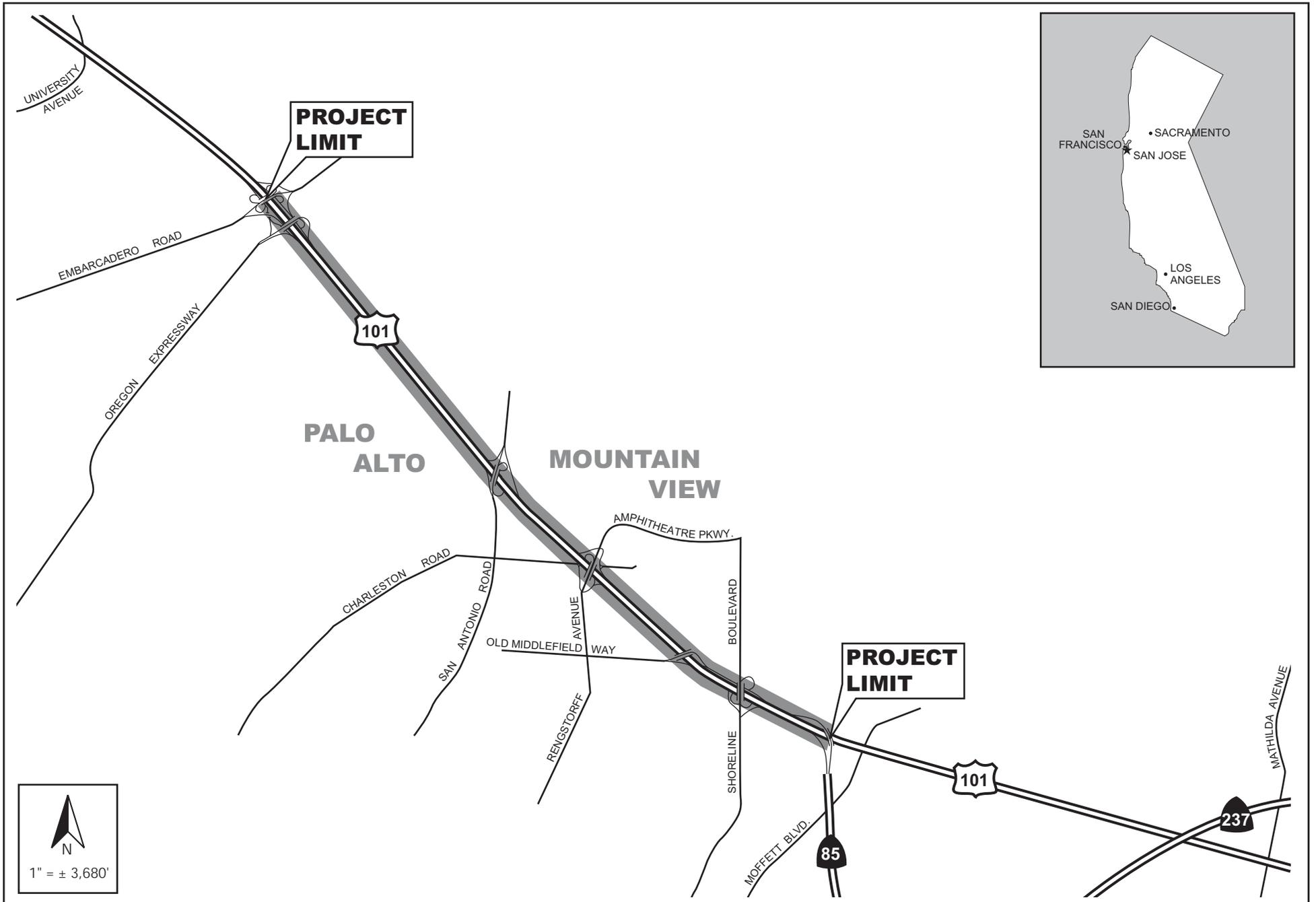
The project is funded with State Infrastructure Bonds (Corridor Mobility Improvement Account) and by the VTA. The project is included in the Metropolitan Transportation Commission's Amendment to the Regional Transportation Plan 2030 as project number 21608 approved in May 2007. It is also included in the 2007 Transportation Improvement Program (TIP) for the San Francisco Bay Area through the 2007 TIP Amendments, where it is identified as SCL070024. The TIP Amendments (Revision 07-06) were approved by FHWA & FTA on June 14, 2007.

1.2 PURPOSE AND NEED FOR THE PROPOSED PROJECT

1.2.1 Purpose of the Proposed Project

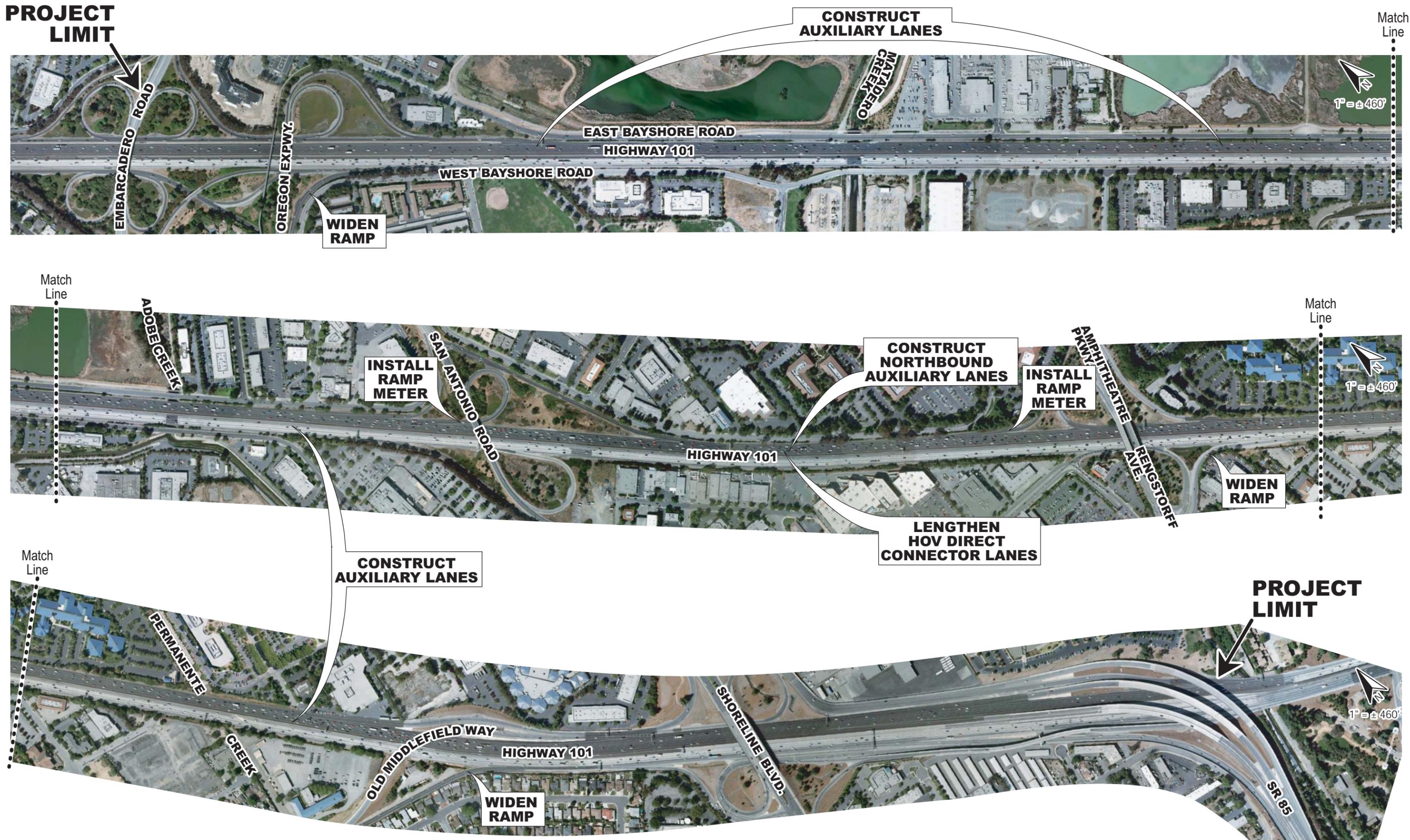
The purpose of the proposed project is to improve traffic operations on the freeway, decrease congestion and delay, and improve peak-period travel times.

¹ For the purpose of this document, U.S. 101 is assumed to be oriented in a north-south direction.



PROJECT LOCATION

FIGURE 1



PROJECT IMPROVEMENTS

FIGURE 2

Aerial Source: Google Maps, 2008.

1.2.2 Need for the Proposed Project

As described in the following paragraphs, the project segment of U.S. 101 (i.e., SR 85 to Embarcadero Road) currently experiences substantial congestion during the AM and PM peak commute periods. This congestion is expected to worsen as traffic volumes increase over time.

Existing Conditions

Along the project segment of U.S. 101, existing peak-hour traffic volumes are substantial during both the AM commute and the PM commute (see Table 1).

T A B L E 1				
EXISTING PEAK-HOUR VOLUMES ON U.S. 101				
	AM Peak-Hour		PM Peak-Hour	
	Northbound	Southbound	Northbound	Southbound
Oregon Expressway to San Antonio Road	8,254	8,505	8,398	7,903
Rengstorff Avenue. to Old Middlefield Way	8,461	7,399	7,587	8,613

Source: U.S. 101 Auxiliary Lanes Traffic Operations Analysis Report, 2009.

The substantial peak traffic demand, which generally occurs during the 6:30 AM to 9:30 AM and 4:00 PM to 7:30 PM weekday time periods, coupled with the significant merging movements associated with the various on-ramps and off-ramps, creates congestion, queuing, and delay. Specific problem areas are as follows:

- During the AM peak-hour in the northbound direction, a bottleneck occurs at the lane drop near the Old Middlefield Way overcrossing; however, this bottleneck is absorbed by the upstream bottleneck between the Shoreline Boulevard on-ramp and the Rengstorff Avenue off-ramp. The queue from these two bottlenecks extends approximately 3.5 miles, to beyond the Ellis Street off-ramp.

- During the AM peak-hour, another bottleneck exists on northbound U.S. 101 between the San Antonio Road on-ramps and Oregon Expressway/Embarcadero Road off-ramp. The queue from this bottleneck extends just less than one mile to the Rengstorff Avenue off-ramps.
- During the PM peak-period, a bottleneck occurs in the northbound direction between the San Antonio Road on-ramps and the Oregon Expressway/Embarcadero Road off-ramp. The queue extends through the study area for approximately four miles to the Ellis Street ramps.
- In the southbound direction, during the AM peak-period, a bottleneck occurs between the University Avenue on-ramp and Oregon Expressway/Embarcadero Road off-ramp. The queue from this bottleneck extends approximately 2.5 miles to the north, out of the project study area. A queue also develops at the 300-foot weaving segment between the Charleston Road on-ramp and the Rengstorff Avenue off-ramp due to a right lane overload.
- During the PM peak hour in the southbound direction, the segment between the Rengstorff Avenue on-ramp and the Old Middlefield Road on-ramp creates a bottleneck due to the high demand volume exceeding the capacity of this segment, with the queue extending through the weaving segment between Charleston Road-Rengstorff Avenue to beyond the Marsh Road interchange (approximately 8 miles).

The above-described bottlenecks generally occur during the AM and PM weekday peak hours in both directions. The effect of these bottlenecks is that the average time it takes to drive the 6-mile traffic study area (Ellis Avenue to University Avenue) in the mixed-flow lanes, as compared to free-flow (i.e., 65 mph) conditions, increases substantially. For example, in the northbound direction during both the AM and PM peak hours, congestion adds approximately nine minutes to the time it takes to drive the 6-mile study length. In the southbound direction, the congestion adds between two to four minutes to the travel time.

Under existing conditions, vehicles generally move at or near the speed limit in the HOV lanes during the AM and PM weekday peak hours within the 6-mile study area.

Future “No Project” Conditions

By year 2015, there will be some changes on U.S. 101 in the vicinity of the proposed project. Specifically, as a separate project, auxiliary lanes will be added to U.S. 101 between Embarcadero Road and Marsh Road, which is the segment of U.S. 101 just north of the proposed project. Those auxiliary lanes are assumed to be in place by 2015. In addition, by 2015, ramp metering was assumed at all on-ramps, except the Charleston Road on-ramp in the southbound direction.

As a result of planned growth in the greater project area and in the region as a whole, peak-period congestion on U.S. 101 is projected to worsen over time. Peak-period demand will increase not only

in the mixed-flow lanes, but in the HOV lanes as well. For additional discussion of future traffic conditions, please see Section 2.1.4.

Accident Data

Table 2 presents a summary of accidents that occurred along U.S. 101 between Ellis Street and University Avenue during the 3-year period of June 2005 through May 2008.² The accident rate on this segment of U.S. 101 for this period was 1.32 accidents per million-vehicle-miles (MVM) in the northbound direction and 0.77 per MVM in the southbound direction. This compares to the statewide average of 1.09 accidents per MVM for similar facilities. Two fatal collisions occurred on the study segment during the 3-year period, resulting in a fatal accident rate below the statewide average.

Within the project limits, several ramps have higher accident rates than the statewide average for similar facilities. As shown in Table 2, several of the Rengstorff Avenue/Amphitheatre Parkway ramps have especially high rates.

1.3 PROJECT DESCRIPTION

Between Embarcadero Road and SR 85, which are the project limits, the U.S. 101 freeway is three mixed-flow lanes and one HOV lane in each direction. Full-access interchanges are located at SR 85, Shoreline Boulevard, Rengstorff Avenue/Amphitheatre Parkway, Oregon Expressway, and Embarcadero Road. Partial access interchanges are located at Old Middlefield Way, Charleston Road, and San Antonio Road. There is also a direct HOV connector ramp between U.S. 101 and SR 85.

1.3.1 Project Components

Caltrans, in cooperation with the VTA, proposes to construct the following improvements on U.S. 101 within the above-described project limits. The improvements are shown on Figure 2.

1.3.1.1 *Construct Auxiliary Lanes*³

The project will construct auxiliary lanes in the northbound direction of U.S. 101 between Shoreline Boulevard and Oregon Expressway. In the southbound direction, an auxiliary lane will be constructed between Oregon Expressway and San Antonio Road.

²These study limits extend a short distance north and south of the project limits.

³ An auxiliary lane typically extends between two adjacent interchanges. It improves merging and overall freeway operations. It is not a "thru" lane; traffic in an auxiliary lane must either move into the adjacent thru lane or exit the freeway at the next off-ramp.

T A B L E 2

**SUMMARY OF ACCIDENT DATA ON U.S. 101 IN THE PROJECT VICINITY
[June 2005 - May 2008]**

Type	Number of Collisions	Accident Rate (MVM)	Statewide Average Accident Rate (MVM)
All collisions - mainline northbound direction	870	1.32	1.09
All collisions - mainline southbound direction	510	0.77	1.09
Fatal & Injury collisions - mainline northbound direction	219	0.35	0.34
Fatal & Injury collisions - mainline southbound direction	134	0.21	0.34
Fatal collisions - mainline northbound direction	1	0.002	0.005
Fatal collisions - mainline southbound direction	1	0.002	0.005
All collisions - northbound off-ramp to Amphitheatre Pkwy	8	3.96	0.90
All collisions - southbound on-ramp from Rengstorff Ave.	12	1.34	0.80
All collisions - northbound on-ramp from Rengstorff Ave.	4	0.52	0.80
All collisions - southbound off-ramp to Rengstorff Ave.	11	1.50	1.35
All collisions - southbound on-ramp from Charleston Rd.	1	0.09	0.55
All collisions - northbound off-ramp to San Antonio Rd.	9	1.03	1.50
All collisions - northbound loop on-ramp from San Antonio Rd.	0	0.00	0.70
All collisions - northbound diagonal on-ramp from San Antonio	0	0.00	0.60
All collisions - southbound loop off-ramp to San Antonio Rd.	4	0.32	0.90
All collisions - southbound diagonal off-ramp to San Antonio	0	0.00	1.25
All collisions - northbound off-ramp to Embarcadero Rd.	3	0.16	0.25
All collisions - southbound on-ramp from Embarcadero Rd.	1	0.05	0.25
All collisions - northbound on-ramp from Embarcadero Rd.	3	0.20	0.25
All collisions - southbound off-ramp to Embarcadero Rd.	2	0.10	0.25

MVM = Million Vehicle Miles

Source: Caltrans' Traffic Accident Surveillance and Analysis Systems for the period of June 1, 2005 through May 31, 2008, on U.S. 101 between Ellis Street and University Avenue.

At most locations, there is sufficient room within the existing Caltrans right-of-way to accommodate the construction of the auxiliary lanes. Areas where minor amounts of additional right-of-way will be required are described below in Section 1.2.2.

The auxiliary lanes will require the widening of the existing U.S. 101 crossings over Permanente Creek, Adobe Creek, and Matadero Creek. Please see Table 3 for details of the widenings.

T A B L E 3		
PROPOSED STRUCTURAL WORK ON U.S. 101 AT CREEK CROSSINGS		
Location	Existing	Proposed Modifications by Project
Permanente Creek	12' x 12' x 216' box culvert	Lengthen culvert by approximately 22' on both the upstream and downstream ends.
Adobe Creek	single-span bridge for U.S. 101 & each adjacent frontage road	Widen U.S. 101 bridge by closing the existing 14' gap between the U.S. 101 bridge & each adjacent frontage road bridge.
Matadero Creek	two-span bridge for U.S. 101 & each adjacent frontage road	Widen U.S. 101 bridge by closing the existing 14' gap between the U.S. 101 bridge & each adjacent frontage road bridge.
The information in this table is preliminary and is subject to minor revision during final design.		

1.3.1.2 *Install Ramp Meters*

The project will install ramp meters⁴ at the northbound on-ramp to U.S. 101 from Amphitheatre Parkway, as well as at the northbound on-ramp to U.S. 101 from San Antonio Road.

1.3.1.3 *Construct Ramp Improvements*

The existing southbound U.S. 101 on-ramp from Oregon Expressway will be widened to include an additional lane for the purpose of increasing storage capacity. In addition, the existing southbound U.S. 101 on-ramp from Old Middlefield Way will be converted from one HOV lane and one mixed-flow lane to two mixed-flow lanes.

⁴Ramp meters are traffic signals that are installed on freeway on-ramps for the purpose of regulating (“metering”) the flow of traffic onto the freeway. This improves traffic operations on the freeway, especially during peak travel periods, because it reduces lane changes and allows for easier merging.

1.3.1.4 *Lengthen Existing HOV Lanes*

The second HOV lane that allows for direct connections between U.S. 101 and SR 85 will be lengthened by approximately 2.3 miles to a location between the San Antonio Road and Oregon Expressway interchanges. Approximately four feet of additional pavement width will be provided to allow for this improvement, which will provide additional room for projected future HOV demand volumes.

1.3.1.5 *Utility Relocations*

The project will include minor utility relocations (e.g., water, gas, communication, electric lines, sanitary sewer, stormwater, etc.), as necessary, to construct the above-described improvements.

The project will move an existing 115-kilovolt, overhead electric transmission line, which is located between the freeway and East Bayshore Road in Palo Alto. The line will be moved from the west side to the east side of East Bayshore Road, beginning at a point just north of Matadero Creek and extending to a point south of Oregon Expressway, a distance of approximately 1,600 feet. The new alignment of the transmission line on the east side of the frontage road would be adjacent to the Palo Alto Baylands.

1.3.1.6 *Other Project Features*

The project will include the installation of replacement landscaping in accordance with Caltrans' policies. Metal beam guardrails will be installed, as needed, to preserve trees and vegetation located within 30 feet of the edge of the outside traffic lanes of the freeway, such vegetation that would otherwise need to be removed to comply with requirements for an object free safety/recovery zone.

In accordance with regulations that require projects to include feasible measures to treat stormwater runoff prior to discharge into creeks, the project will construct biofiltration swales within the freeway right-of-way. Based upon preliminary design information, the treatment areas will be located within the footprints of the U.S. 101 interchanges at Oregon Expressway, San Antonio Road, and Rengstorff Avenue. Treatment areas are also proposed adjacent to the shoulders of the freeway in the vicinity of Permanente Creek.

1.3.2 Right-of-Way Requirements

The majority of the proposed improvements will be constructed within the existing Caltrans right-of-way. There are a number of locations, however, where the improvements will require minor amounts of additional right-of-way. Based on preliminary design, the locations where additional right-of-way will be required are listed in Table 4. The additional right-of-way required for the project will not result in the removal of any buildings.

T A B L E 4**PRELIMINARY RIGHT-OF-WAY REQUIREMENTS**

Assessor's Parcel Number	Address	Owner	Existing Use	Right-of-Way Needed
n/a	East Bayshore Road	City of Palo Alto	frontage road	strip of r/w 4'-7' in width; will affect existing landscaping
n/a	West Bayshore Road	City of Palo Alto	frontage road	strip of r/w 3'-5' in width; will affect existing landscaping
n/a	Bayshore Parkway	City of Mountain View	frontage road	strip of r/w 7' in width; will affect existing landscaping
116-13-033	1657 & 1667 Plymouth Street	Google, Inc.	commercial/office	strip of r/w 5' in width; will affect existing landscaping & approx. 14-15 parking spaces
116-08-100	2003 Landings Drive	Brcp-landmark, LLC	commercial/office	strip of r/w 7' in width; will affect existing landscaping & approx. 8-9 parking spaces

Information in this table is preliminary and is subject to minor revision during final design.

1.3.3 Project Funding and Schedule

The project is funded with State Infrastructure Bonds (Corridor Mobility Improvement Account) and by the VTA.

If approved, construction of the project is scheduled to commence in mid-2011. The duration of construction will be approximately two years.

1.4 ALTERNATIVES

1.4.1 No Build Alternative

The No Build Alternative would consist of not constructing the project, which would avoid all of the environmental impacts of the project, as described in this document. However, the No Build Alternative would not meet the identified Purpose and Need, which is to reduce the traffic congestion resulting from merging conflicts and to improve the overall freeway system performance. Under the No Build Alternative, projected increases in traffic would cause existing congestion to worsen. In turn, travel times along this segment of U.S. 101 would continue to increase.

1.4.2 Alternatives Considered but Eliminated from Further Discussion

During the development of the proposed project, an alternative design was considered. The alternative design would consist of all of the improvements described above in Section 1.3.1, plus the construction of an auxiliary lane in the southbound direction of U.S. 101 between San Antonio Road and Rengstorff Avenue. This design option was dropped from further consideration because it was determined to be infeasible and would not meet the project objectives as it would create merging conflicts with traffic entering the freeway from Charleston Road.

1.5 PERMITS AND APPROVALS NEEDED

Construction of the proposed project will require permits/approvals from the governmental agencies listed in Table 5.

During the initial planning and design of the proposed project, Caltrans consulted with the staff of the San Francisco Bay Conservation & Development Commission (BCDC) to determine if any portion(s) of the project are located within BCDC jurisdiction. On February 13, 2008, BCDC staff informed Caltrans that no portion of the project, including any proposed work within Matadero, Adobe, or Permanente Creeks, lies within BCDC jurisdiction.⁵

⁵Source: E-mail dated 2/13/08 from Karen Wolowicz to Christine Lillie.

T A B L E 5		
PERMITS AND APPROVALS NEEDED		
Agency	Permit/Approval	Status
City of Palo Alto	Encroachment permit for work extending onto local streets within Palo Alto	Application to be submitted during final design.
City of Mountain View	Encroachment permit for work extending onto local streets within Mountain View	Application to be submitted during final design.
Santa Clara Valley Water District	Construction permit for work in Adobe, Matadero, and Permanente Creeks	Application to be submitted during final design.
California Department of Fish & Game	Streambed Alteration Agreement for work in Adobe, Matadero, and Permanente Creeks	Application to be submitted during final design.
U.S. Army Corps of Engineers	Section 404 permit for temporary and/or permanent work in low-flow channels of Adobe, Matadero, and Permanente Creeks	Application to be submitted during final design.
Regional Water Quality Control Board	Section 401 Water Quality Certification for temporary and/or permanent work in low-flow channels of Adobe, Matadero, and Permanente Creeks	Application to be submitted during final design.

CHAPTER 2 **AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, & AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

Introductory Note: *As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document:*

- *Farmlands: There are no farmlands located in the project vicinity.*
- *Timberlands: There are no timberlands located in the project vicinity.*
- *Relocations: The project will not acquire any residences or businesses and, therefore, no relocations will occur.*
- *Community Cohesion: The project will construct improvements to an existing freeway. The improvements will not divide any community or neighborhood.*
- *Paleontology: There are no known paleontological resources located in the project area.*
- *Coastal Zones: The project site is not within or near areas covered by the Coastal Zone Management Act of 1972.*
- *Wild & Scenic Rivers: There are no waterways designated as Wild & Scenic Rivers in the project area. The closest rivers with this designation are over 100 miles from the project area.*

2.1 HUMAN ENVIRONMENT

2.1.1 Land Use

2.1.1.1 *Affected Environment*

The 3.2-mile project segment of U.S. 101 is located in the Cities of Mountain View and Palo Alto. With the exception of the Palo Alto Baylands, the project area is developed with a mix of commercial, industrial, and residential land uses. In Palo Alto, the adjacent land uses to the west and east are separated from U.S. 101 by West Bayshore Road and East Bayshore Road, respectively.

Within the project limits, there are two public parks located adjacent to U.S. 101: The Palo Alto Baylands, a large nature preserve along the shore of San Francisco Bay, is located along the east side of U.S. 101/East Bayshore Road, south of Embarcadero Road. Greer Park is located along the west side of U.S. 101/West Bayshore Road, south of Oregon Expressway. Both of these parks are owned and operated by the City of Palo Alto.

2.1.1.2 *Environmental Consequences*

Most of the project would be constructed within the existing Caltrans right-of-way. However, as shown in Table 4, limited right-of-way acquisition will be necessary at a number of locations:

- Right-of-way will be acquired along several existing frontage roads, but this acquisition will not require the realignment of those roadways.
- A strip of right-of-way needed from the commercial parcel located at 2003 Landings Drive in Mountain View will result in the loss of approximately 8-9 parking spaces, but will not affect any buildings or the viability of the land use itself.
- A strip of right-of-way needed from the commercial parcel located at 1657 & 1667 Plymouth Street in Mountain View will result in the loss of approximately 14-15 parking spaces, but will not affect any buildings or the viability of the land use itself.

Indirect land use impacts such as noise and visual/aesthetics are discussed under their own headings in this document.

The project will not require right-of-way from either the Palo Alto Baylands or Greer Park. Indirect effects (e.g., noise and visual) at these parks will not be substantial; see Section 2.1.5, *Visual/Aesthetics*, and Section 2.2.6, *Noise*, for details.

The project is listed in, and therefore is consistent with, Transportation 2030, which is the adopted regional transportation plan (RTP). The project is also included in the Metropolitan Transportation Commission's adopted 2007 Transportation Improvement Program (TIP). The project is also consistent with the general plans of Mountain View and Palo Alto, both of which identify U.S. 101 as a major transportation facility.

Impact LU-1: The project will not result in a change in adjacent land uses, will not physically divide an established community, and will not conflict with applicable land use plans. Impacts to two commercial properties will not affect any buildings or the viability of the land use. **[Less-than-Significant Impact]**

2.1.2 Growth

2.1.2.1 *Regulatory Setting*

The California Environmental Quality Act (CEQA) requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

2.1.2.2 *Environmental Consequences*

The project is located within an urbanized area of the Cities of Mountain View and Palo Alto, and its construction will not open additional areas to development. In addition, the project does not propose any new access between U.S. 101 and nearby land uses.

While the proposed auxiliary lanes will facilitate merging and weaving in the vicinity of interchanges located within the project limits, the overall capacity of the freeway will not substantially change because no new thru lanes will be constructed.

There are no pending or recently-approved projects whose construction is conditioned upon the implementation of the U.S. 101 Auxiliary Lanes Project.

Impact GR-1: The project will not result in any direct growth-inducing impacts as no development is tied to the construction of the auxiliary lanes. Indirect growth-inducing impacts will be minimal as the project does not include the construction of new thru lanes on the freeway. **[Less-than-Significant Impact]**

2.1.3 Utilities/Emergency Services

Various utility lines (e.g., gas, electric, water, communications, sanitary sewer, stormwater, etc.) cross U.S. 101 and are located along/within the local streets that cross or parallel the freeway. Where necessary to construct the proposed project, some of these utility lines will be relocated, as is commonplace for projects of this nature. Such utility work will not result in disruption of utility services in the project area because existing lines will not be disconnected prior to the relocated lines being in place.

Emergency services would indirectly benefit from the proposed project in that, by reducing peak commute period congestion, emergency vehicle response times will be reduced. The project will not sever or alter any emergency evacuation routes.

Impact UTIL-1: The project will not result in the disruption of utility services. The project will not hinder emergency vehicle response times. The project will not sever or alter any emergency evacuation routes. **[No Impact]**

High Voltage Electric Line Relocation

One utility relocation of note is that the project will move an existing 115-kilovolt, overhead electric transmission line, which is located between the freeway and East Bayshore Road in Palo Alto. The line will be moved from the west side to the east side of East Bayshore Road, beginning at a point just north of Matadero Creek and extending to a point south of Oregon Expressway, a distance of approximately

1,600 feet. The new alignment of the transmission line on the east side of the frontage road would be adjacent to a multi-use path and the undeveloped open space of the Palo Alto Baylands.

A high voltage electric transmission line generates a substantial electromagnetic field (EMF). Some studies have concluded that there *may* be a link between long-term exposure to elevated EMFs and cancer, although there is substantial disagreement in the scientific community regarding this subject. In any case, environmental documents routinely disclose this fact whenever high voltage lines are being relocated near residences, schools, and/or other sensitive areas. In this case, there are no residences, schools, or buildings adjacent to, or in the immediate vicinity of, the new alignment. Therefore, relocation of this line will not result in the long-term exposure of the public to elevated EMFs.

Impact UTIL-2: The project will not result in the long-term exposure of the public to elevated EMF levels. **[No Impact]**

2.1.4 Traffic & Transportation/Pedestrian & Bicycle Facilities

The information in this section is based primarily on a technical Traffic Operations Analysis Report that was prepared for the project. A copy of this study is available for review at the locations listed inside the front cover of this document.

2.1.4.1 *Affected Environment*

Existing Roadway Network

U.S. 101 is an 8-lane freeway with three mixed-flow lanes and one HOV lane in each direction within the project limits. U.S. 101 is a major north-south highway in California, and is a key facility in Santa Clara County that passes through the Cities of Gilroy, Morgan Hill, San José, Santa Clara, Sunnyvale, Mountain View, and Palo Alto. Within the project limits, full interchanges on U.S. 101 are located at SR 85, Shoreline Boulevard, Rengstorff Avenue/Amphitheatre Parkway, Oregon Expressway, and Embarcadero Road. Partial access interchanges are located at Old Middlefield Way, Charleston Road, and San Antonio Road.

SR 85 is a 6-lane freeway with two mixed-flow lanes and one HOV lane in each direction. SR 85 extends from U.S. 101 in Mountain View to U.S. 101 in south San Jose. There is also a direct HOV connector ramp between U.S. 101 and SR 85.

Oregon Expressway intersects U.S. 101 at the northerly project limits. It provides east-west access in the City of Palo Alto between El Camino Real (SR 82) on the west and U.S. 101 on the east.

There are a number of arterial streets that cross U.S. 101 within the project limits: Shoreline Boulevard, Rengstorff Avenue/Amphitheatre Parkway, San Antonio Road, and Embarcadero Road.

Existing Traffic Conditions

As described previously in Section 1.2.2, *Need for the Project*, the project segment of U.S. 101 presently experiences substantial congestion during the AM and PM peak commute periods. This congestion has a direct and adverse effect on commute period travel times along the freeway. Table 6 shows the existing levels of service at nine study intersections that are located in the immediate project area. Of the nine intersections, all but the intersection of Charleston Road with the southbound U.S. 101 on-ramp are signalized. All of the intersections except the southbound U.S. 101 on-ramp/Charleston Road and Oregon Expressway/West Bayshore Road intersections currently operate at acceptable levels of service (defined as LOS “D” or better).

Existing Public Transit

Bus service in the project area and throughout Santa Clara County is provided by the Santa Clara Valley Transportation Authority (VTA). Bus Route 40 crosses U.S. 101 on Rengstorff Avenue/Amphitheatre Parkway. Express Route 104 utilizes a portion of U.S. 101 within the project limits.

Existing Bicycle and Pedestrian Facilities

Pedestrians and bicyclists are prohibited on the U.S. 101 freeway. Within the project segment, pedestrian and bicycle access across U.S. 101 consists of the overcrossings at Shoreline Boulevard, Rengstorff Avenue/Amphitheatre Parkway, San Antonio Road, and Embarcadero Road, as well as a separate pedestrian bridge over the freeway at Oregon Expressway. Bicyclists can cross under U.S. 101 at Adobe Creek. Bicycle lanes are located along West Bayshore Road and East Bayshore Road in Palo Alto. A multi-use path is also located adjacent to East Bayshore Road within the Palo Alto Baylands.

2.1.4.2 Environmental Consequences

Impact on Freeway Operations

The construction of the proposed improvements on U.S. 101 will have a direct and beneficial impact on freeway operations by improving merging conditions, which will reduce congestion.

As shown in Table 7, the project will greatly improve mainline operations in the northbound direction. In the southbound direction, the benefits will not be as great as the northbound direction, as bottlenecks will form in the study area under all scenarios at:

- Charleston Road - Rengstorff Avenue (2015 AM, 2035 AM & PM)
- Rengstorff Avenue - Old Middlefield Way (2015 PM)

The project will also improve travel times in the HOV lanes, as compared to no project conditions, especially in the southbound direction during the PM peak-commute period.

TABLE 6

COMPARISON OF PEAK-HOUR INTERSECTION LEVELS OF SERVICE

		Existing		Year 2015				Year 2035			
				No Project		Project		No Project		Project	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NB 101 Ramps at Shoreline Blvd.	AM	D	37.2	C	29.6	D	39.4	D	37.0	D	48.4
	PM	C	26.9	C	28.4	C	31.1	D	44.1	D	51.0
SB 101 Ramps at Shoreline Blvd.	AM	A	6.8	A	6.0	A	6.6	A	6.4	A	6.9
	PM	A	9.7	B	11.0	B	11.5	C	24.7	C	25.7
NB 101 Ramps at Rengstorff Ave.	AM	A	4.0	A	3.7	A	3.1	B	11.0	A	9.0
	PM	A	5.9	A	9.4	A	8.9	B	13.3	B	10.8
SB 101 Ramps at Rengstorff Ave.	AM	C	22.1	D	43.1	D	47.8	F	129.9	<u>F</u>	<u>>150</u>
	PM	D	46.3	D	42.8	D	50.6	F	143.6	<u>F</u>	<u>>150</u>
Rengstorff Ave. at Leghorn St.	AM	B	11.6	B	19.0	B	18.5	E	62.4	E	62.5
	PM	B	19.0	C	31.6	C	32.3	F	128.0	<u>F</u>	<u>144.8</u>
SB 101 On-Ramp at Charleston Rd.	AM	B	14.2	C	20.1	C	20.1	F	>50	F	>50
	PM	F	>80	F	>50	F	>50	F	>50	F	>50
San Antonio Rd. at East Bayshore Rd.	AM	B	15.9	C	34.9	D	36.4	F	111.5	F	116.3
	PM	B	19.8	F	>150	<u>F</u>	<u>>150</u>	F	>150	<u>F</u>	<u>>150</u>
NB 101 Ramps at San Antonio Rd.	AM	C	25.8	B	19.1	C	23.2	B	12.7	B	17.2
	PM	A	10.0	A	10.0	B	12.0	B	11.7	B	14.2
Oregon Expwy. at West Bayshore Rd.	AM	B	15.7	B	19.0	C	20.9	C	24.9	C	28.2
	PM	F	>80	F	>80	F	>80	F	>80	F	>80

Notes:

"Level of Service" (LOS) uses the letters A through F to describe operations, with "A" representing free-flow conditions, "B" representing minimal delays, "C" representing acceptable delays, "D" representing tolerable delays, "E" representing significant delays, and "F" representing jammed conditions with excessive delay. LOS is computed based upon a number of factors including the traffic demand, the number of traffic lanes, and traffic signal timing.

Underlining and bold text = significant impact

Source: U.S. 101 Auxiliary Lanes Traffic Operations Analysis Report, 2009.

T A B L E 7

COMPARISON OF PEAK-PERIOD TRAVEL TIMES ON U.S. 101
[Expressed in Minutes:Seconds]

	Mixed-Flow Lanes				HOV Lanes			
	Northbound		Southbound		Northbound		Southbound	
	AM	PM	AM	PM	AM	PM	AM	PM
Year 2015 - No Project	11:58	16:14	25:58	37:14	6:16	41:45	26:51	27:30
Year 2015 - With Project	9:29	11:39	25:14	40:10	6:09	40:25	26:45	22:03
Percent Change	-21%	-28%	-3%	+8%	-2%	-3%	0%	-20%
Year 2035 - No Project	12:20	14:06	28:57	1:35:42	11:00	1:08:42	37:16	1:29:18
Year 2035 - With Project	7:26	10:33	28:12	1:36:46	9:41	1:06:51	37:10	1:08:40
Percent Change	-40%	-25%	-3%	+1%	-12%	-3%	0%	-23%

Notes:

The study section of U.S. 101 extends from University Avenue to Ellis Street, a distance of approximately six miles. However, the travel times presented in this table include additional upstream areas to capture the full extent of queuing beyond the study area. This is done to demonstrate the benefit of the project in the U.S. 101 freeway corridor, a benefit that is less demonstrable within the smaller study section due to the presence of queues that extend into the area from downstream bottlenecks.

Source: U.S. 101 Auxiliary Lanes Traffic Operations Analysis Report, 2009.

Impact TRAN-1: The project will improve peak-period traffic operations along the project segment of U.S. 101. **[Beneficial Impact]**

Impact on Operations at Intersections

Table 6 shows future levels of service/delay at the nine study intersections with the project in place and compares those results to “no project” conditions. The data in Table 6 show that delays at most of the study intersections would be greater with the project in place than under “no project” conditions. This result does not mean that the project will increase traffic demand in the area. Rather, this result stems from the fact that the project will improve operations on the freeway, which in turn will allow more vehicles to reach the intersection. To assess the significance of this increase in delay, the following thresholds were utilized:

- The project causes an intersection to degrade from an acceptable level of service (i.e., LOS “D”) to an unacceptable level of service (i.e., LOS “E” or “F”), or
- The project substantially increases delay at an intersection already operating at LOS “E” or “F” under “no project” conditions.

Using these thresholds, the project will result in significant impacts at the following intersections:

- Southbound U.S. 101 Ramps at Rengstorff Avenue (year 2035)
- Rengstorff Avenue at Leghorn Street (year 2035)
- San Antonio Road at East Bayshore Road (years 2015 and 2035)

The project includes mitigation for these impacts, as described below in Section 2.1.4.3.

The unsignalized intersection of Charleston Road at the U.S. 101 southbound on-ramp is projected to operate at LOS F under both “no project” and “project” conditions. While this intersection operates unacceptably under all scenarios, the project is not expected to add traffic to or exacerbate delays at this intersection. Thus, the project's impact is considered less-than-significant.

Impact TRAN-2: The project will result in a significant impact at three of the nine study intersections. **[Significant Impact]**

Impact on Pedestrian and Bicycle Facilities

No pedestrian or bicycle facilities would be affected by the proposed improvements on U.S. 101 since pedestrians and bicyclists are prohibited on the freeway. The existing bike lanes along West Bayshore Road and East Bayshore Road in Palo Alto will remain in place. Existing bicycle and pedestrian over- and undercrossings of the freeway will not be affected by the project.

Impact TRAN-3: The project will not affect bicycle or pedestrian facilities. **[No Impact]**

2.1.4.3 *Avoidance, Minimization, and/or Mitigation Measures*

The following measures, which are included in the project, will traffic impacts to a less-than-significant level:

MM-TRAN-2.1: Southbound U.S. 101 Ramps/Rengstorff Avenue Intersection: The project will restripe the westbound approach from left, through, and right lanes to a left, left-through, and right lane. This will reduce the average vehicle delay in 2035 at this intersection during the AM and PM peak-hours to 88.3 seconds and 113.9 seconds, respectively.

MM-TRAN-2.2: Rengstorff Avenue/Leghorn Street Intersection: Operations at this intersection and the Southbound U.S. 101 Ramps/Rengstorff Avenue intersection are closely related. Therefore, the impact at this intersection is also mitigated by MM-TRAN-2.1 listed above and revised signal coordination. This will reduce the average vehicle delay in 2035 at this intersection during the PM peak-hour to 121.3 seconds.

MM-TRANS-2.3: San Antonio Road/East Bayshore Road Intersection: The project will implement an eastbound right-turn overlap phase and will construct a second westbound left-turn lane. This will reduce the average vehicle delay in 2035 at this intersection during the AM and PM peak-hours to 45.1 seconds and 112.6 seconds, respectively.

Conclusion: *The project will result in significant traffic impacts. However, mitigation is included in the project to reduce these impacts to a less-than-significant level.*

2.1.5 Visual/Aesthetics

The information in this section is based primarily on a technical Visual Impact Assessment (January 2009) that was prepared for the project. A copy of this study is available for review at the locations listed inside the front cover of this document.

2.1.5.1 *Regulatory Setting*

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])

2.1.5.2 *Affected Environment*

The project limits on U.S. 101 are located in flat terrain to the west of the San Francisco Bay and marshlands, between Embarcadero Road and SR 85 and in the cities of Palo Alto and Mountain View. The natural gradient of the highway slopes downward from south to north approximately 25 feet and from the highway toward the east.

The visual setting of the project site is dominated by urban features. In the north-south direction, urban features are highway-related and consist of bridges at Embarcadero Road, Oregon Expressway, San Antonio Road, Amphitheater Parkway/Rengstorff Avenue, Old Middlefield Way, and at SR 85. U.S. 101 features include highway pavement, concrete median barriers, metal beam guard rails in the median and at the edges of the highway, signs, lights, walls and fences. High voltage electrical power line crossings are also visible through the highway corridor. Utility towers, poles and lines are visible at the edges of the freeway.

In the east-west direction, there are one- to three-story commercial buildings that are densely screened by trees and shrubs at the edges of the freeway. Two residential neighborhoods are located directly adjacent to U.S. 101. Short segments of masonry and concrete soundwalls are visible behind the highway trees growing in those locations.

The natural landscape has been altered over time in all areas within and adjacent to the project limits with the addition of buildings and highway structures. Undisturbed natural features included in views from the project area are the Diablo Range of mountains visible to the east and the Santa Cruz Mountains to the west. The Baylands visible to the south east of Oregon Expressway consist of sloughs and constructed tidal ponds.

Existing vegetation within U.S. 101 and the adjacent neighborhoods consist of introduced species of trees, shrubs and groundcovers. The landscaping is mature. Trees and shrubs are dense at the edges of the freeway and in the interchanges in the north and central areas of the project limits, and are less dense at the south end of the project.

In order to quantify the number and species of trees located within the project limits, a tree survey was undertaken as part of the preparation of this environmental document. The results of the survey are summarized by species and location, in Tables 8 and 9, respectively.

2.1.5.3 *Environmental Consequences*

The improvements proposed by the proposed project will result in visual impacts where they require the removal of trees, screening shrubs and vines at the edges of the highway, and where there is insufficient space to restore the original character of the vegetation. Existing vegetation screens views of structures within adjacent land uses from the perspective of motorists on U.S. 101. With removal of screening vegetation, structures will encroach on motorist's views and diminish the quality of the visual experience. These impacts are expected to occur in several locations within the project limits.

Visual impacts will also occur where existing vegetation that contributes to positive visual experiences from vantage points adjacent to the highway is removed. Such impacts will be permanent where insufficient area exists for replacement planting with trees and shrubs possessing the same characteristics as the existing vegetation.

The following paragraphs describe visual impacts at a number of key locations:

- From a vantage point on West Bayshore Road at the intersection of Amarillo Avenue, the view looks north at the existing masonry soundwall that is partially screened by approximately 35' tall eucalyptus trees. The trees soften the appearance of the wall, minimize the glare of the masonry and provide a sense of enclosure for residents that live to the west of the trees in the multi-family residential units. With project removal of the trees, visual impacts will occur as the wall would be fully visible. These impacts will be permanent as there is not space available on the highway side of the wall to restore the trees.
- The relocation of the electric transmission lines from the west side to the east side of East Bayshore Road, south of Oregon Expressway, will move these lines closer to the existing trail located in the Palo Alto Baylands Park. From the perspective of trail users, views directly overhead and toward the horizon to the north will include wires and poles, which when compared to existing conditions, will diminish the quality of intactness in the view.
- The project will remove existing vines and shrubs that are located between the freeway and East Bayshore Road in Palo Alto. The vegetation, which screens views of the freeway from East Bayshore Road and the adjacent land uses, will be replaced with an approximately 3'-5' high concrete barrier with a chain link fence on top. The loss of the vegetation and replacement with a uniform concrete barrier will be perceived as a less-than-significant adverse visual impact from this vantage point. Vegetation will not be restored in the view due to insufficient space for planting.

T A B L E 8

TREES SUMMARIZED BY SPECIES TYPE

Species	Existing Total	# to be Removed
Acacia	17	11
Cedar	34	0
Elm	139	68
Eucalyptus	299	49
Liquid ambar	15	7
Maple	1	1
Oak	203	10
Ornamental	121	25
Other	7	0
Palm	3	2
Pepper	57	14
Pine	82	22
Plum	46	7
Poplar	2	0
Redwood	66	6
Spruce	1	0
Walnut	115	5
Western Sycamore	53	0
Willow	1	0
Totals:	1,262	227
Tree removal counts may change slightly during the final design phase of the project.		

T A B L E 9**TREES SUMMARIZED BY LOCATION ALONG U.S. 101**

Location	Existing Total	# to be Removed
Vicinity of Embarcadero Road Interchange	383	0
Vicinity of Oregon Expressway Interchange	180	15
South of Oregon Expressway	23	9
Vicinity of Greer Park	50	10
Vicinity of Matadero Creek	15	13
Vicinity of Loma Verde Avenue	11	11
Vicinity of Adobe Creek	14	14
North of San Antonio Road	23	15
Vicinity of San Antonio Road Interchange	253	16
North of Rengstorff Avenue	95	30
Vicinity of Rengstorff Avenue Interchange	129	29
South of Rengstorff Avenue	74	65
Vicinity of Old Middlefield Way	12	0
Totals:	1,262	227
Tree removal counts may change slightly during the final design phase of the project.		

- From a vantage point on Sierra Vista Avenue near the intersection of Plymouth Street in Mountain View, views of U.S. 101 are screened by existing vegetation. The project will remove the vegetation at the edge of the freeway, which would make the highway visible from this vantage point.

While the above-described visual impacts would be adverse, they would not be a significant impact because 1) they would not constitute a substantial adverse effect on a scenic vista, 2) would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings and historic buildings within a state scenic highway, 3) the loss of the vegetation would not substantially degrade the existing visual character or quality of the area, and 4) the project would not introduce a new source of substantial light or glare into the area.

Impact VISUAL-1: The proposed improvements will not result in a substantial change to the existing visual and aesthetic environment along the project segment of U.S. 101.
[Less-than-Significant Impact]

2.1.6 **Cultural Resources**

The information in this section is based primarily on a technical Historic Resources Compliance Report (October 2008), Archaeological Survey Report (July 2008), and Historic Resources Evaluation Report (July 2008) that were prepared for the project. These studies are available for review at the locations listed inside the front cover of this document.

2.1.6.1 ***Regulatory Setting***

"Cultural resources" as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include:

- The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the *National Register of Historic Places*.
- Historical resources are considered under CEQA, as well as California 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 *National Register of Historic Places* listing criteria. It further specifically requires Caltrans to inventory state-owned structures within its rights-of-way.

2.1.6.2 ***Affected Environment***

A prehistoric and historic site record and literature search by the California Historical Resources Information System, Northwest Information Center at Sonoma State University was undertaken to determine if known resources are present within the project's area of potential effects (APE). The APE consists of the area within the footprint of the project, as well as those areas directly adjacent to the project where indirect impacts could occur. A field reconnaissance was also undertaken, the results of which are described in the Archaeological Survey Report and Historic Resources Evaluation Report.

Given the fact that one previously-recorded archaeological site (CA-SCL-439) is located within the APE, the fact that the area is considered archaeologically-sensitive due to its location near the shore of San Francisco Bay, and the fact that excavation for the project's stormwater treatment areas may extend up to roughly 10 feet below the existing surface, subsurface testing was undertaken. The purpose of the testing was to determine whether cultural resources are present within those locations where substantial

ground disturbance will occur, which in this case are the stormwater treatment areas. The subsurface testing, which was undertaken in August 2008, found no cultural resources.

None of the structures or buildings that are located on the two parcels from which right-of-way will be required (see Table 5) are historic. None of the bridges or other transportation structures located within the APE are historic.

2.1.6.3 *Environmental Consequences*

Based upon the research, technical studies, and field testing described above, there is no indication of prehistoric or historic archaeological or historic architectural resources within the project impact area. Therefore, construction of the proposed project is not expected to result in effects on cultural resources.

Impact CUL-1: The project will not result in impacts to cultural resources. **[No Impact]**

2.1.6.4 *Avoidance, Minimization, and/or Mitigation Measures*

Although the above analysis concluded that there are no known resources that will be impacted by the project, in the unlikely event that 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 cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the Caltrans District 4 Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code Section 5097.98 are to be followed as applicable.

2.2 PHYSICAL ENVIRONMENT

2.2.1 Hydrology and Floodplain

The information in this section is based primarily on a technical Location Hydraulic Study that was prepared for the project. A copy of this study is available for review at the locations listed inside the front cover of this document.

2.2.1.1 *Affected Environment*

Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), approximately two-thirds of the project segment of U.S. 101 lies within an existing 100-Year Floodplain.⁶ There are several reasons why the area is designated as a floodplain:

- FEMA assumed that the existing Bayfront levees would not provide adequate protection from extreme high tide events, associated with 100-year storm event, for the following reasons: 1) levees lack adequate freeboard⁷, and 2) levees are not constructed to current engineering standards (City of Palo Alto, 2007). The floodplain covers northbound and southbound U.S. 101 from the Embarcadero Road Interchange to the Rengstorff Avenue Interchange.
- Overflows from nearby San Francisquito Creek enter the project area near the northerly limits.
- Overflows from Permanente Creek occur because there is insufficient capacity in the channel upstream of U.S. 101.

Matadero Creek crosses U.S. 101 approximately 3,200 feet south of the Oregon Expressway Interchange. The creek originates near the Town of Los Altos Hills and in the Palo Alto Hills, flows through Palo Alto in a U-shaped concrete channel and discharges into the Palo Alto Flood Basin, which eventually outfalls to San Francisco Bay. Matadero Creek is a concrete paved, engineered channel at the U.S. 101 crossing.

Adobe Creek crosses U.S. 101 approximately 1,800 feet north of the San Antonio Road Interchange. The creek originates in the Palo Alto Hills, flows through Palo Alto in a wide rectangular concrete channel, and discharges into Charleston Slough, which eventually outfalls to San Francisco Bay. Adobe Creek is a concrete paved, engineered channel at the U.S. 101 crossing.

Permanente Creek crosses U.S. 101 approximately 2,200 feet south of the Rengstorff Avenue interchange. The creek originates in the Santa Cruz Mountains, passes through Cupertino, Los Altos Hills, Los Altos, and Mountain View, discharging into Mountain View Slough, which outfalls to San Francisco Bay. Permanente Creek at the U.S. 101 crossing is contained in a 12' x 12' x 216' box culvert, with concrete channel both upstream and downstream of the culvert.

⁶The **100-Year Floodplain** is the area that would be inundated during a flood that is expected to occur at least once in a 100-year period. It is sometimes referred to as the 1% flood because it has a one percent chance of occurring in any given year.

⁷Freeboard is the distance between the expected water surface elevation during a 100-Year storm event and the top of the levee.

2.2.1.2 *Environmental Consequences*

The project will include paving for the auxiliary lanes, bridge widenings at Adobe and Matadero Creeks, and a culvert extension at Permanente Creek, which would increase impervious surfaces in the area by 10.6 acres. This equates to an increase in impervious surfaces in the watershed from 0.01% to 0.05%. Due to the project's location in a floodplain, these types of activities have the potential to affect the depth and/or extent of flooding. A quantitative analysis has concluded, however, that floodplain impacts will be minimal. This conclusion is based on the following:

- The culvert extension and corresponding increase in impervious surfaces at Permanente Creek would cause the upstream water surface elevation to rise by 0.15 feet (1.8 inches). This minimal increase will be offset by improving the hydraulics at the culvert entrance.
- The widening of the Matadero Creek and Adobe Creek bridges would not change the water surface elevation of the floodplain. The increase of flow rate due to the added impervious surfaces would not contribute to the rise of water surface elevation in the floodplain. For these two creeks, the bridge design modification due to highway widening would have no impact to the existing floodplain.
- The proposed project would not have any impacts to the tide and therefore would not change the boundary of the existing tidal floodplain, which comprises the majority of the floodplain traversed by U.S. 101.
- Between the U.S. 101 southbound lanes and the adjacent frontage road (West Bayshore Road), the project will install a thrie-beam barrier, as necessary to prevent floodplain obstruction.⁸
- Widening associated with the project in the vicinity of Rengstorff Avenue and Old Middlefield Way would cause the floodplain to move slightly upstream. However, the affected area is small (0.31 acres) and represents only 0.4% of the total floodplain. Therefore impacts to the floodplain would be minimal.

Impact FLOOD-1: Construction of the project will have a minimal impact on the existing floodplain. **[Less-than-Significant Impact]**

⁸A **Thrie beam barrier** is a common type of metal beam barrier found along many highways. The metal beam barrier is mounted on wood or metal posts.

2.2.2 Water Quality and Stormwater Runoff

The information in this section is based primarily on a technical Stormwater Data Report and Water Quality Report that were prepared for the project. These studies are available for review at the locations listed inside the front cover of this document.

2.2.2.1 *Regulatory Setting*

Section 401 of the Clean Water Act (CWA) requires water quality certification from the State Water Resources Control Board (SWRCB) or from a Regional Water Quality Control Board (RWQCB) when a project requires a CWA Section 404 permit. Section 404 of the CWA requires a permit from the U.S. Army Corps of Engineers to discharge dredged or fill material into waters of the United States.

Along with CWA Section 401, CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) permit for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the NPDES program to the SWRCB and nine RWQCBs. The SWRCB and RWQCB also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act.

The SWRCB has developed and issued a statewide NPDES permit to regulate stormwater discharges from all Caltrans activities on its highways and facilities. All construction projects over one acre require a Stormwater Pollution Prevention Plan (SWPPP) to be prepared and implemented during construction. Caltrans projects affecting less than one acre require a Water Pollution Control Program.

2.2.2.2 *Affected Environment*

Stormwater runoff from the project area discharges into wetlands located on the east side of U.S. 101, as well as into Adobe, Matadero, and Permanente Creeks. The water quality in the creeks depends upon the volume of water at a given time of the year. Water quality is also dependent upon the concentration of contaminants, which flow into the creeks as a component of urban runoff via storm drains. These contaminants include such items as oil and grease, fuel residues, tire particles, plant and animal debris (e.g., leaves, dust, animal feces, etc.) litter, and heavy metals. In sufficient concentrations, these pollutants have been found to adversely affect the aquatic habitat of these streams and San Francisco Bay, into which the streams flow.

Section 303(d) of the CWA requires that states develop a list of water bodies that do not meet water quality standards. According to the latest list developed by the San Francisco Bay RWQCB in 2006, Matadero Creek and Permanente Creek are listed as impaired water bodies for Diazinon due to urban runoff/storm sewers.

2.2.2.3 *Environmental Consequences*

The proposed project may affect water quality during the short-term (i.e., construction phase) and during the long-term (i.e., operational phase). The short-term effects are described in Section 2.4. The long-term effects are described below.

Compared to existing/no project conditions, the project will not have a significant effect on long-term water quality. This conclusion is based on the fact that the project will create approximately 10.6 acres of new impervious surfaces within the watershed area that encompasses 28,756 acres. This is a relatively minimal increase in impervious surfaces, especially in view of the fact that most of the project site is already covered by existing impervious surfaces (i.e., the existing freeway). Therefore, the increase in pollutant-containing runoff will not be substantial.

The additional impervious area to be added by the project is small in relation to the size of the groundwater basin located within the project limits; therefore, groundwater recharge impacts will be insignificant.

Although long-term water quality effects will be negligible, the design of the project includes Best Management Practices (BMPs) to reduce the pollutant component of stormwater runoff, as required by the Caltrans NPDES permit (see above discussion). In addition to the requirements of the NPDES permit, compliance with the requirements of the Caltrans Stormwater Management Plan (SWMP) is also required. The SWMP describes the programs to reduce the discharge of pollutants associated with the stormwater drainage systems, and describes how Caltrans will comply with the provisions of the NPDES permit.

To minimize post-construction water quality effects, post-construction BMPs have been considered for incorporation into the project. Those considered include infiltration devices, biofiltration strips and swales, wet basins, media filters, detention devices, and multichamber treatment devices (often referred to as “treatment trains”). Biofiltration strips or swales have been identified as the most feasible BMPs for this project. Eight locations are suitable for the creation of biofiltration strips or swales within the project limits. These locations are as follows:

- Two swales within the footprint of the U.S. 101/Oregon Expressway interchange
- Two swales within the footprint of the U.S. 101/San Antonio Road interchange
- Two swales within the footprint of the U.S. 101/Rengstorff Avenue interchange
- One swale or strip adjacent to northbound U.S. 101, south of Permanente Creek
- One swale or strip adjacent to southbound U.S. 101, south of Permanente Creek

In addition, the project will implement permanent design pollution control BMPs to improve stormwater quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. These measures could include a combination of source and sediment control measures to prevent and minimize

erosion from disturbed soil areas. Source controls will utilize erosion control netting in combination with hydroseeding. Outlet protection and velocity dissipation devices will also be considered.

Impact WQ-1: Construction of the project will not substantially increase impervious surfaces and, therefore, increases in pollutant-containing runoff will not be significant. Groundwater recharge impacts will not be significant. Further, in compliance with Caltrans' NPDES permit, the project includes feasible BMPs to treat stormwater runoff. **[Less-than-Significant Impact]**

2.2.3 Geology/Soils/Seismic/Topography

The information in this section is based primarily on a Geotechnical Assessment Report that was prepared for the project. A copy of this study is available for review at the locations listed inside the front cover of this document.

2.2.3.1 *Regulatory Setting*

This section 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. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake (MCE), from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

2.2.3.2 *Affected Environment*

The project area, which is located on the westerly side of San Francisco Bay, is relatively flat. Ground elevations in the area range from approximately 5 feet above sea level at the northerly project limits to approximately 25 feet above sea level at the southerly project limits.

No active faults cross under the project segment of U.S. 101. However, the project is located in a seismically active part of Northern California. Many faults capable of producing earthquakes exist in the San Francisco Bay Area, which may cause strong ground shaking in the vicinity of the project area. The closest active faults to the project alignment are the Monte Vista, San Andreas and Hayward faults. The closest fault to the site is the west branch of the Monte Vista Fault, located about 2.7 miles southwest of the southern end of the project site. The east branch of the Monte Vista Fault is located about 4 miles at its closest point at the southern end of the project. The San Andreas Fault generally parallels U.S. 101 and is located about 7.5 miles southwest of the site. The Hayward Fault also generally parallels the U.S. 101 road alignment and is located about 10.8 miles northeast of the site.

The Hayward, Monte Vista, and San Andreas Faults are designated with MCE magnitudes of 7.5, 6.5, and 8.0, respectively, on the California Seismic Hazard Map. The MCE, therefore, is the earthquake on the San Andreas Fault since it potentially releases the highest energy (M=8.0) and results in the strongest shaking at the site.

The project segment of U.S. 101 from the southern end to San Antonio Road is underlain by fine grained alluvium deposits. North of this point to the northerly project limits, the roadway is mapped as being underlain by Bay Mud. The project segment of U.S. 101 is mapped as being located within a liquefaction hazard zone ranging from “moderate” to “very high”.

2.2.3.3 *Environmental Consequences*

The proposed project will involve typical highway excavation and grading practices necessary to construct the additional lanes and ramp modifications. There are no geologic features on the site that would pose special or unique hazards to users of the proposed improvements. The project will implement standard engineering practices to ensure that geotechnical and soil hazards do not result from its construction.

The site is within the seismically active San Francisco Bay Area and severe ground shaking is probable during the anticipated life of the project. Users of the freeway and interchanges would be exposed to hazards associated with such severe ground shaking during a major earthquake on one of the region's active faults. This hazard is not unique to the project, because it applies to all locations throughout the greater Bay Area. The proposed project will not increase the existing exposure to hazards associated with earthquakes; the hazards in the area will be the same with or without the project.

The project, including the widened structures over Adobe, Permanente, and Matadero Creeks, will be designed and constructed in accordance with Caltrans Design guidelines for Seismic Zone 4 to avoid or minimize potential damage from seismic shaking on the site. Potential seismic effects will be minimized by the use of standard engineering techniques mandated by the Uniform Building Code and the Caltrans Design Standards.

Impact GEO-1: Construction of the project will not expose people to significant geologic hazards or risks. [**Less-than-Significant Impact**]

2.2.4 Hazardous Waste/Materials

The information in this section is based primarily on a technical Initial Site Assessment (ISA) that was prepared for the project. A copy of this study is available for review at the locations listed inside the front cover of this document.

The purpose of preparing an ISA is to identify areas within or adjacent to the project where there is existing contamination from hazardous materials and/or where there is a likelihood that such contamination may be present. The reason for this research is to alert the public and governmental agencies to these contaminated areas so that future problems associated with exposure to hazardous materials can be avoided. A secondary, but important, reason for this research is to alert officials who are considering the purchase of property to existing and/or potential contamination, since property owners can be held responsible for the cost of cleanup in many cases.

2.2.4.1 *Regulatory Setting*

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health and land use.

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

Hazardous waste in California is regulated primarily under the authority of RCRA and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

2.2.4.2 *Affected Environment*

Contaminated Sites

The ISA determined that there are numerous sites within a 1-mile radius of the project segment of U.S. 101 where hazardous materials are generated, used, or stored and/or where some type of spill/leakage/contamination has occurred. For most locations where soil or groundwater contamination has been found, the source of the contamination was leaking storage tanks. In virtually all of these cases, the leaking tanks have been removed and remediation has occurred (or is occurring) under the supervision of various governmental entities. Many of the listed sites are either down/cross gradient or too far up gradient to impact the subject area.

The ISA focused on sites where hazardous materials contamination has been reported that are 1) under active regulatory oversight, and 2) within one-eighth mile of the existing and proposed freeway right-of-way within the project area. The 21 sites that meet this criteria are listed in Table 10 and shown on Figure 3. Of these 21, seven (Sites 4, 5, 8, 9, 10, 17, and 20 in Table 10) are located adjacent to the U.S. 101 corridor. Conditions at the seven sites are summarized below:

TABLE 10**NEARBY HAZARDOUS WASTE CONTAMINATION SITES**

Location	Site Name	Site Address	Status
1	Bell Industries Precision Metalcraft	2637 Marine Way Mountain View	Release of VOCs affecting soil and groundwater attributed to historic operations at the site. Remediation of soil and groundwater have been performed at the site. The site is currently seeking a No Further Action decision from the Water Board.
2	East Charleston Business Park	2513-2525 E. Charleston Rd., Mountain View	The site is currently under remediation to clean up chlorinated solvents detected in groundwater. In November 2005, hydrogen-releasing compounds were applied to the affected aquifer to reduce contaminants in groundwater.
3	Charleston Business Park	2400-2460 E. Charleston Rd., Mountain View	Release of solvents affecting groundwater in 1994. No other information regarding the release was provided in the database report.
4	CTS Printex Corporation	1950 Colony Street Mountain View	An investigation conducted in 1985 found metals and VOCs in soil near the site and VOCs in downgradient monitoring wells. Remediation has been performed at the site since then. Some of the remediation performed at the site included excavation and off-site disposal of affected soil, groundwater monitoring, and groundwater extraction and treatment.
5	Montwood	1615 Plymouth Street Mountain View	The groundwater underneath the site was impacted by VOCs from on- and offsite sources. The site is currently under remediation. Part of site remediation is the operation of an extraction system and implementation of a series of chemical oxidation events to reduce the concentration of VOCs in groundwater.
6	W V P Income Plus II	2690 Casey Avenue Mountain View	A remedial investigation performed at the site and at a downgradient property in October 2007 identified the presence of chlorinated VOCs in soil and groundwater from the shallow zone at areas near and downgradient from the site. The depth of VOC-affected soil was found to be in the upper 30 feet. The site is approximately 700 feet downgradient of the project site.
7	1201 San Antonio Road	1201 San Antonio Rd., Mountain View	This site is the downgradient adjacent property to Site 6 described in the 2006 remedial investigation report for Site 6. The remedial investigation identified chlorinated VOCs in soil near the end of San Antonio Road. In addition, VOC concentrations were detected in groundwater from the shallow zone in a downgradient area to the north of the site.

TABLE 10 (continued)

Location	Site Name	Site Address	Status
8	Ford Aerospace/ Loral	3825 Fabian Way Mountain View	Reported spill of approximately 250 gallons of wastewater containing ethylbenzene and acetone caused by a leak in a wastewater container. The database report did not indicate whether soil or groundwater was affected. The groundwater underneath the site was affected by VOCs released from multiple upgradient sources. Remedial Action is underway.
9	Former Symtron Facility	4019 Transport Street Palo Alto	The database report did not provide additional information regarding the release.
10	Telcom Semi-conductors	1300 Terra Bella Avenue Mountain View	Release of solvents affecting soil and groundwater underneath the site was reported to the RWQCB in 1982. In 1984, an investigation indicated that site contaminants had migrated northward and affected approximately 50 private domestic wells.
11	901 San Antonio Road	1201 San Antonio Rd., Palo Alto	The sub-surface of the site have been impacted by petroleum hydrocarbons and chlorinated VOCs resulting from previous site operations and from upgradient sources. Pollution characterization underway. This site is upgradient from Site 8.
12	Microfab Systems	3960 Fabian Way Palo Alto	The database (Cortese) report did not provide additional information regarding the release.
13	Bay Centerless Grinding	939 Industrial Avenue Palo Alto	A soil investigation conducted in 2007 found metals and VOCs in shallow soil samples collected underneath the building floor slab. The results of confirmation soil samples collected following remedial excavation of affected soil indicated that significantly affected soil have been removed. The 2007 investigation report also indicated that groundwater quality underneath the site has been affected by the regional VOC-affected groundwater and a reported release of chlorinated solvents from a nearby upgradient site.
14	Dynamic Values	923 Industrial Avenue Palo Alto	Reported release of chlorinated organic compounds affecting groundwater. No other information regarding the release was provided by the database report. This site is upgradient from Site 13.
15	Davila Int'l Circuits	2420 Charleston Road Mountain View	U.S. EPA recommended further investigation of groundwater contamination that may have resulted from the storage and use of hazardous chemicals at the site. No additional information regarding the potential contamination of groundwater was provided in the database report.

TABLE 10 (continued)

Location	Site Name	Site Address	Status
16	Charleston Business Park	2400-2460 E. Charleston Rd., Mountain View	Soil and groundwater remediation has been performed at the site. However, low levels of VOCs remain in groundwater. The source of the remaining VOC in groundwater appears to be from off-site sources.
17	Spectra-Physics	1250 W. Middlefield Rd., Mountain View	This site is adjacent to Site 10. The VOC-affected groundwater underneath the site has merged with the groundwater plume from the adjacent property. Extraction wells have been operated at the site as part of groundwater remediation to control off-site migration of affected groundwater.
18	Ford Aerospace & Communication	3939 Fabian Way Palo Alto	Some of the potential site contaminants include metals, PCBs, halogenated organics, halogenated solvents, hydrocarbon solvents, oxygenated solvents, acidic solutions, and free cyanide. No information regarding soil or groundwater quality at the site was provided in the database report.
19	Whisman School District	1695 Rock Street Mountain View	No additional information regarding the release was provided in the database (Cortese) report. The site is approximately 600 feet from the project area.
20	SCR-CTS Printex	1911 Plymouth St. Mountain View	No additional information regarding the release was provided in the database report.
21	Ford Aerospace	1036 East Meadow Circle, Palo Alto	Site is used as a storage facility of hazardous waste. Potential site contaminants include PCBs, oxygenated solvents, photochemicals & photoprocessing waste, acidic solutions with and without metals, and free cyanide. No information regarding soil or groundwater quality at the site was provided in the database report.

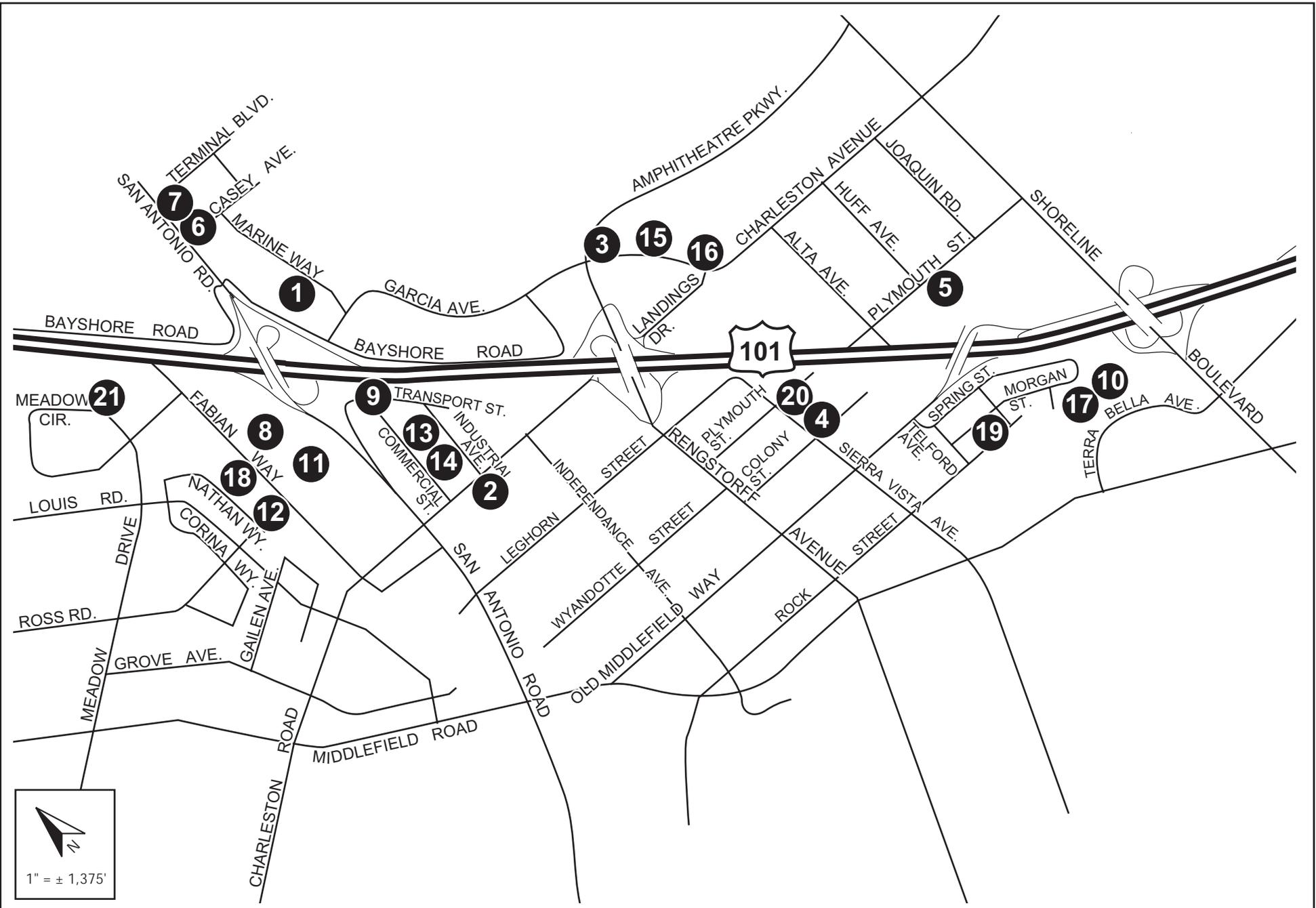
Notes

Site locations are shown on Figure 3.

VOCs = volatile organic compounds

PCBs = polychlorinated biphenyls

Source: U.S. 101 Auxiliary Lanes Initial Site Assessment, February 2008.



RELEASE SITES UNDER ACTIVE REGULATORY OVERSIGHT WITHIN ONE EIGHTH-MILE OF THE PROJECT AREA

FIGURE 3

Sites #4 and #20 - CTS Printex Facility: Sites 4 and 20 were part of the former CTS Printex facility, which manufactured circuit boards from 1966 through 1985. In 1985, a soil and groundwater investigation was initiated by the facility owner as part of the facility closure process. The findings of the investigation identified the presence of chlorinated volatile organic compounds (VOCs), metals, and other contaminants in soil and groundwater samples. In 1990, the U.S. EPA placed the CTS facility on the National Priority List.

Groundwater monitoring from a network of seven on-site wells and 24 off-site wells defined the groundwater plume as extending approximately one-eighth mile north and one mile west, crossing underneath U.S. 101 freeway. In addition to the monitoring wells, three on-site and four off-site extraction wells assisted in the remediation of groundwater. The extraction wells drew groundwater from affected aquifers preventing further lateral migration of contaminants in groundwater. The extracted groundwater was discharged into the City's sanitary sewer for treatment. Groundwater remediation began in 1986, which included the removal of approximately 255 cubic yards of affected soil. In 1991, the Agency for Toxic Substances & Disease Registry reviewed the 1990 groundwater data from the on- and off-site wells and indicated that future exposure to groundwater contaminants is unlikely to occur if the groundwater extraction system would continue to reduce the concentration of contaminants in groundwater.

Site #5 - Former Montwood Property: Montwood is the holding company that purchased the property located at 1615 Plymouth Street in 1980. In 1982, Montwood sold the property to South Bay Construction and Development Company, which redeveloped the property. Prior to redevelopment, the Montwood site was associated with industrial operations, including steel fabrication, machining, fibreglassing, painting, product development, and warehousing. The groundwater contamination underlying the Montwood site is partly attributed to previous industrial operations; this plume is within the regional VOC-affected groundwater plume.

Remediation of groundwater has been performed at the Montwood site since October 1994, when the operation of the extraction system began. The extraction system draws groundwater to reduce the concentrations of contaminants in groundwater and to limit the spread of affected groundwater. Groundwater data collected from 1994 through 2005 indicated that the concentrations of contaminants in groundwater have reduced over time, but the groundwater plume dimensions underneath the Montwood site have remained relatively unchanged. The groundwater plume underneath the Montwood site is affected by the upgradient SPI and TSI sites (Sites 10 and 17).

Site #8 - Loral Space Systems: Site 8 is currently under remediation under a cleanup order adopted by the RWQCB, which includes an adjacent property to the south (Site 11 in Table 10). The groundwater underneath the Loral site has been affected by migration of VOC-affected soil and groundwater from an upgradient site. The cleanup order addressed the downgradient migration of VOC-affected groundwater by proposing to reduce the contaminant mass in the upgradient source zone and enhance bioremediation of affected groundwater. In 2007, remedial activities were performed at the affected properties. Some of the remedial activities include performance of groundwater monitoring, extraction

and treatment of groundwater at the Loral site, installation of a permeable reactive barrier between the source zone and the Loral site, and performance of insitu bioremediation pilot study at the source zone. The 2007 groundwater monitoring data reported historical highs in some wells for VOC concentrations, indicating that an off-site source may be affecting groundwater quality.

Sites #10 and #17 - Telcom Semiconductors and Spectra-Physics: Since the early 1960s, Sites 10 and 17, which are adjacent to each other, have been manufacturing facilities of semiconductors and gas lasers, respectively. In the early 1980s, remedial investigations performed at each facility found impacts of VOCs in the soil and groundwater. In addition, the remedial investigations revealed that the groundwater plume from each site has merged and migrated north. Remedial actions, which are ongoing, include removal of impacted soil, as well as the extraction of affected groundwater from a network of on- and off-site wells.

Based on the above information, releases from sites adjacent to and near the project area have affected groundwater quality at and near the project area. Specifically, the groundwater in the vicinity of the San Antonio Road interchange and between Old Middlefield Way overcrossing and the Shoreline Boulevard interchange have been affected by reported releases of VOCs and other contaminants from properties adjacent to the freeway. In addition, the above information indicated that a regional VOC-affected groundwater plume exists at least in the southeastern half of the project area. Therefore, other sources of contamination in addition to the sites adjacent to the project area, as described above, could be contributing to the regional groundwater problem.

Aerially-Deposited Lead (ADL)

Until recently, lead was commonly added to gasoline. As a result, lead was emitted as a component of motor vehicle exhaust. Soil sampling along many roadways has found that concentrations of lead exceed applicable thresholds for classification as a hazardous material. This phenomenon known as "aerially-deposited lead" is widespread. Because U.S. 101 was built prior to the phaseout of lead as a gasoline additive, elevated concentrations of lead are likely to be present in the soil along the freeway. In fact, sampling and testing undertaken for the recently constructed SR 85/U.S. 101 interchange did find elevated concentrations of ADL in the soil.

2.2.4.3 Environmental Consequences

Based on the information described above in Section 2.2.4.2, the groundwater underlying the vicinity of the project area from the San Antonio Road interchange to the Old Middlefield Way overcrossing has been affected by releases of VOCs from sites adjacent to and near the project area. The known VOC-affected groundwater from several properties adjacent to the project area contributes to a regional groundwater problem that appears to be present at least in the vicinity of the San Antonio Road interchange and Shoreline Boulevard within the project area. In addition, soil with elevated concentrations of lead is likely to be present within the project limits. Construction of the proposed

project, therefore, may result in hazardous materials effects because the presence of contamination could expose construction workers to these substances in concentrations that exceed regulatory thresholds.

Impact HAZ-1: Construction of the proposed project could expose construction workers to hazardous substances in concentrations that exceed regulatory thresholds.
[Significant Impact]

2.2.4.4 *Avoidance, Minimization, and/or Mitigation Measures*

The following measures, which are included in the project, will reduce hazardous materials impacts to a less-than-significant level:

MM-HAZ-1.1: Prior to project development, a soil investigation will be conducted to determine whether ADL or VOCs have affected soils that will be excavated as part of the proposed project. The investigation for ADL will be performed in accordance with the Caltrans' Lead Testing Guidance Procedure. The analytical results will be compared against applicable hazardous waste criteria. Based on analytical results, the investigation will provide recommendations regarding management and disposal of affected soils in the project area including the reuse potential of ADL-affected soil during project development. The provisions of a variance granted to Caltrans by the California Department of Toxic Substances Control (DTSC) on September 22, 2000 (or any subsequent variance in effect when the project is constructed) regarding aerially-deposited lead will be followed.

MM-HAZ-1.2: Prior to project development, a groundwater investigation will be performed to determine whether groundwater has been affected by VOCs or other contaminants in areas if the proposed excavation is expected to encounter groundwater. In addition, groundwater depths will be determined in areas that may be proposed to receive lead-affected soils. Under the DTSC variance for lead-affected soil, soil impacted with ADL can be reused as construction fill provided that it is placed at least five feet above maximum groundwater level. If dewatering is anticipated by the proposed project, the investigation report will provide recommendations regarding proper treatment, if necessary, and disposal or reuse of affected groundwater.

Conclusion: The project may result in significant hazardous materials impacts. However, mitigation is included in the project to reduce these impacts to a less-than-significant level.

2.2.5 Air Quality

The information in this section is based primarily on an Air Quality Report and a Mobile Source Air Toxics Emissions Report that were prepared for the project. Copies of these studies are available for review at the locations listed inside the front cover of this document.

2.2.5.1 *Regulatory Setting*

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns; the criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), lead (Pb), and sulfur dioxide (SO₂).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels: first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards set for CO, NO₂, O₃, and PM. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans (RTP) are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as the Metropolitan Transportation Commission (MTC) for the San Francisco Bay Area and the appropriate federal agencies, such as the Federal Highway Administration (FHWA), make the determination that the RTP is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires "hot spot" analysis if an area is "nonattainment" or "maintenance" for CO and/or PM. A region is a "nonattainment" area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called "maintenance" areas. Conformity does include some specific standards for projects that require a "hot spot" analysis. In general, projects must not cause the CO standard to be violated, and in "nonattainment" areas the project must not cause any increase in the

number and severity of violations. If a known CO or PM violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

2.2.5.2 Affected Environment

The project is located in the Cities of Mountain View and Palo Alto, in northern Santa Clara County. The climate is affected by its proximity to both the Pacific Ocean and the San Francisco Bay, which have a moderating influence. The Bay cools the air with which it comes in contact during warm weather and warms the air during cold weather. During the afternoon and early evening, a north-northwesterly sea breeze often flows from the Bay through the Santa Clara valley, and a light south-southeasterly drainage flow often occurs during the late evening and early morning hours.

The San Francisco Bay Area is considered to be one of the cleanest metropolitan areas in the country with respect to air quality. However, the Bay Area as a whole does not meet State or Federal ambient air quality standards for ground level O₃ and State standards for PM₁₀ and PM_{2.5}. For all other pollutants, the area complies with Federal and State air quality standards.

The Bay Area Air Quality Management District (BAAQMD) monitors air quality conditions at over 30 locations throughout the Bay Area. The monitoring stations closest to the project site are in Sunnyvale and San Jose. The Sunnyvale station only measures ozone.

Ozone is the air pollutant of greatest concern in summer. Prevailing summertime wind conditions tend to cause a build up of ozone in Santa Clara County. Ozone levels measured in Sunnyvale exceeded the state one-hour standard from 0 to 4 times in 2002-2006. Exceedances of the Federal 8-hour standard occurred twice in 2003. More frequent exceedances occurred at stations farther downwind in Los Gatos and Morgan Hill. The new State 8-hour standard was exceeded two times in 2006.

Mobile Source Air Toxics

Mobile source air toxics (MSATs) are emitted from highway vehicles and non-road equipment. 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 by-products. Metal air toxics result from engine wear or from impurities in oil or gasoline.

The U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) have identified six priority MSATs. These are 1) benzene, 2) formaldehyde, 3) acetaldehyde, 4) diesel particulate matter/diesel exhaust organic gases, 5) acrolein, and 6) 1,3-butadiene. CARB has found that diesel PM contributes over 70 percent of the known risk from air toxics and poses the greatest cancer risks among all identified air toxics. Diesel trucks contribute more than half of the total diesel combustion sources. However, the CARB has adopted a Diesel Risk Reduction Plan with control measures that would reduce the overall diesel PM emissions by about 85% from 2000 to 2020.

2.2.5.3 *Environmental Consequences*

The short-term (i.e., construction phase) air quality effects of the proposed project are described in Section 2.4. The project's long-term (i.e., operational phase) effects are described below.

Clean Air Act Conformity

The proposed project is fully funded and is in the Amendment to MTC's 2030 RTP as Project Number 21608, which was approved in May 2007. The project is also included in the 2007 Amendments to the Transportation Improvement Program (TIP) as Project Number SCL070024. The 2007 Amendments to the TIP were found to conform by FHWA and the Federal Transit Administration (FTA) on June 14, 2007. The design concept and scope of the proposed project is consistent with the project description in the RTP and TIP and the assumptions in MTC's regional emissions analysis.

Traffic-Related Carbon Monoxide (CO) Impacts

Project impacts from local traffic were evaluated by the quantitative method, which is modeling roadside CO concentrations associated with the project and comparing them to Federal and State CO Standards. The busiest U.S. 101 mainline segment and ramp intersections on U.S. 101 where there would be a combination of the highest traffic volumes, greatest project traffic contribution, and highest level of congestion were modeled. This is because high volume freeways, such as U.S. 101 and congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of CO.

Predicted CO concentrations, which include background levels, are shown in Table 11. This assessment was conducted for future No-Build and Build conditions in 2015 and 2035. The results indicate that future CO levels with or without the project would remain below standards. The predicted decrease in future concentrations is due to vehicle fleet turnover, with newer (less polluting) vehicles replacing older vehicles. As a result, the project would not cause or contribute to any localized CO violations.

Impact AIR-1: Construction of the proposed project would not cause or contribute to violations of CO standards. [**Less-than-Significant Impact**]

Mobile Source Air Toxics Impacts

While there are existing uncertainties that do not allow quantitative estimates of health effects from MSAT emissions in the project area, one can examine MSAT emissions in the project area and estimate the relative impacts of MSAT emissions under different scenarios. UC Davis, under contract to Caltrans developed a project-level MSAT analysis spreadsheet tool. This tool was developed with cooperation of Caltrans, CARB and FHWA. This analysis predicts emissions of the six priority MSATs, using project-specific traffic information and vehicle emissions factors.

T A B L E 11		
PROJECTED WORST-CASE CARBON MONOXIDE CONCENTRATIONS		
[Expressed in parts-per-million]		
	U.S. 101 Mainline from Oregon Expressway to San Antonio Road	U.S. 101 Mainline from Old Middlefield Way to Shoreline Boulevard
1-Hour Concentration (Standard = 20 parts-per-million)		
2015 - No Project	5.3	5.6
2015- With Project	5.4	5.6
2035 - No Project	4.7	4.8
2035 - Project	4.8	4.7
8-Hour Concentration (Standard = 9 parts-per-million)		
2015 - No Project	4.0	4.3
2015- With Project	4.1	4.3
2035 - No Project	3.4	3.5
2035 - Project	3.5	3.4
Source: U.S. 101 Auxiliary Lanes Air Quality Report, September 2008.		

Table 12 presents the results of the MSAT analysis. With or without the project, emissions for all six MSATs are projected to decrease considerably over existing conditions. Diesel PM is projected to experience a decrease of 81% from 2007 to 2035, while the other MSATs are projected to decrease by between 86% and 89%.

Emissions of diesel PM are projected to be 3.2% higher under the “with project” scenario compared to no project conditions in 2015. This represents an increase of about 0.5 pounds per day over the entire project length. The slight increase in diesel PM emissions is due to higher projected traffic volumes with the project in place. The 2035 diesel PM emissions would be 11% greater under the “with project” scenario compared to no project conditions. This represents an increase of about 0.3 pounds per day over the entire project length. The projected increase is mostly the result of an increase in traffic during the peak periods. The other MSATs are projected to be 12% higher in 2035 under the “with project” scenario, as compared to no project conditions.

T A B L E 1 2**COMPARISON OF MOBILE SOURCE AIR TOXICS EMISSIONS**
[Expressed in Pounds per Day]

	Diesel PM	Benzene	1,3-Butadiene	Acetaldehyde	Acrolein	Formaldehyde
Base Year (2007)	14.1	11.8	2.4	3.5	0.5	10.6
2015 - No Project	13.2	8.5	1.7	2.7	0.4	8.1
2015 - With Project	13.7	8.7	1.8	2.7	0.4	8.4
2035 - No Project	2.7	1.6	0.3	0.4	0.1	1.3
2035 - With Project	3.0	1.7	0.3	0.4	0.1	1.4

Source: U.S. 101 Auxiliary Lanes Mobile Source Air Toxics Report, July 2008.

While the data in Table 12 indicate that MSAT emissions would be slightly higher within the project limits if the project is constructed, the project would not increase regional MSAT emissions because overall traffic demand would not be affected by the project. In other words, the project accommodates more traffic within the project limits, but overall traffic demand remains constant.

Impact AIR-2: Construction of the proposed project would not substantially increase MSAT emissions within the project limits. Regional MSAT emissions would not change due to the project. **[Less-than-Significant Impact]**

2.2.6 Noise

The information in this section is based primarily on a technical Noise Report that was prepared for the project. This study is available for review at the locations listed inside the front cover of this document.

2.2.6.1 *Introduction and Regulatory Setting*

Introduction

Noise is measured in "decibels" (dB), which is a numerical expression of sound levels on a logarithmic scale. A noise level that is ten dB higher than another noise level has ten times as much sound energy and is perceived as being twice as loud. A sound change of less than 3 dB is just barely perceptible, and then only in the absence of other sounds. Intense sounds of 140 dB are so loud that they are painful and can cause damage with only brief exposure. These extremes are not commonplace in our normal working and living environments. An "A-weighted decibel" (dBA) approximates the frequency response

of the average young ear when listening to most ordinary everyday sounds. Thus, traffic noise impact analyses commonly use the dBA.

With regard to traffic-generated noise, noise levels rise as vehicle speeds, overall volumes, and truck volumes increase. In general, a doubling of traffic results in a 3 dBA increase in noise at a nearby receptor, assuming a relatively homogeneous traffic composition (i.e., mainly passenger cars). The peak noise hour is typically not the peak commute hour due to lower operating speeds during the latter. The combination of volumes and speeds that produces the peak noise hour is that which is associated with level of service C/D.

Regulatory Setting

CEQA provides the broad basis for analyzing and abating highway traffic noise effects. The intent of this law is to promote the general welfare and to foster a healthy environment. 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 such measures are not feasible.

The regulations of the FHWA and Caltrans require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. As shown in Table 13, the NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA).

Table 14 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.

In accordance with the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, August 2006, a noise impact occurs when the future noise level with the project results in a substantial increase in 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.

The Caltrans *Traffic Noise Analysis Protocol* 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 5 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

T A B L E 13		
NOISE ABATEMENT CRITERIA OF THE FEDERAL HIGHWAY ADMINISTRATION		
[Expressed in dBA]		
Activity Category	Peak-Hour Leq(h)	Description of Activity Category
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	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

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, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978 and the cost-per-benefited-residence.

2.2.6.2 Affected Environment

The project area is exposed to a relatively high level of noise from vehicular traffic. Vehicles traveling on U.S. 101 and cross-streets such as SR 85, Shoreline Boulevard, Rengstorff Avenue/Amphitheatre Parkway, San Antonio Road, Oregon Expressway, and Embarcadero Road produce Leq(h)⁹ noise levels that exceed FHWA's noise abatement criteria at various land uses that are located adjacent to these roadways.

⁹ Leq(h) is a measurement of the average energy level intensity of noise during the peak noise hour. "Leq" stands for the Noise Equivalent Level.

T A B L E 1 4

NOISE LEVELS ASSOCIATED WITH COMMON ACTIVITIES

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft) Commercial Area	70	Vacuum Cleaner at 3 m (10 ft) Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background) Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Existing peak-hour noise levels were quantified along U.S. 101 within the project limits where there are existing or proposed residences, as well as at Greer Park in Palo Alto. These locations are shown on Figure 4. Existing noise levels range from 54-78 dBA Leq(h), as shown in Table 15. These noise levels take into account the existing soundwalls along the freeway, which range in height from approximately 12 feet to 16 feet.

PROJECT LIMIT

Match Line



Match Line

Match Line



Match Line

PROJECT LIMIT



Aerial Source: Google Maps, 2008.

NOISE RECEPTOR LOCATIONS

FIGURE 4

TABLE 15

COMPARISON OF EXISTING AND FUTURE NOISE LEVELS ALONG U.S. 101
[Expressed in Loudest Hour Noise Levels, Leq(h), dBA]

Receptor #	Land Use	Existing/ No Project Noise Level	Future With Project Noise Level	Change in Noise due to Project	Existing Sound-wall?	Noise Level Approach or Exceed NAC?
1	SFR	64	64	0	Yes	No
2	SFR	63	63	0	Yes	No
3	SFR	63	63	0	Yes	No
4	SFR	63	63	0	Yes	No
5	SFR	62	63	+1	Yes	No
6	SFR	60	60	0	Yes	No
7	SFR	56	56	0	Yes	No
8	SFR	54	54	0	Yes	No
9	SFR	59	60	+1	Yes	No
10	SFR	54	55	+1	Yes	No
11	SFR	55	55	0	Yes	No
12	SFR	54	55	+1	Yes	No
13	SFR	59	59	0	Yes	No
14	SFR	61	61	0	Yes	No
15	SFR	60	61	+1	Yes	No
16	SFR	58	58	0	Yes	No
17	MFR	57	57	0	Yes	No
18	MFR	61	61	0	Yes	No
19	MFR	55	55	0	Yes	No
20	Park	69	70	+1	No	Yes
21	Park	67	69	+2	No	Yes
22	Park	76	77	+1	No	Yes
23	Park	59	60	+1	No	No
24	MFR	78	78	0	Yes*	Yes

TABLE 15 [continued]

COMPARISON OF EXISTING AND FUTURE NOISE LEVELS
[Expressed in Loudest Hour Noise Levels, Leq(h), dBA]

Receptor #	Land Use	Existing/ No Project Noise Level	Future With Project Noise Level	Change in Noise due to Project	Existing Sound- wall?	Noise Level Approach or Exceed NAC?
25	MFR	65	66	+1	Yes*	Yes
26	MFR	63	65	+2	Yes*	No
27	SFR	73	74	+1	No	Yes
27A	SFR	73	74	+1	No	Yes
28	MFR	62	63	+1	No	No
29	MFR	67	68	+1	Yes	Yes
30	SFR	60	60	0	Yes	No
31	SFR	60	60	0	Yes	No
32	SFR	62	62	0	Yes	No
33	SFR	65	65	0	Yes	No
34	SFR	68	68	0	Yes	Yes
35	SFR	68	68	0	Yes	Yes
36	SFR	67	68	+1	Yes	Yes
37	SFR	56	57	+1	Yes	No
38	SFR	58	58	0	Yes	No
39	SFR	59	59	0	Yes	No
40	SFR	59	60	+1	Yes	No
41	SFR	63	64	+1	Yes	No

SFR = single-family residential
NAC = noise abatement criteria of FHWA

MFR = multi-family residential
Receptors are shown on Figure 4.

*Soundwall planned as part of the Classics at Sterling Park Development, which is currently under construction.

Source: U.S. 101 Auxiliary Lanes Noise Report, November 2008.

2.2.6.3 *Environmental Consequences*

The short-term (i.e., construction phase) noise effects of the proposed project are described in Section 2.4. The project's long-term (i.e., operational phase) effects are described below.

Future traffic-related noise levels at land uses adjacent to U.S. 101 within the project limits were quantified in accordance with FHWA and Caltrans procedures. Projected noise levels were then compared to FHWA's noise abatement criteria shown in Table 15 to determine whether the consideration of noise abatement measures was warranted. Projected noise levels were also compared with existing noise levels to determine whether the increase (if any) would be substantial.

Depending upon the location, future peak-hour noise levels under “with project” conditions will remain unchanged from existing levels, or will increase by one to two decibels, as shown in Table 15. This projected increase in noise levels would not be substantial, nor significant under CEQA, because the increase would be less than the 12-dB threshold described above.

Projected noise levels will, however, exceed FHWA's noise abatement criteria at many locations, as they do under existing conditions. As a result, the feasibility and reasonableness allowances of noise abatement measures were considered. This process involved two situations:

- At each location where no soundwall exists, the feasibility and reasonableness allowance for constructing a new soundwall was evaluated.
- At locations that are already shielded by soundwalls, this effort focused on whether it would be feasible to achieve a further noise reduction of at least five decibels by raising the heights of the soundwalls. Soundwall heights in excess of 16 feet were not considered, per the Caltrans TNAP.

The feasibility of soundwalls was determined by the 5-dBA minimum reduction in noise level as well as overall constructability. The reasonableness allowances for the soundwalls were determined using criteria contained in the TNAP.

Based on the studies, Caltrans has determined the following:

- It would not be feasible to raise any of the existing soundwalls because an additional noise reduction of at least 5 decibels cannot be achieved.
- The construction of two new soundwalls, as described in Table 16, would be feasible (i.e., they would meet the minimum 5-dBA noise reduction criterion). Soundwall #1 would abate traffic noise in Greer Park. Soundwall #2 would abate noise by at least 5 dBA at four residences just south of Rengstorff Avenue. However, the cost estimate for each of the two soundwalls substantially exceeds the calculated reasonableness allowance.

TABLE 16

EVALUATION OF NOISE ABATEMENT SOUNDWALLS

Soundwall Number and Location	Approximate Soundwall Length	Approximate Soundwall Height	Land Use Benefitting by ≥ 5 dBA	Reasonable Allowance	Preliminary Cost Estimate
#1: Westside of 101 at Greer Park	900 feet	12' - 14'	Greer Park	\$208,000	\$442,800 - 12' \$516,600 - 14'
#2: Westside of 101, south of Rengstorff	800 feet	12' - 16'	Four residences	\$216,000	\$393,600 - 12' \$459,200 - 14' \$524,800 - 16'

- Soundwall heights and lengths are preliminary and subject to change during final design.
- \$41 per square foot is the current unit cost being used for conceptual estimates for soundwalls.

Source: U.S. 101 Auxiliary Lanes Noise Report, November 2008.

A final decision on which (if either) of the two soundwalls will be constructed will be made upon completion of the public involvement process.

Impact NOI-1: Depending on the location, increases in long-term noise levels will range from 0-2 dBA, which is not substantial. [**Less-than-Significant Impact**]

2.3 BIOLOGICAL ENVIRONMENT

The information in this section is based primarily on a technical Natural Environment Study that was prepared for the project. A copy of this study is available for review at the locations listed inside the front cover of this document.

2.3.1 Natural Communities

2.3.1.1 *Introduction*

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information

on wildlife corridors (including fish passage) and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in Section 2.3.5, *Threatened and Endangered Species*. Wetlands and other waters are also discussed below in Section 2.3.2, *Wetlands and Other Waters*.

2.3.1.2 Affected Environment

The following sensitive habitats are listed by the California Natural Diversity Rarefind Database as occurring in the region¹⁰: 1) north central coast roach/stickleback/steelhead stream; 2) north central coast steelhead/sculpin stream; 3) northern coastal salt marsh; 4) serpentine bunchgrass grassland; and 5) valley oak woodland. The project site does not present suitable soil substrates or microclimatic regimes for any of these sensitive habitats and none were observed to occur on the site. Northern coastal salt marsh occurs within the nearby Palo Alto Baylands, but does not occur on the project site.

Wildlife Corridors

The project is located within a largely urbanized area, which severely limits opportunities for wildlife movement. The three creeks that cross under U.S. 101 within the project limits do, however, provide wildlife with the ability to move through the area. Neither the U.S. 101 bridges at Matadero and Adobe Creeks, nor the 12' x 12' box culvert under U.S. 101 at Permanente Creek, are barriers to wildlife. However, due to its length, wildlife movement through the box culvert would be limited, especially when compared to the two bridge undercrossings.

Fish Passage

Surveys revealed that the tide gate at Mayfield Slough, below Matadero Creek and Adobe Creek in the Palo Alto Flood Control Basin, would likely block migration for steelhead or other anadromous fish, mainly due to a trash rack with 4 in-rack bars. The slack water upstream from the tide gate is known to have a striped bass population, which would reduce the likelihood of survival of any steelhead that were able to move into the Palo Alto Flood Control Basin. Low water quality in this slack water would also likely discourage steelhead from attempting to migrate upstream as far as U.S. 101.

Although historic records indicate that steelhead inhabited the Matadero, Adobe, and Permanente Creeks watersheds, recent sampling in these watersheds indicate no steelhead or non-migratory rainbow trout are present. Surveys revealed the presence of a few native species, such as threespine stickleback,

¹⁰“Region” is the USGS quadrangle map where the project is located (i.e., Mountain View Quadrangle) and all eight of the surrounding quadrangle maps.

Sacramento sucker, and California roach, but also the presence of nonnatives such as bluegill, green sunfish, redear sunfish, carp, and rainwater killifish, in these streams. The National Oceanic & Atmospheric Administration (NOAA) Fisheries and California Department of Fish & Game (CDFG) consider steelhead and other anadromous salmonids absent from Matadero Creek, Adobe Creek, and Permanente Creek. Because no other species included in fisheries management plans are expected to occur in these streams, Essential Fish Habitat (EFH) is also absent from the project site.

Neither the U.S. 101 bridges at Matadero and Adobe Creeks, nor the 12' x 12' box culvert under U.S. 101 at Permanente Creek, are barriers to fish passage.

2.3.1.3 *Environmental Consequences*

As stated above, no natural communities of concern occur on the project site. Therefore, the project will not result in any impacts to such habitats.

Impact NAT-1: Construction of the proposed project will not impact any natural communities of concern. **[No Impact]**

The project will require minor widening to the existing bridges and box culvert that carry U.S. 101 over Adobe, Matadero, and Permanente Creeks. The widened bridges and box culvert will not include any features (e.g., piers, drop structures, wingwalls, etc.) that would introduce any new barriers to wildlife movement and/or fish passage.

Impact NAT-2: The project will not create a barrier to the movement of wildlife or the passage of fish. **[No Impact]**

2.3.2 Wetlands and Other Waters

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 (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, 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 Clean Water Act, 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 Clean Water Act.

Section 404 of the Clean Water Act 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 U.S. Army Corps of Engineers (ACOE) with oversight by the Environmental Protection Agency (EPA).

At the state level, wetlands and waters are regulated primarily by the CDFG and the Regional Water Quality Control Boards (RWQCB). Sections 1600-1607 of the 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 CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG 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 ACOE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see Section 2.2.2, *Water Quality*, for additional details.

2.3.2.2 *Affected Environment*

Approximately 0.6 acres of small, scattered patches of low quality wetland habitat occur within the existing cloverleaf interchanges at San Antonio Road and Oregon Expressway. Most of these wetlands are irrigation-fed, and exist in topographic low points of the interchanges. The most extensive areas of wetlands have formed behind blocked exit drainage culverts and near an obviously malfunctioning irrigation pipe at San Antonio Road. These ruderal wetlands pond water frequently (especially near the drainage culverts on the eastern edge of the cloverleaf), and support some native species such as cattails, saltgrass, and alkali weed. While these areas resemble small patches of perennial marsh habitat, they do not function as high-quality habitat due to: 1) the surrounding development and hardscape which isolates these patches from one another and from the larger wetland areas to the east of U.S. 101; 2) altered runoff patterns and storm water quality from the surrounding hardscape; 3) trash thrown from cars; 4) noise and traffic along U.S. 101 and other roads in the area; 5) the predominance of non-native landscaping plants like iceplant and rosemary that surround the artificially-supported wetlands in these areas; and 6) occasional maintenance/cutting of these plants. The extent and value of these wetlands will diminish because Caltrans maintenance staff has permanently turned off the malfunctioning irrigation system since the landscaping has become established (Caltrans, May 2008).

Aquatic habitat occurs within Permanente, Adobe, and Matadero Creeks, adjacent to and underneath the U.S. 101. These creeks are channelized and concrete-lined within the project limits. Annual spring scouring flows and regular channel maintenance activities conducted by the SCVWD remove much of the channel bottom sediments deposited by stream flows, inhibiting the development of relatively

persistent alluvial bars and associated later-successional wetland habitat. Sparse wetland vegetation, rooted upon collected sediment within the concrete liners, occurs sporadically in all the creek beds, with very little vegetation directly under and adjacent to U.S. 101 due to the shade provided by the overpasses. These wetlands, which total approximately 0.02 acres, are ephemeral as they are scoured out or removed by maintenance workers.

2.3.2.3 *Environmental Consequences*

No work or staging of equipment or materials is proposed within the portions of the interchanges at San Antonio Road and Oregon Expressway that contain the 0.6 acres of scattered wetlands (see description, above). Therefore, these wetlands will not be impacted by the project.

Impact WET-1: The project will not affect the wetland habitat that is located within the footprint of the San Antonio Road & Oregon Expressway interchanges. **[No Impact]**

The widening of the bridges and culverts on U.S. 101 at Adobe Creek, Matadero Creek, and Permanente Creek will result in the removal of 0.02 acres of low quality ephemeral wetland habitat growing on accreted sediments within these concrete-lined channels. For the following reasons, this habitat has low value: 1) the ephemeral wetlands are frequently removed by the SCVWD to maintain channel capacity and/or by scouring flood flows; 2) they are dominated by invasive, non-native plant species; 3) they are of very small size and disconnected from downstream, higher quality wetlands; and 4) they do not provide breeding habitat for special-status wildlife species.

Impact WET-2: The project will result in the removal of 0.02 acres of low quality ephemeral wetland habitat. **[Less-than-Significant Impact]**

2.3.3 **Plant Species**

2.3.3.1 *Regulatory Setting*

The U.S. Fish and Wildlife Service (USFWS) and the CDFG 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 afforded 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 Federal Endangered Species Act and/or the California Endangered Species Act. Please see Section 2.3.5, *Threatened and Endangered Species*, for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

2.3.3.2 *Affected Environment*

An initial list of 98 special-status plants were identified as occurring (extant or historical) within the general area in a wide variety of different habitat types (defined by the 9-quadrangle and Santa Clara County search area). Of the 98 species, 67 were dismissed outright due to a total lack of habitat (such as serpentine soils, loose talus at 2,000 ft, etc.) for these species within the project's biological study area (BSA), which consists of the footprint of the project as well as all areas that may be affected directly or indirectly by the construction activity (action). The remaining 31 special-status species were further considered for occurrence either because their preferred habitat type was observed on or within the BSA or the database noted a historical occurrence of the species within the project vicinity. After taking into consideration the site-specific characteristics of the preferred habitat of the species, including associate species, habitat ecological condition, and prior and current land use practices, habitat of a suitable quality was determined to be entirely absent from the BSA for all of these 31 special-status plants.

2.3.3.3 *Environmental Consequences*

Since no special-status plant species are present within the project impact area, the project will not impact any special-status plant species.

Impact PLNT-1: The project will not impact any special-status plant species. **[No Impact]**

2.3.4 **Animal Species**

2.3.4.1 *Regulatory Setting*

Many state and federal laws regulate impacts to wildlife. The USFWS, NOAA Fisheries and the CDFG 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 state or federal Endangered Species Acts. Species listed or proposed for listing as threatened or endangered are discussed below in Section 2.3.5, *Threatened and Endangered Species*. All other special-status animal species are also discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 - 1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

2.3.4.2 *Affected Environment*

The list of special-status animal species occurring in the region was evaluated for their potential to occur within the biological study area (BSA), which consists of the footprint of the project as well as all areas that may be affected directly or indirectly by the construction activity (action). Most of the regional special-status species were rejected for occurrence in the BSA because the project area lacks suitable habitat and/or is outside of the range of the species. Several special-status species that occur in the region may occur in the BSA but only as uncommon to rare visitors, migrants, or transients, and are not expected to reside or breed on the site.

San Francisco Common Yellowthroat (California Species of Special Concern)

Reconnaissance-level surveys conducted during the breeding season of 2008 did not detect San Francisco common yellowthroats in or adjacent to the BSA, however the emergent vegetation immediately to the east of the Matadero Creek bridge could provide habitat for, at most, a single nesting pair. The habitats near the Adobe and Permanente Creek bridges are currently inadequate to support common yellowthroats, due to a lack of emergent fresh or brackish water vegetation that these birds use for nesting.

Alameda Song Sparrow (California Species of Special Concern)

Song sparrows were observed during the 2008 breeding season immediately to the northeast of the Matadero Creek bridge, and this species likely nests in vegetation within or immediately east of the BSA along Matadero Creek and Adobe Creek. Habitat along Permanente Creek near the BSA is of marginal quality for breeding by this species. There are three subspecies of song sparrow that breed only in salt marsh habitats in the San Francisco Bay area, one of which is the Alameda song sparrow. However, the subspecies identity of the song sparrows on the project site is unknown. Subspecies identification is not possible unless the birds are examined in the hand. In any case, the habitats within or immediately east of the BSA along Matadero Creek and Adobe Creek, and possibly along Permanent Creek, may support 1-3 pairs of breeding song sparrows.

Roosting Bats

Bats are known to roost under, or in association with, various bridges in the South Bay. Accordingly, the Adobe Creek and Matadero Creek bridges, as well as the Permanente Creek culvert, were surveyed for signs of bat use. No evidence of bat roosts was found at the Permanente Creek culvert. Five Yuma

myotis bats were observed using the Adobe Creek bridge as a night roost, but there was no evidence of the use of this bridge by day-roosting bats.

The Matadero Creek bridge contains crevices, likely in the expansion joints, which provide daytime roosting habitat for bats. Accordingly, the initial survey was followed by a site visit that included the use of an Anabat recorder, a device used to detect vocalizing bats. The Anabat recorder detected over 430 call sequences at the Matadero Creek Bridge on 8 November 2007. A follow-up survey on 17 June 2008 revealed at least 40 bats, most or all of which were Yuma myotis (but with Mexican free-tailed bats detected nearby), roosting in a crevice under this bridge. The number of bats present on this date (during the breeding season) indicates that the bridge does support a large maternity colony.

Based on the number of individual bats recorded and the proximity of the structure to high-quality foraging habitat, it is likely that the bridge supports a maternity colony of Yuma myotis. This species forages over open baylands habitats in the South Bay, and only two other large maternity roosts (consisting of approximately 20 individuals in Alviso and 80 individuals in Fremont) of the Yuma myotis are known in such close proximity to high-quality foraging habitat. Therefore, the Matadero Creek Bridge colony is a regionally important colony of the species.

Nesting Birds

The Migratory Bird Treaty Act and California Fish and Game Code protect migratory birds, including their eggs, nests, and young. The killing or harassment of such birds, including activities that may result in the abandonment of active nests during the nesting season (generally, March 1st through August 31st), is prohibited. Several species of birds protected by these laws may nest within the project area. For example, black phoebes, cliff swallows, and barn swallows nest under the Matadero Creek and Adobe Creek bridges. In addition, a number of other species may nest in trees, shrubs, and other habitats within and adjacent to the BSA.

2.3.4.3 Environmental Consequences

Impacts to Roosting Bats at Adobe Creek Bridge

Daytime construction activities will not affect nest bats at the Adobe Creek bridge because, as described above, the bridge is not used for day-roosting. Nighttime construction activities, especially high-intensity lighting under the bridge, could however affect the night roosts. Therefore, such work should be minimized to the extent practical. Even if such work cannot be avoided, the impact would not be substantial because of the availability of night roosts elsewhere. Further, individuals displaced temporarily during construction would likely return after construction has been completed.

Impact ANMAL-1: Impacts to bats that use the Adobe Creek bridge for night roosting will be temporary and will not be substantial. **[Less-than-Significant Impact]**

Impacts to Roosting Bats at Matadero Creek Bridge

Although most construction activities would not likely disturb roosting bats to the point of causing abandonment of the site, pile driving, jack hammering on the bridge abutments, intense lighting under the bridge or near the roost cavities, or other construction activities that would produce high levels of noise, vibration, or lighting disturbance above the existing ambient levels, could potentially cause the abandonment of a colony. Roost abandonment during the breeding season (April 1st - August 31st) could lead to the loss of a year's worth of breeding effort, the mortality of that year's young, and adult female mortality due to increased predation by raptors, corvids (family of crows and jays), or other species. Roost abandonment during the non-breeding season (September 1st - March 31st) would cause any bats roosting on the bridge to relocate to other areas. Such relocation could result in increased predation of bats if the bats relocate during daylight hours. Regardless of the season, roost abandonment could result in the long-term abandonment of the breeding colony, since at least some of the bats could be resident here year-round, if no alternative day-roost were present nearby.

Impact ANMAL-2: Construction-related impacts to the colony of Yuma myotis bats that use the Matadero Creek bridge for roosting may be substantial. **[Significant Impact]**

Impacts to Nesting Birds

Construction activities could adversely impact birds that nest under the Adobe Creek bridge, the Matadero Creek bridge, and/or in the trees and shrubs that are within or adjacent to the project impact area. Potential impacts include the destruction of active nests, the incidental loss of fertile eggs or nestlings, or the abandonment of nests.

Impact ANMAL-3: Construction activities may adversely affect birds that are nesting within or adjacent to the project's construction zone. **[Significant Impact]**

2.3.4.4 *Avoidance, Minimization, and/or Mitigation Measures*

Roosting Bats at Matadero Creek Bridge

The measures listed below were developed in consultation with David Johnston, a biologist with the CDFG. The measures, which are included in the project, will reduce impacts to roosting bats at the Matadero Creek bridge to a less-than-significant level.

Important Note: Mitigation Measures 2.1 and 2.2 will be implemented if construction *will* involve extreme disturbances (e.g., pile driving, jack hammering on the bridge abutments, intense lighting under the bridge or near the roost cavities). Mitigation Measures 2.2 and 2.3 will be implemented if construction will *not* involve extreme disturbances.

MM-ANMAL-2.1: If pile driving, jack hammering on the bridge abutments, intense lighting under the bridge or near the roost cavities, or other extreme disturbances will occur, the bats will be evicted from the roost during the non-breeding season preceding these extreme disturbances. A qualified bat biologist will exclude the roosting bats using one-way doors fixed to roost entrances. Eviction of bats will occur at night, so that bats will have less potential for predation compared to daytime roost abandonment. Eviction will occur between September 1st and March 31st, outside the maternity season, but will not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey are not available or bats are in torpor. The one-way doors used to evict the bats will be inspected periodically by the bat biologist and maintained from the time of installation through the completion of the extreme disturbance to ensure that they are functioning properly. The exclusion devices will be removed following the conclusion of the extreme disturbance, as determined by the bat biologist.

MM-ANMAL-2.2: To avoid the long-term abandonment of the colony and minimize the loss of evicted individuals, an appropriate bat condominium, as specified by a bat biologist in consultation with CDFG, will be placed by VTA in a suitable, conspicuous location (e.g., the edge of a marsh or other open area) between 500 and 1,000 feet from the existing roost. The bat condominium will be installed one year before the commencement of construction (under both the extreme or minimal disturbance scenarios) and at least six months before bats are excluded from the existing roost (under the extreme disturbance scenario). The existing roost and the bat condominium will be visually checked by a qualified bat biologist within five days prior to exclusion to ascertain whether bats have occupied the condominium in advance of construction. The bridge roost and the condominium would also be checked visually at least once during the maternity season for up to three years after the completion of construction. Monitoring will cease prior to Year-3 if it is determined that one structure or the other has been occupied by bats during the maternity season.

MM-ANMAL-2.3: If construction can occur without extreme disturbances, the colony will not be excluded, since the exclusion could have more of an adverse effect on the bat colony than maintaining the bats' access to the colony and subjecting them to some increase in disturbance during construction. To study the impact assessment of, and the development of impact minimization measures for, similar projects in the future, some minimal information on the increase in disturbance to which bats are subjected during construction and on the bats' response to that disturbance will be collected. A qualified biologist will determine the status of the colony (i.e., whether it is active, and the approximate numbers of bats) by a visual inspection of the bridge within five days prior to the initiation of construction. Baseline data on the vibration and sound levels at the

bridge site will also be collected for a minimum of two days within five days of construction commencement. Following this pre-construction, baseline monitoring, the colony will then be monitored every night during construction using acoustic surveying methods, such as Anabat equipment, to determine the status of the colony (i.e., to determine if the colony abandons the roost). The majority of this construction monitoring will be done remotely with acoustic surveying equipment and will not require a surveyor to be present every night during construction. Monitoring equipment will also be used to sample construction-related increases in noise and vibration. Project implementation will not have to be modified based on the findings of this monitoring, even if the bats abandon the roost. However, these data will allow for a determination of whether or not the bats remained at the bridge during construction and/or changed their activity patterns in relation to varying levels of noise and vibration.

Nesting Birds

The following measures, which are included in the project, will reduce impacts to nesting birds to a less-than-significant level:

MM-ANMAL-3.1: Vegetation that will be impacted by the project will be removed during the nonbreeding season (i.e., September 1st to February 14th), if feasible, to help preclude nesting. If it is not feasible to schedule vegetation removal during the nonbreeding season, then pre-construction surveys for nesting birds will be conducted by a qualified ornithologist to ensure that no nests will be disturbed during project implementation. This survey will be conducted no more than seven days prior to the initiation of construction activities. During this survey, the ornithologist will inspect all trees, shrubs, and other potential nesting habitats in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist, in consultation with CDFG, will determine the extent of a buffer zone to be established around the nest, typically 300 feet for raptors and 50 feet for other birds.

MM-ANMAL-3.2: At the Adobe Creek and Matadero Creek bridges, to avoid impacts to nesting swallows and black phoebes, old nests should be removed prior to February 15th, or after February 15th if a qualified ornithologist determines that the nests are not active. Maintaining bridges free from nesting birds may require the placement of netting or other structures over the underside of the bridges to prevent swallows and other birds from accessing suitable nesting substrate. Alternatively, nest starts may be removed on a regular basis (e.g., every other day) to prevent active nests from becoming established.

Conclusion: The project may result in significant impacts to roosting bats and/or nesting birds. However, mitigation is included in the project to reduce these impacts to a less-than-significant level.

2.3.5 Threatened and Endangered Species

2.3.5.1 *Regulatory Setting*

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA). This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies are required to consult with the USFWS and the 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 is a Biological Opinion or an incidental take permit. Section 3 of 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 at the state level, the California Endangered Species Act (CESA). 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 CDFG is the agency responsible for implementing CESA. The Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in the 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 CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may authorize the "take" of a CESA listed species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

2.3.5.2 *Affected Environment*

Species that are listed as threatened or endangered under FESA or CESA, and which are known to occur regionally, were evaluated for their potential to occur within the project's biological study area (BSA), which consists of the footprint of the project as well as all areas that may be affected directly or indirectly by the construction activity (action). Table 17 lists these species, as well as the results of the evaluation. As shown in Table 17, none of these species occur within the project's BSA.

TABLE 17

**POTENTIAL FOR THREATENED OR ENDANGERED SPECIES
TO OCCUR WITHIN THE PROJECT'S BIOLOGICAL STUDY AREA**

Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
Robust Spineflower	FE	Very sandy or gravelly maritime chaparral, cismontane woodland openings, coastal dunes and scrub	Absent	No suitably dry, well-drained, coarse, loose, mineral soils in area; determined to be absent.
Contra Costa Goldfields	FE	Mesic, often alkaline cismontane woodland, playas, valley and foothill grassland, vernal pools	Absent	Species presumed extirpated from Santa Clara County, all marginally suitable habitat within BSA highly invaded and disturbed; determined to be absent.
California Seablite	FE	Marshes and swamps with coastal salt influences	Absent	All known populations in San Francisco Bay now extirpated, all areas within BSA with estuarine influence are highly disturbed, have scouring flows and sediment control; determined to be absent.
Vernal Pool Fairy Shrimp	FT	Various vernal pool habitats: small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools.	Absent	No suitable habitat present; determined to be absent.
Bay Checkerspot Butterfly	FT	Serpentine grasslands in the San Francisco Bay Area where primary larval host plant (<i>Plantago erecta</i>) is present in high densities.	Absent	No suitable habitat present; determined to be absent.
Green Sturgeon	FT	Spawn in lower reaches of large rivers with swift currents and large cobble	Absent	No suitable habitat present; determined to be absent.
Tidewater Goby	FE	Coastal lagoons, estuaries, and marshes with relatively low salinities	Habitat present/ Species absent	Extirpated from South San Francisco Bay; determined to be absent.
Delta Smelt	FT, ST	Shallow, tidal water in Sacramento/San Joaquin River Delta	Absent	Outside known range; determined to be absent.

T A B L E 17 [continued]

Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
Steelhead (Central CA Coastal DPS)	FT, ST	Cool streams that reach the ocean and that have shallow partially shaded, pools, riffles, and runs.	Habitat present/ Species absent	Tide gates prevent access to Matadero and Adobe Creeks; unsuitable conditions for spawning in these and Permanent Creek; determined to be absent from all creeks in BSA.
Steelhead (Central Valley DPS)	FT, ST	Cool streams that reach the ocean and that have shallow partially shaded, pools, riffles, and runs. Sacramento and San Joaquin River tributaries, excludes San Francisco Bay and tributaries.	Absent	Outside of known range; determined to be absent.
Coho Salmon (Central CA coast ESU)	FE, SE	Cool streams that reach the ocean and that have shallow partially shaded, pools, riffles, and runs. San Francisco Bay tributaries.	Habitat present/ Species absent	Tide gates prevent access to Matadero and Adobe Creeks; determined to be absent from all creeks in BSA.
Spring-run Chinook Salmon (Central Valley ESU)	FT, SE	Cool streams that reach the ocean and that have shallow partially shaded, pools, riffles, and runs. Sacramento River tributaries.	Absent	Outside of known range; determined to be absent.
Winter-run Chinook Salmon (Sacramento River ESU)	FE, SE	Cool streams that reach the ocean and that have shallow partially shaded, pools, riffles, and runs. Sacramento River tributaries.	Absent	Outside of known range; determined to be absent.
Alameda Whipsnake	FT	South-facing slopes and ravines; mosaic habitat of shrubs, oaks and grasslands	Absent	No suitable habitat present; determined to be absent.
San Francisco Garter Snake	SE, FE	Forages in quiet pools and adjacent lands primarily in San Mateo County.	Absent	Outside of known range; determined to be absent.
California Red-legged Frog	FT	Streams, freshwater pools and ponds with overhanging vegetation.	Absent	No suitable habitat present; extirpated from project vicinity due to urbanization; determined to be absent.
California Tiger Salamander	FT	Vernal or temporary pools in annual grasslands or open woodlands.	Absent	No suitable habitat present; determined to be absent.

T A B L E 17 [continued]

Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
California Least Tern	FE, SE	Breeds on bare or sparsely vegetated, flat substrates.	Absent	No suitable habitat present; determined to be absent.
California Black Rail	ST	Pickleweed dominated tidal salt marshes, also fresh and brackish marshes.	Absent	No suitable habitat present; determined to be absent.
Western Snowy Plover	FT	Sandy beaches, salt pond levees, shores of large alkali lakes.	Absent	No suitable habitat present; determined to be absent.
California Brown Pelican	FE	Breed on islands without mammalian predators	Absent	No suitable habitat present; determined to be absent.
California Clapper Rail	FE, SE	Salt-water and brackish marshes with tidal influence with associated pickleweed.	Absent	No suitable habitat present; determined to be absent.
Marbled Murrelet	FT, SE	Nests in old-growth forests, forages in coastal waters.	Absent	Outside known range. No suitable habitat present; determined to be absent.
Salt Marsh Harvest Mouse	FE	Marshes with pickleweed or other salt-tolerant plants. Adjoining grasslands during high winter tides.	Absent	No suitable habitat present; determined to be absent.
San Joaquin Kit Fox	FE	Annual grasslands or grassy open stages with scattered shrubbery vegetation	Absent	Outside known range; determined to be absent.
FE = Federal endangered SE = State endangered DPS = distinct population segment		FT = Federal threatened ST = State threatened ESU = evolutionary significant unit		
Source: U.S. 101 Auxiliary Lanes Natural Environment Study, October 2008.				

2.3.5.3 *Environmental Consequences*

As discussed above, there are no species that are listed as threatened or endangered under FESA or CESA that occur within the project's BSA. Therefore, the project will not impact any threatened or endangered species.

Impact ENDSPEC-1: The project will not impact any threatened or endangered species. **[No Impact]**

2.4 CONSTRUCTION IMPACTS

2.4.1 Traffic Effects/Street Closures During Construction

Except for temporary off-peak lane closures, the same number of traffic lanes will be maintained on U.S. 101 and local streets during the two-year construction period. Narrowed lanes on U.S. 101 through the construction zone will be likely.

Prior to construction, a Traffic Management Plan (TMP) will be prepared. The TMP will address all traffic-related aspects of construction including, but not limited to, the following: traffic handling in each stage of construction, pedestrian safety/access, and bicycle safety/access. A component of the TMP will involve public dissemination of construction-related information through notices to the neighborhoods, press releases, and the use of changeable message signs.

Impact CON-1: Traffic impacts during construction will not be substantial. Street closures and detours are not anticipated. **[Less-than-Significant Impact]**

2.4.2 Effects on Businesses during Construction

No roadway or driveway access to businesses is expected to be severed during the construction of the project.

Impact CON-2: Access to businesses will not be affected during construction of the proposed project. **[No Impact]**

2.4.3 Effects on Utilities during Construction

The project will require the relocation of a number of overhead and underground utility lines (e.g., electric poles, telephone poles, anchor poles, gas pipelines, water lines, fiber-optic cables, etc.) that are located within the footprint of the project. However, no disruption of any utility service(s) for an extended period of time (i.e., more than 24 hours) is expected to be necessary.

Impact CON-3: Disruption of utility service during construction will not be substantial. **[Less-than-Significant Impact]**

2.4.4 Air Quality Effects during Construction

Construction-related emissions are generally short-term in duration but may still cause adverse air quality impacts unless proper emission control measures are implemented.

Construction activities such as earthmoving, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth will generate exhaust emissions and fugitive particulate matter emissions that would affect local and regional air quality. Construction activities are also a source of organic gas emissions. Asphalt used in paving is a source of organic gases for a short time after its application. Solvents in adhesives, non-waterbase paints, and thinners would also evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Many types of construction equipment emit diesel exhaust, which is known to result in adverse health effects.

Construction dust could affect local air quality at various times during construction of the project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed to the atmosphere.

The effects of construction activities would be increased dustfall and locally elevated levels of PM₁₀ downwind of construction activity. Construction dust has the potential for creating a nuisance at nearby properties, and may constitute a health effect for children or persons with chronic health problems.

Standard Caltrans construction management practices are adequate to assure that associated air quality impacts will be minimal. These include requiring emission controls on construction equipment and spraying water on exposed surfaces to minimize dust.

Impact CON-4: Without proper emissions control measures in place, air quality impacts during construction could be substantial. **[Significant Impact]**

The following measures will be implemented by the project for the purpose of avoiding/minimizing air quality effects during construction:

MM-CON-4.1: During construction, the project will follow Caltrans Standard Specification 7-1.01F, Standard Specification 10, and Standard Specification 18, which address the requirements of BAAQMD and dust control and dust palliative application, respectively.

MM-CON-4.2: The project will implement all feasible PM10 construction emissions control measures required by the BAAQMD, as indicated in Table 18.

2.4.5 Noise and Vibration Effects during Construction

Project construction activities along southbound U.S. 101 would occur near residential land uses west of the project alignment. At times, construction activities could be within 50 feet of these noise-sensitive uses. Phases anticipated during project construction would include clearing and

T A B L E 1 8

FEASIBLE CONTROL MEASURES FOR CONSTRUCTION EMISSIONS OF PM10

Basic Control Measures. The following controls will be implemented at all construction sites.

- Water all active construction areas at least twice 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 three times 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 daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

Enhanced Control Measures. The following measures will be implemented at construction sites greater than four acres in area.

- Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (i.e., previously graded areas inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (nontoxic) soil binders to exposed stockpiles (e.g., dirt and sand).
- Limit traffic speeds on unpaved roads to 24.1 kilometers per hour (15 miles per hour). Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

Optional Control Measures. The following control measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors, or for any other reason may warrant additional emissions reductions, but the project applicant is not required to implement.

- Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.
- Install windbreaks or plant trees or vegetative wind breaks at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
- Limit the area subject to excavation, grading, and other construction activity at any one time.

Source: Assessing the Air Quality Impacts of Projects, BAAQMD, December 1999.

grubbing, earthwork, paving, and the construction of structures (including pile driving). Each construction phase would require a different combination of construction equipment and different intensities of use of such equipment.

Project-generated construction noise would primarily result from the operation of vehicles and equipment. The highest noise levels would result from impulsive construction techniques such as pile driving and demolition activities including the use of hoe rams. FHWA's Roadway Construction Noise Model was used to calculate the maximum and average noise levels anticipated during each phase of construction at a distance of 50 feet. Table 19 presents the construction noise levels calculated for each major phase of the project. Noise generated by construction equipment drops off at a rate of 6 dB per doubling of distance. Shielding by terrain or existing noise barriers could provide an additional 5-10 dBA of noise reduction.

T A B L E 19		
CONSTRUCTION EQUIPMENT NOISE LEVELS AT 50 FEET		
Construction Phase	Maximum Noise Level (Lmax dBA)	Hourly Average Noise Level (Leq dBA)
Clear and Grub	81	79
Earthwork	82	84
Paving	85	85
Structures (with pile driving)	101	95
Structures (without pile driving)	83	84
Source: U.S. 101 Auxiliary Lanes Noise Report, November 2008.		

Impact CON-5: Noise from construction activities is likely to constitute a temporary annoyance at residences located along U.S. 101. Construction activities may also generate noticeable ground vibration at nearby residences, with pile driving being the construction source that could produce the greatest ground vibrations. **[Significant Impact]**

The following measures will be implemented by the project for the purpose of avoiding/minimizing noise and vibration effects during construction:

- MM-CON-5.1:** All internal combustion engine driven equipment will be equipped with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- MM-CON-5.2:** Unnecessary idling of internal combustion engines within 100 feet of residences will be strictly prohibited.
- MM-CON-5.3:** Staging of construction equipment within 200 feet of residences will be avoided. All stationary noise-generating construction equipment, such as air compressors and portable power generators, will be located as far practical from residences.
- MM-CON-5.4:** All construction equipment will be required to conform to Section 7-1.01I - Sound Control Requirements of the latest Caltrans Standard Specifications.
- MM-CON-5.5:** Nighttime construction work within 225 feet of residential land uses will be avoided where feasible.
- MM-CON-5.6:** Demolition and pile driving activities should be limited to daytime hours only. If nighttime, impulsive work is required, a construction noise monitoring program will be implemented to provide additional mitigation as necessary (in the form of noise control blankets or other temporary noise barriers, etc.) for affected receivers.

2.4.6 Water Quality Effects during Construction

The project will involve excavation and grading activities for the purpose of constructing the new lanes and ramp modifications. These activities have the potential to degrade water quality in the form of sedimentation, erosion, and fuels/lubricants from equipment. At this location, the water quality of various creeks could be affected by construction activities because most of the storm drains discharge into the creeks. Since these creeks support numerous wildlife and plant species, a short-term degradation of water quality could adversely affect such species.

- Impact CON-6:** Construction activities have the potential to adversely affect water quality in nearby creeks. **[Significant Impact]**

In order to avoid/minimize the potential for water quality impacts to occur, the project will implement the following measures:

- MM-CON-6.1:** Active paved construction areas will be swept and washed as needed.

- MM-CON-6.2:** Silt fencing will be used to retain sediment on the project site.
- MM-CON-6.3:** Temporary cover of disturbed surfaces or temporary slope protection measures will be provided per regulatory requirements and Caltrans' guidelines to help control erosion. Permanent cover/revegetation will be provided to stabilize the disturbed surfaces after construction has been completed.
- MM-CON-6.4:** No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products, or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into any waterways.
- MM-CON-6.5:** Best Management Practices (BMPs) will be utilized by the contractor(s) during construction. The BMPs will be incorporated into a Stormwater Pollution Prevention Plan for the project, as required by the Caltrans NPDES permit.

Conclusion: The project may result in significant impacts during construction. However, mitigation is included in the project to reduce these impacts to a less-than-significant level.

2.5 CUMULATIVE IMPACTS

2.5.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this 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 types of 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.

CEQA Guidelines, Section 15130, describes when a cumulative impact analysis is warranted 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.

2.5.2 Impacts

Substantial development has occurred - and is occurring – along the U.S. 101 corridor. The entire project area, with the exception of the Palo Alto Baylands, has been transformed from what was historically a rural environment to that of an urban environment. As described in Section 2.1.1, *Land Use*, numerous residential, commercial, and industrial uses are present along U.S. 101.

Cumulative development has resulted in a significant increase in traffic on U.S. 101 and in the project area as a whole, and future increases are projected to occur. The future traffic conditions identified in this report for the project area are based on the land uses identified in the general plans of the Cities of Mountain View and Palo Alto, as well as those of the surrounding jurisdictions. The project would not contribute toward this increase in traffic; rather, it would improve traffic operations for these vehicle trips. See Section 2.1.4, *Traffic*.

Cumulative development has resulted in a substantial increase in ambient noise levels in the project area. Ground traffic is the single largest source of noise along U.S. 101. Noise typically associated with residential and urban environments is present, which also contributes to the cumulative ambient noise levels. The project would incrementally contribute to overall noise levels. See Section 2.2.6, *Noise*.

Cumulative development has resulted in a substantial degradation in ambient air quality in the greater San Francisco Bay Area. However, due to emissions control technology, overall air quality has been improving in recent years. Although most present and future development will likely increase emissions, improvements in technology are largely expected to offset such increases. The project will not contribute to the region's emissions because it will not generate additional vehicle trips or lead to unplanned growth. Rather, the project is expected to reduce area-wide emissions by decreasing congestion and vehicle delay. See Section 2.2.5, *Air Quality*.

Cumulative development has resulted in a substantial loss of riparian habitat and impacts to animal species along Adobe Creek, Matadero Creek, Permanente Creek, and other waterways in Santa Clara County. In recent years, this loss has been largely stemmed owing to the fact that impacts are accompanied by offsetting mitigation. The proposed project, while potentially impacting roosting bats and nesting birds during construction, will not contribute to a further loss because mitigation and avoidance measures are included in the project. See Section 2.3.4, *Animal Species*.

The proposed project, along with other development, has the potential to expose the public and/or construction workers to the adverse effects of hazardous materials (e.g., ADL, VOCs, etc.). However, implementation of mitigation and avoidance measures, such as those listed in Section 2.2.4, *Hazardous Materials*, are required on a project-by-project basis to avoid or reduce hazardous materials impacts to

a less than significant level. Therefore, cumulative development will not result in a significant cumulative hazardous materials impact and the proposed project will not contribute towards a significant cumulative impact.

Short-term, construction-related impacts will be avoided or mitigated, as described in Section 2.4, *Construction Impacts*. Therefore, the proposed project will not contribute towards a significant cumulative impact.

Impact CUMUL-1: Construction of the proposed project will not result in any significant cumulative impacts. [**Less-than-Significant Impact**]

2.6 CLIMATE CHANGE

2.6.1 Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change, the efforts devoted to greenhouse gas¹¹ (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires the Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

Climate change and GHG reduction is also a concern at the federal level; at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change.

¹¹Greenhouse gases related to human activity include carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoromethane, sulfur hexafluoride, HFC-23, HFC-134a, and HFC-152a.

2.6.2 Affected Environment

According to a recent white paper by the Association of Environmental Professionals¹², "an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases."

Caltrans and its parent agency, the Business, Transportation, and Housing 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, Caltrans has created and is implementing the Climate Action Program (December 2006). Transportation's contribution to GHG emissions is dependent on 3 factors: the types of vehicles on the road, the type of fuel the vehicles use, and the time/distance the vehicles travel.

One of the main strategies in the Caltrans Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 mph) and speeds over 55 mph; the most severe emissions occur from 0-25 miles per hour. Relieving congestion by enhancing operations and improving travel times in high congestion travel corridors will lead to an overall reduction in GHG emissions.

Caltrans recognizes the concern that carbon dioxide emissions raise for climate change. However, modeling and gauging the impacts associated with an increase in GHG emissions, including carbon dioxide, at the project level is not currently possible. No federal, state or regional regulatory agency has provided methodology or criteria for GHG emission and climate change impact analysis. Therefore, Caltrans is unable to provide a scientific or regulatory based conclusion regarding whether the project's contribution to climate change is cumulatively considerable.

Caltrans continues to be actively involved on the Governor's Climate Action Team as ARB works to implement AB 1493 and AB 32. As part of the Climate Action Program at Caltrans (December 2006), Caltrans 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. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks. However, it is important to note that the control of the fuel economy standards is held by the United States EPA and ARB. Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at UC Davis.

¹²Hendrix, Michael and Wilson, Cori, *Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), page 2.

CHAPTER 3 COMMENTS AND COORDINATION

Substantial coordination and public input regarding the proposed project has occurred, which is summarized as follows:

- >> The project is identified in a joint Santa Clara-San Mateo Counties study known as the 2020 Peninsula Gateway Corridor Study (the “Gateway Study”), which was jointly funded by the Congestion Management Agencies for San Mateo & Santa Clara Counties, as well as the San Mateo County Transportation Authority. Participation in the Gateway Study involved the Cities of Menlo Park, Palo Alto, Mountain View, East Palo Alto, Atherton, and Redwood City, as well as Caltrans and MTC. Elected officials, executive staff, and representatives of the above agencies have actively collaborated with each other and with community representatives during the Gateway Study process, from 2003 through the present.
- >> In 2007, the California Transportation Commission ranked the project as a priority improvement and approved funds for its construction utilizing State Infrastructure Bonds (Corridor Mobility Improvement Account).
- >> The project development team for the proposed project includes staff from the VTA, as well as staff from the Cities of Mountain View and Palo Alto.
- >> BCDC staff has been contacted during the preparation of this document regarding potential jurisdictional issues; see Section 1.4, *Permits and Approvals Needed*, for details.
- >> CDFG and NOAA Fisheries staff have been contacted during the preparation of this document regarding potential fish passage issues in Adobe, Matadero, & Permanente Creeks; see Section 2.3, *Biological Environment*, for details.
- >> Information about the project was distributed to approximately 150 persons at the A-La-Carte Arts Festival that was held in the City of Mountain View on May 17-18, 2008. VTA staff were present to answer questions about the project.
- >> Based on all input received, there is no known controversy or opposition to the project from either the public or local governmental agencies.

CHAPTER 4 LIST OF PREPARERS

The following individuals were principally responsible for preparing this Initial Study and/or the technical studies upon which the Initial Study is based:

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WRECO, Inc. [Stormwater Data, Water Quality and Location Hydraulic Reports]

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URS, Inc. [Geotechnical Assessment Report]

Stephen Huang, Report Author

CHAPTER 5 DISTRIBUTION LIST

This Initial Study was distributed to the following agencies:

Federal Agencies

- U.S. Army Corps of Engineers (San Francisco District)
- U.S. Fish & Wildlife Service (Sacramento Office)
- NOAA Fisheries (Santa Rosa Office)

State Agencies (via State Clearinghouse)

- California Highway Patrol
- California Department of Fish & Game (Region 3)
- California Department of Toxic Substances Control
- Regional Water Quality Control Board (San Francisco Bay Region)
- State Historic Preservation Office

Regional Agencies

- Metropolitan Transportation Commission
- Bay Area Air Quality Management District
- San Mateo County Transportation Authority
- Santa Clara Valley Water District

Local Agencies

- City of Mountain View
- City of Palo Alto
- City of East Palo Alto
- Santa Clara County Roads & Airports Department

Appendix A

CEQA Checklist

ENVIRONMENTAL SIGNIFICANCE CHECKLIST

Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this Initial Study. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or compensation measures under the appropriate topic headings in Chapter 2.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE 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. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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V. CULTURAL RESOURCES -- Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| ii) Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iii) Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iv) Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

		Less Than Significant		
	Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact

VII. HAZARDS AND HAZARDOUS MATERIALS –

Would the project:

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

VIII. HYDROLOGY AND WATER QUALITY -- Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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XI. 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XII. 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)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

XIII. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIV. 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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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XV. TRANSPORTATION/TRAFFIC -- Would the project:

a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e) Result in inadequate emergency access?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f) Result in inadequate parking capacity?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVI. UTILITIES AND SERVICE SYSTEMS –

Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVII. MANDATORY FINDINGS OF SIGNIFICANCE –

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, 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix B

Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
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*Flex your power!
Be energy efficient!*

January 14, 2005

TITLE VI 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, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in black ink that reads "Will Kempton".

WILL KEMPTON
Director

List of Technical Studies

The following technical studies were prepared during the preparation of this Initial Study for this project. These studies are available for review at the locations listed inside the front cover of this document.

Traffic Operations Assessment Report (Fehr & Peers Associates)

Visual Impact Assessment (Haygood & Associates)

Historic Resources Compliance Report (Far Western Anthropological Research)

Location Hydraulic Study (WRECO)

Water Quality Report (WRECO)

Stormwater Data Report (WRECO)

Geotechnical Assessment Report (URS)

Initial Site Assessment (Baseline Environmental Consulting)

Air Quality Report (Illingworth & Rodkin)

Mobile Source Air Toxics Report (Illingworth & Rodkin)

Noise Report (Illingworth & Rodkin)

Natural Environment Study (H.T. Harvey & Associates)