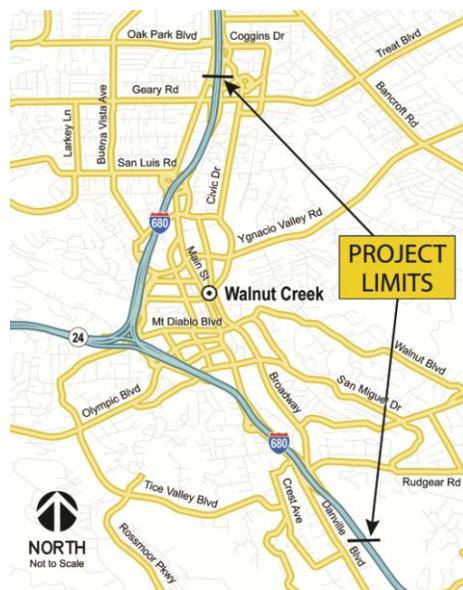


Interstate 680 Southbound HOV Gap Closure Project

CONTRA COSTA COUNTY, CALIFORNIA
DISTRICT 4 – CC – 680, POST MILE 11.2/16.6
EA 3A5800 / EFIS 0400000952

Draft Initial Study/Environmental Assessment with Proposed Negative Declaration



Prepared by the
State of California Department of Transportation
and the
Contra Costa Transportation Authority

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



October 2013

GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:

The California Department of Transportation (Caltrans) and the Contra Costa Transportation Authority (CCTA) has prepared this Draft Initial Study/Environmental Assessment (IS/EA) for the proposed Interstate 680 (I-680) Southbound High-Occupancy Vehicle (HOV) Gap Closure Project, located in Contra Costa County, bordering the cities of Pleasant Hill and Walnut Creek. It examines the potential environmental impacts of the alternatives being considered for the proposed project. This 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 mitigation measures.

What you should do:

- Please read this IS/EA. Additional copies of this document are available for review at the Walnut Creek Library at 1644 North Broadway, Walnut Creek, CA 94596; Contra Costa County Library at 1750 Oak Park Boulevard, Pleasant Hill, CA 94523; and at the Danville Public Library at 400 Front Street, Danville, CA 94526; the document, as well as the technical studies, is available for review at the Caltrans office at 111 Grand Avenue, Oakland, CA 94612. This document may be downloaded at the following Web site:
<http://www.dot.ca.gov/dist4/envdocs.htm>.
- We welcome your comments. If you have any concerns regarding the proposed project, please attend the public open house at Parkmead Elementary School (Multi-Purpose Room), 1920 Magnolia Way, Walnut Creek, CA 94595 on October 30, 2013, from 6:30 p.m. to 8:30 p.m.
- Submit comments via post mail to:
Cristin Hallissy, Environmental Branch Chief,
Department of Transportation, Office of Environmental Analysis
PO Box 23660, MS 8B, Oakland, CA 94623
- Submit comments via e-mail to: Cristin_Hallissy@dot.ca.gov
- Submit comments by the deadline: November 20, 2013

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the Federal Highway Administration (FHWA), may (1) give environmental approval to the proposed project (2) undertake additional environmental studies, or (3) abandon the project. If the project were given environmental approval and funding were appropriated, Caltrans or CCTA 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 write to Department of Transportation, Attention: Cristin Hallissy, Department of Transportation, Office of Environmental Analysis MS 8B 111 Grand Avenue, Oakland, CA 94612, or use California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

SCH #: _____
04-CC-680, PM11.2/16.6
EA 3A5800/EFIS 0400000952

Add southbound High-Occupancy Vehicle (HOV) lane on Interstate 680 in Contra Costa County, from 0.6-mile north of the Livorna Road interchange in Alamo to 0.2-mile north of the Geary Road interchange (Post Miles 11.2 to 16.6) in Walnut Creek, California.

**DRAFT INITIAL STUDY/ENVIRONMENTAL ASSESSMENT with
PROPOSED NEGATIVE DECLARATION**

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

THE STATE OF CALIFORNIA
Department of Transportation
and the
Contra Costa Transportation Authority

October 7, 2013
Date of Approval

Dan McElhinney for
Bijan Sartipi
District Director
District 4
California Department of Transportation
NEPA/CEQA Lead Agency

PROPOSED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) and the Contra Costa Transportation Authority (CCTA) propose to improve traffic operations and relieve congestion by closing the current 5.4-mile high-occupancy vehicle (HOV) gap on southbound Interstate 680 (I-680) through the city of Walnut Creek.

Determination

This proposed Negative Declaration is included to give notice to interested agencies and the public that it is the intent of Caltrans to adopt a Negative Declaration for this project. This does not mean that the Caltrans decision regarding the project is final. This Negative Declaration 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 land use and planning; farmlands/timberlands; growth; parks and recreational facilities; community impacts; traffic and transportation; mineral resources; hydrology and floodplains; paleontology; and plant species. In addition, the proposed project would have no significant effect on utilities and emergency services; visual/ aesthetics; cultural resources; water quality and stormwater runoff; geology, soils, and seismicity; hazardous wastes and materials; air quality; noise; natural communities; wetlands; animal species; threatened and endangered species; and invasive species.

Melanie Brent
Deputy District Director
District 4
California Department of Transportation

Date

Summary

The California Department of Transportation (Caltrans) is the lead agency under the California Environmental Quality Act (CEQA) for this proposed project, and effective July 1, 2007, has been assigned environmental review and consultation responsibilities under the National Environmental Policy Act (NEPA) pursuant to 23 United States Code 327. This project is proposed in cooperation with the Contra Costa Transportation Authority (CCTA).

The project proposes to improve traffic operations and relieve congestion by closing the current 5.4-mile high-occupancy vehicle (HOV) lane gap on southbound Interstate 680 (I-680) through the city of Walnut Creek, from just north of Livorna Road to north of Geary Road. The project would reduce peak-period delay (i.e., congestion), provide HOV lane continuity, and encourage the use of HOV lanes and transit services. By connecting the current discontinuous HOV lane system on southbound I-680, express buses would be able to take advantage of the HOV lane improvements, which would in turn become a more attractive option and incentive for those needing to travel to jobs concentrated south of the project area, especially to the growing job centers in San Ramon and Pleasanton.

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

**Table S-1
Summary of Environmental Impacts**

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
Land Use	The No Build Alternative is not consistent with regional and local land use policies.	The project is consistent with regional and local land use policies.	No avoidance, minimization, and/or mitigation measures are required.
Utilities and Emergency Services	No impacts.	The project would require relocating utilities including telecommunication lines, fiber-optic lines, and PG&E power poles and overhead lines.	Where feasible, relocations will be undertaken in advance of project construction. Coordination efforts with utility providers will include planning for utility reroutes. A Traffic Management Plan will be developed to address impacts to emergency services.

**Table S-1
Summary of Environmental Impacts**

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
Traffic and Transportation, Pedestrian and Bicycle Facilities	By 2040, all segments of I-680 in the study area would function at capacity (Level of Service [LOS] E or F) in both the morning and afternoon peak periods. Bottlenecks would cause congestion and queues.	LOS would be the same as existing conditions or slightly improve by 2040. In the morning peak, the Build Alternative would accommodate 9% more vehicle miles traveled than the No Build Alternative and reduce HOV travel time by 54%. In the afternoon peak, the Build Alternative would accommodate 7% more vehicle miles traveled than the No Build Alternative and reduce HOV travel time by 66%. The project would not affect pedestrian and bicycle facilities.	No avoidance, minimization, and/or mitigation measures are required.
Visual/ Aesthetics	No impacts.	Construction of the project would result in visual changes due to widening of the roadway and pavement, construction of the HOV lane, removal of vegetation, reconstruction of structures, addition of retaining walls and one soundwall, widening of one bridge, and addition of signage, ramp metering lights, and devices.	Measures include planting trees and other landscaping to soften the appearance of freeway structures, replanting trees, and adding an aesthetic treatment to retaining walls and soundwalls to match existing walls. In addition, detention basins will be designed so that they appear to be a natural part of the landscape.
Cultural Resources	No impacts.	One National Register of Historic Places-eligible property was identified within the archaeological or historical areas of potential effect; however, it would not be affected by the project.	No avoidance, minimization, and/or mitigation measures are required.
Water Quality and Stormwater Runoff	No impacts.	Potential temporary impacts to surface water quality may include vegetation removal and stormwater runoff from road construction. Permanent impacts would increase the potential for stormwater runoff and soil erosion due to the increase of impervious surfaces by 2.7 acres (i.e., paved roads).	Best management practices will be included to prevent adverse changes in downstream water quality. Measures will include feasible temporary (i.e., during construction) and permanent (i.e., post-construction) best management practices. Pollution and erosion control measures will be incorporated. A Storm Water Pollution Prevention Plan will be implemented during construction.

**Table S-1
Summary of Environmental Impacts**

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
Geology, Soils, and Seismicity	No impacts.	Earthquake shaking potential for this site is considered strong, and the potential for liquefaction in the event of an earthquake at the project site is considered moderate to high.	Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions. Site-specific exploratory borings and accompanying laboratory testing during final design of the project bridge structures will be required to delineate any potentially liquefiable materials.
Hazardous Waste and Materials	No impacts.	Aerially deposited lead from exhaust from leaded gasoline may occur near a highway or roadway. There is a low risk that subsurface construction activities could encounter petroleum hydrocarbons in shallow groundwater.	Before project construction, testing for aerially deposited lead will be performed and special handling measures will be implemented if necessary. All activities involving contaminated soil or groundwater, if found, will comply with the various regulatory agencies' requirements. Material from structures that is removed or modified by the project will be handled and disposed of in accordance with all local, State, and Federal requirements.
Air Quality	No impacts.	No appreciable increase in emissions of particulate matter smaller than 2.5 microns in diameter or other airborne pollutants are anticipated in the general project area. Temporary increases in dust emissions would occur during project construction.	Dust control practices will be employed to minimize or avoid potential exceedances of the respirable particulate matter air quality standard during construction. The construction contractor will comply with Caltrans' Standard Specifications in Section 14 (2010).

**Table S-1
Summary of Environmental Impacts**

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
Noise	16 of 81 locations studied have existing noise levels that approach or exceed Federal noise abatement criteria.	Future noise levels with the build alternative approach or exceed the noise abatement criteria; therefore, consideration of noise abatement is required. The project would result in temporary traffic noise increases in some locations after existing soundwalls or portions of soundwalls are removed and before the replacement soundwalls are constructed. Construction activities could at times generate noise levels higher than existing traffic noise levels.	Soundwalls have been identified as feasible in 6 locations; of those 6, one has been determined reasonable based on the acoustical design goal and the cost estimate. Temporary construction-related noise will be reasonably minimized by implementing provisions of the Caltrans Standard Specifications and abatement measures.
Natural Communities	No impacts.	The Build Alternative would permanently impact approximately 2.23-acre of ornamental landscaping, 1.64-acre of coastal oak woodland, 0.335-acre of annual grassland, 0.02-acre of ruderal land, and 2.40 acres of developed area. Construction activities would disturb approximately 1.91 acres of ornamental landscaping, 0.53-acre of coastal oak woodland, 0.95-acre of developed area, and 0.16-acre of annual grassland. Tree removal within the Caltrans right-of-way (ROW) would also occur.	All native vegetation that is removed will be replaced in-kind in the adjacent ROW. Trees will only be removed if they are in the permanent or temporary disturbance footprint of the Build Alternative or otherwise present a safety hazard. Temporary Construction Site best management practices, such as isolation of work areas from flows, slope stabilization, and erosion control methods, will be used during construction.
Wetlands and Other Waters of the United States	No impacts.	No wetlands are present within the biological study area. No construction is proposed within the banks of any of the creeks or other waterways in the biological study area. No Section 404 permit is required.	Temporary construction site best management practices, such as the isolation of work areas from flows, slope stabilization, and erosion control methods, will be used during project construction. These best management practices will prevent any construction debris, sediments, or toxins from entering San Ramon Creek and Las Trampas Creek, and from affecting any fish downstream of the biological study area.

**Table S-1
Summary of Environmental Impacts**

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
Animal Species	No impacts.	Vegetation removal could affect birds, such as nesting raptors, songbirds, and burrowing owls, if it occurs during (and disrupts) their nesting and breeding season. Although no evidence of bats (i.e., pallid bat, western mastiff bat, or big free-tailed bat) was detected during surveys, there is potential that bat species could occupy suitable habitat in trees that would be removed during construction.	If construction activities are scheduled to occur during the breeding season for raptors, other migratory birds, or bats, a Caltrans-approved biologist will conduct a preconstruction survey no more than 3 days prior to the start of work activities to search for active nests or roosts. If active nests or roosts are observed, California Department of Fish and Wildlife shall be contacted for their advice on establishing appropriate measures. Temporary Construction Site best management practices will also be implemented.
Threatened and Endangered Species	No impacts.	There is a low potential that the Alameda whipsnake, California red-legged frog, and white-tailed kite, could occur within the project study area.	General construction best management practices and standard avoidance and minimization measures will be implemented during construction, and a Caltrans-approved biologist will conduct preconstruction training for contractors on the identification of special-status species and their protected status. Preconstruction surveys and periodic monitoring will be conducted to ensure general biological compliance. Environmentally sensitive areas will be established, and surveys for each special-status species will be conducted prior to construction.
Invasive Species	No impacts.	Project construction activities could have the potential to inadvertently spread invasive species if present.	Project landscaping and erosion control will avoid using species listed as noxious weeds. The contractor will be required to use equipment that is cleaned and inspected for plant material prior to arrival and use at the project site.

**Table S-1
Summary of Environmental Impacts**

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
Cumulative Impacts	No impacts.	No resources have been identified for cumulative analysis; therefore, the proposed project would not result in cumulative impacts.	No avoidance, minimization, and/or mitigation measures are required.
Construction Impacts	No impacts.	The relocation of utilities near South Main Street would temporarily shift the lanes 2 to 3 feet towards the shoulder. A segment of South Main Street would also be realigned at the ramp intersection to facilitate widening of the South Main Street undercrossing bridge structure, requiring replacement of the existing sidewalk.	A Traffic Management Plan will be prepared and a temporary sidewalk will be constructed to maintain pedestrian access during the realignment of South Main Street.

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Chapter 1 Proposed Project

The California Department of Transportation (Caltrans), in cooperation with the Contra Costa Transportation Authority (CCTA), proposes to improve traffic operations and relieve congestion on southbound Interstate 680 (I-680). The project limits follow the existing alignment of southbound I-680 from 0.6-mile north of the Livorna Road interchange in Alamo to 0.2-mile north of the Geary Road interchange in Walnut Creek.

This project is included in the Metropolitan Transportation Commission's most recent Regional Transportation Plan, the *Transportation 2035 Plan for the San Francisco Bay Area* (Metropolitan Transportation Commission 2009; Regional Transportation Plan ID No. 22353). The project is also included in the 2011 Transportation Improvement Program, which was adopted by Metropolitan Transportation Commission on October 27, 2010 (Transportation Improvement Program ID No. CC 050028). The Federal Highway Administration (FHWA) and Federal Transit Administration approved the 2011 Transportation Improvement Program on December 14, 2010.

Caltrans is the lead agency under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans has been assigned environmental review and consultation responsibilities under NEPA pursuant to 23 United States Code 327. The project is proposed in cooperation with CCTA, which is responsible for providing regional funding.

1.1 Introduction

I-680 is a major north to south commuter route in the east San Francisco Bay Area. I-680 runs from the Interstate 280 (I-280)/Highway 101 interchange in San Jose to its intersection with Interstate 80 (I-80) in Cordelia. Within the specified project limits, which follow the existing alignment of I-680 from Livorna Road to Geary Road (Post Mile 11.2 to 16.6) in Walnut Creek, I-680 is a 6- to 12-lane divided freeway with no high-occupancy vehicle (HOV) lanes; however, HOV lanes are present to the north and south of the project limits¹.

Figure 1-1 shows the project vicinity, and Figure 1-2 shows the project location. From Martinez to just south of Walnut Creek, an operational improvement project in Contra Costa County added an HOV lane in both directions on I-680, with the exception of the southbound gap between Livorna Road and Geary Road and the northbound gap between State Route (SR) 242 and North Main Street. The proposed project would close the southbound gap in the HOV system.

¹ An HOV lane was recently opened between Rudgear Road and Livorna Road under the I-680 Rehabilitation Project.



Figure 1-1: Project Vicinity Map

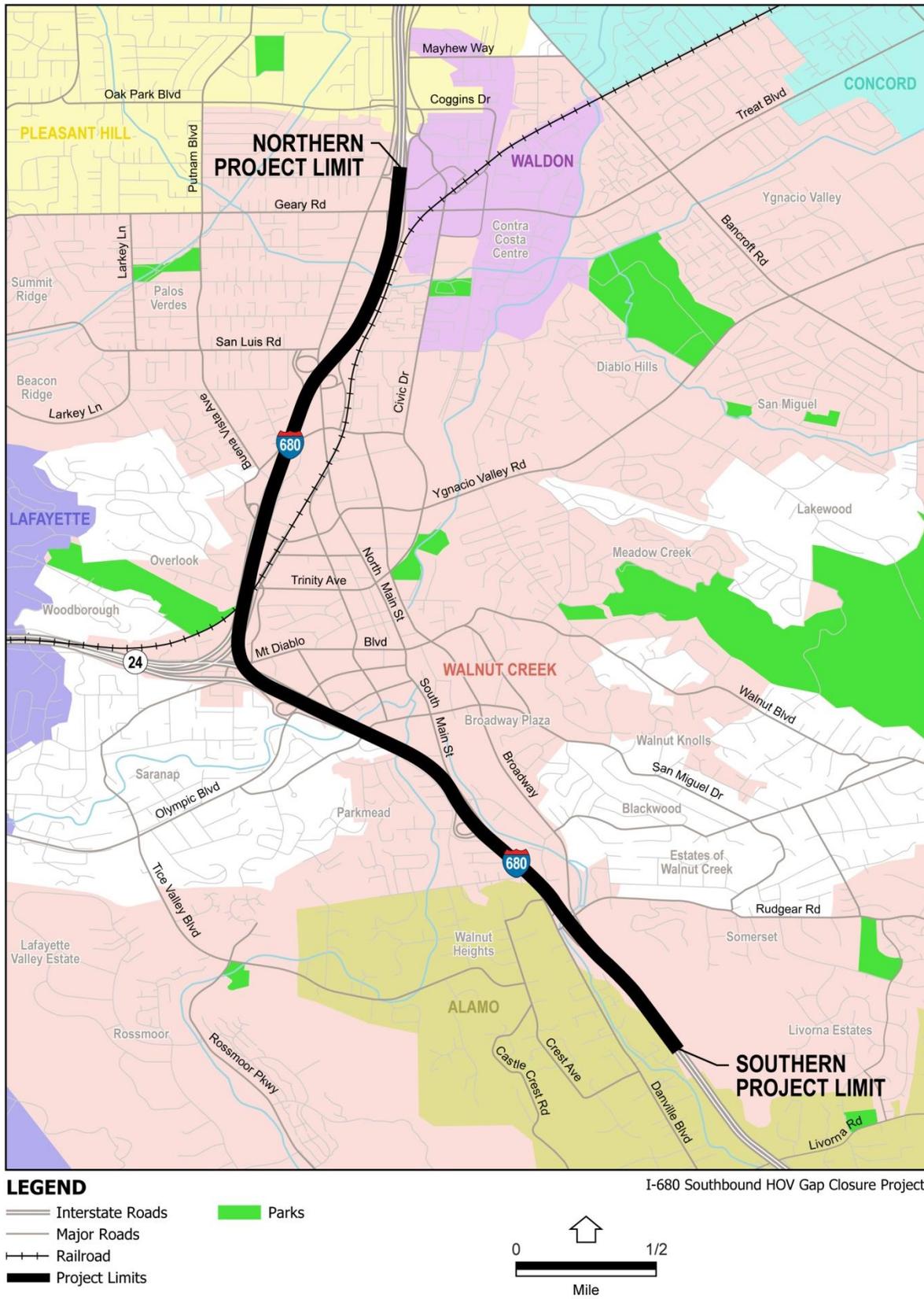


Figure 1-2: Project Location Map

1.2 Purpose and Need

1.2.1 Project Purpose

The purpose of this project is to achieve the following:

1. Reduce peak-period congestion and delay on southbound I-680; and
2. Encourage the use of HOVs and transit service.

1.2.2 Project Need

1.2.2.1 Capacity, Transportation Demand

Southbound I-680 experiences high levels of traffic congestion and long delays during the morning and afternoon commute periods. This congestion is caused by deficiencies of the facility in handling the existing traffic volumes (i.e., the lack of a continuous HOV lane). In other portions of this corridor, northbound and southbound lanes for HOVs have been constructed, but not in the freeway segment located north of Livorna Road extending north of Geary Road.

These conditions have had an effect on the Level of Service (LOS) within the corridor. LOS is a rating of congestion and varies on a scale from LOS A to LOS F, where LOS A represents uncongested, free-flow conditions and LOS E represents very congested conditions. At LOS F, a roadway segment is considered over capacity and operates at stop-and-go conditions.

Within the project limits, bottlenecks develop at the following three key locations in the morning peak hour²:

- North Main Street on-ramp to SR 24 off-ramp
- Rudgear Road on-ramp to Livorna Road off-ramp
- Stone Valley Road on-ramp to El Pintado Road off-ramp

These three bottlenecks operate at LOS E conditions, and the resulting congested segments operate at LOS F conditions. All other study segments operate at LOS D conditions during the morning peak hour.

During the afternoon peak hour, bottlenecks develop at the following three locations:

- Rudgear Road on-ramp to Livorna Road off-ramp, queue extends upstream to the SR 24 on-ramp
- Livorna Road on-ramp to Stone Valley Road off-ramp
- Stone Valley Road on-ramp to El Pintado Road off-ramp

² Peak hour is the period during which traffic volume is at its highest, typically in the morning and evening commute periods.

These bottlenecks also operate at LOS E conditions, and the resulting congested segments operate at LOS F conditions. All study segments north of the SR 24 on-ramp operate at LOS D or better conditions during the afternoon peak hour. As stated in the Project Study Report (Caltrans, May 2009), by the year 2035, peak-hour traffic demand on southbound I-680 between the Rudgear Road on-ramp and South Main Street is projected to increase by approximately 70 percent and 56 percent in the morning and afternoon peak-hour periods, respectively. Such high percentages of increases in traffic demand will result in a substantial increase in congestion. Peak-period bottlenecks and resulting mainline congestion are the primary cause for travel delays along the study corridor; therefore, widening I-680 to provide an HOV lane in the study area would reduce congestion and improve predicted LOS on this facility.

Traffic congestion and lower travel speeds, especially during peak periods, lead to greater delay and longer overall travel times. In the absence of an uninterrupted HOV lane, I-680 would continue to experience delays and increased travel times. According to Table 1-1, average travel time on mixed-flow lanes in the morning peak hour (8:00 a.m. to 9:00 a.m.) is 19.3 minutes, and the average speed is 34.2 miles per hour (mph). In the afternoon peak hour (5:00 p.m. to 6:00 p.m.), the average travel time is 17.31 minutes, and the corresponding average speed 38.3 mph. These speeds are much lower than what the freeway is designed for.

**Table 1-1
Existing Mainline Average Travel Times and Speeds¹**

Time Period	Mixed-Flow Lanes		HOV Lane	
	Average Time (minutes)	Average Speed (mph)	Average Time (minutes)	Average Speed (mph)
Morning Peak Period				
5:00 to 6:00 AM	10.31	64.3	10.42	63.6
6:00 to 7:00 AM	10.67	61.2	10.73	61.8
7:00 to 8:00 AM	18.47	35.9	14.34	46.2
8:00 to 9:00 AM	19.31	34.2	16.68	39.7
Afternoon Peak Period				
3:00 to 4:00 PM	10.76	61.6	10.62	62.4
4:00 to 5:00 PM	10.94	60.6	10.58	62.6
5:00 to 6:00 PM	17.31	38.3	15.64	42.4
6:00 to 7:00 PM	12.30	53.9	12.01	55.2
Notes: Travel data is from southbound I-680 between the southbound Concord Avenue on-ramp and the El Pintado Road off-ramp (11.05 miles total length).				

Source: *Traffic Operations Analysis Report, 2013.*

Although HOVs regularly use the project corridor, the current gap in the HOV lane system forces carpool vehicles and buses that would otherwise use the HOV lane to merge into mixed-flow lanes. As a result, the throughput time for carpools using this corridor is increased. This increased travel time may reduce the overall incentive for commuters to pursue transit or carpooling options for commuting purposes. While transit continues to play an important role in the region, transit ridership in the region is not growing at as fast a rate as population, employment, or traffic volumes, as stated in the *Tri-Valley Transportation Plan and Action Plan Update* (Adopted November 30, 2009).

1.2.2.2 Social Demands and Economic Development

According to the *Contra Costa County General Plan 2005 – 2020* (January 2005), several new employment centers have emerged in Contra Costa County adjacent to the I-680 corridor. The plan seeks to provide access to these employment centers. Completion of this project would accommodate this planned growth and economic development. The goals of the Metropolitan Transportation Commission’s Regional Transportation Plan, T2030 (adopted February 2005) under the Regional Transportation Improvement Program and the CCTA Measure C reauthorization I-680 HOV/Express Bus investment package include improving reliability, reducing delay, promoting HOV lane use by carpools, and encouraging transit use. The proposed project helps to achieve all of these goals.

Policy documents, such as the Final Report I-680 HOV/Express Bus Access Study (Transportation Partnership and Cooperation, 2010) and the 2009 Countywide Comprehensive Transportation Plan (CCTA, 2009), underscore and support the continuing commitment on the part of CCTA, Contra Costa County, Transportation Partnership and Cooperation, Caltrans, and the Metropolitan Transportation Commission to add a lane in the median on southbound I-680 to close the existing gap in the HOV system.

1.2.2.3 Legislation

In November 1988, Contra Costa County voters approved a local one-half cent sales and use tax measure, Measure C, to fund specified improvements to the transportation system of Contra Costa County. In 2004, voters approved Measure J, which authorized an extension of the half-cent sales tax. The proposed project is identified in the Measure J expenditure plan, which earmarked \$100 million for the I-680 Carpool Lane Gap Closure/Transit Corridor Improvements (2004 dollars). The project would also receive funds from Regional Measure 2, administered by the Bay Area Toll Authority.

1.2.2.4 Independent Utility and Logical Termini

FWHA defines logical termini as rational end points for a transportation improvement and rational end points for a review of environmental impacts. The proposed project possesses

logical termini because it would close a 5.4-mile gap in the southbound I-680 HOV lane within Contra Costa County, thereby completing the southbound HOV system for that facility.

Independent utility is an FWHA requirement that highway projects be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made. FHWA states that “as long as a project will serve a significant function by itself (i.e., it has independent utility), there is no requirement to include separate but related projects in the same analysis. The proposed project has independent utility, in that the improvements made by implementation of the proposed project are enough to ensure that no additional investment would be required by its completion.

1.3 Project Description

This section describes the proposed project and the design alternatives that were developed to meet the identified need through accomplishing the defined purposes, while avoiding or minimizing environmental impacts. The alternatives are the Build Alternative and the No Build Alternative.

Transportation system management strategies increase the efficiency of existing facilities by increasing the number of vehicle trips a facility can carry without increasing the number of through lanes. Examples of these strategies include ramp metering, auxiliary lanes, turning lanes, reversible lanes, and traffic signal coordination. A transportation system management alternative is not evaluated because the 5.4-mile project segment is too short for this alternative to be considered practicable. In addition, elements of transportation system management, such as ramp metering, are already included in the proposed project; therefore a separate alternative is not necessary.

Transportation demand management focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled, as well as increasing vehicle occupancy. A transportation demand management alternative is also not individually evaluated because HOV lanes are an element of transportation demand management. The purpose and need of the proposed project accomplish the goals of transportation demand management; therefore, a separate alternative is not necessary.

The project, located in central Contra Costa County, proposes to close the existing gap in the southbound HOV lane system by adding a median HOV lane on southbound I-680, from 0.6-mile north of the Livorna Road interchange (Post Mile 11.2) to 0.2-mile north of the Geary Road interchange (Post Mile 16.6), a distance of 5.4 miles. Currently, in the absence of a dedicated HOV lane, express buses and qualifying vehicles share the mixed-flow lanes during the morning and afternoon peak commute periods. Within the limits of the proposed

project, I-680 varies from 3 to 6 mixed-flow lanes in each direction with a paved median shoulder. The mixed-flow lanes are 12 feet wide, and inside and outside shoulders are 10 feet wide, except at bridge support pinch points³. Existing interior lanes vary from 11 to 12 feet, and the inside shoulder varies from 2 to 10 feet. The highway has 7 interchanges within the study area and 19 bridge structures, including 9 overcrossings, 8 undercrossings, and 2 bridges over waterways. The purpose of the project is to reduce peak period travel time on southbound I-680 and to encourage greater HOV and transit service usage in the corridor.

1.4 Alternatives

Two alternatives are under consideration in this environmental document: the Build Alternative and the No Build Alternative. The No Build Alternative, which offers a basis for comparison with the Build Alternative, assumes no major improvements within the project limits other than routine rehabilitation and repair.

1.4.1 Proposed Build Alternative

The proposed I-680 Southbound HOV Gap Closure Project would construct an HOV lane southbound from approximately 0.6-mile north of Livorna Road to 0.2-mile north of Geary Road. The total distance between the project limits is 5.4 miles. The location for the proposed project improvements is depicted in Figure 1-2. Figure 1-3 shows a schematic typical cross section of the proposed widening and restriping required for the accommodation of the HOV lane. Build Alternative plan drawings are provided in Appendix B.

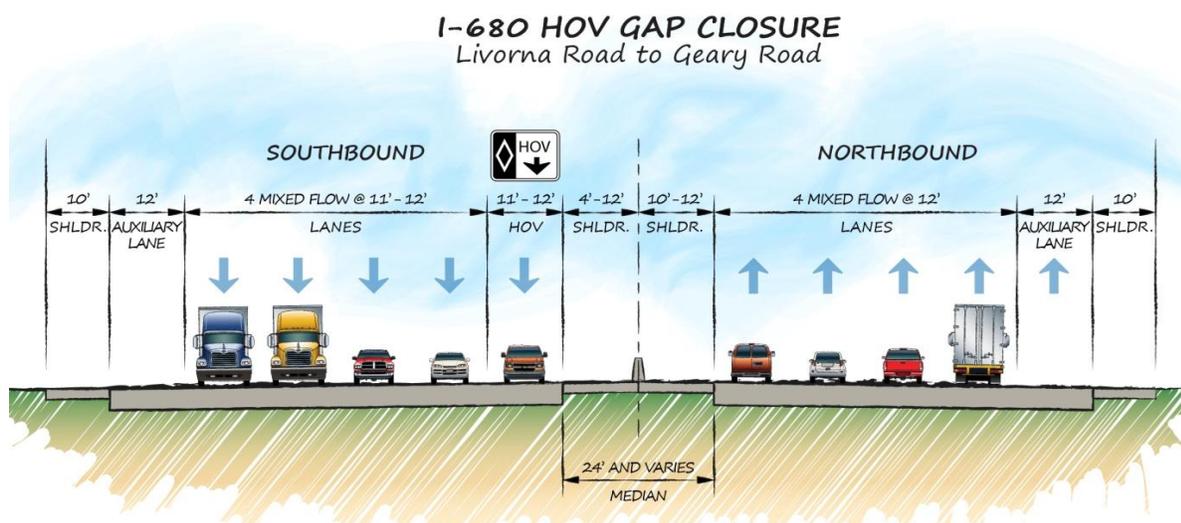


Figure 1-3: Typical Cross Section

³ Pinch point locations refer to roadway narrowing.

To accommodate the new southbound HOV lane, the proposed project would widen southbound I-680 from 0.4-mile north of South Main Street to the southern project limits, and restripe the existing southbound mainline from north of South Main Street to 0.2-mile north of Geary Road.

North of South Main Street, the HOV and interior mixed flow lanes would be 11 feet wide. The outside shoulder would be 8 to 10 feet wide, and the inside shoulder would vary from 3 to 10 feet in width, except at certain overcrossing constraint points, such as at the Bay Area Rapid Transit (BART) overcrossing column. At this location, the shoulder widths are reduced to 1-foot on the outside and 1.1 feet on the inside.

Through the widened portions from South Main Street to the southerly project limit, the HOV and mixed flow lanes would be 12 feet wide, with a standard 10-foot outside shoulder. The inside shoulder would typically be 12 feet wide. At the Rudgear Road bridge structure, the inside shoulder would be narrowed to 9.25-feet to avoid the need for bridge widening under the HOV project.

The locations where the proposed project would not provide standard 12-foot-wide lanes and 10-foot-wide shoulders are considered nonstandard⁴ and would require design exceptions.⁵

The project would also require widening of the undercrossing bridge structure at South Main Street (Post Mile 13.08). The South Main Street Undercrossing, a single-span, cast in-place, structure built in 1960 and widened in 1990, would be widened an additional 9 feet.

The two existing retaining/soundwalls located between the Rudgear Road interchange and South Main Street would be replaced, and a new soundwall is proposed at the edge of the shoulder of northbound I-680, just north of the North Main Street interchange. No right-of-way (ROW) acquisitions are required; however, temporary construction easements are needed with the Build Alternative.

There are existing overhead utilities along Danville Boulevard from approximately the intersection of Castle Hill Road to the South Main Street/I-680 southbound off-ramp. These overhead utilities would be placed underground for approximately 1,400 feet directly adjacent to the existing curb line, and the poles would be removed along Danville Boulevard. Underground service connections would cross Danville Boulevard/South Main Street to the first existing overhead pole location. The existing fiber-optic cable system and other elements of Caltrans traffic operations system from the Rudgear Road Undercrossing to 0.2-mile north of Geary Road would be modified within the southbound median. Fiber-optic

⁴ Any roadway condition that deviates from the accepted standard condition needs special approval from Caltrans. These are called nonstandard conditions.

⁵ Design exceptions are the method required to approve all nonstandard conditions.

cable pull-boxes would be relocated next to the median barrier. This work would require excavating a trench of up to 30 inches in depth. The existing traffic operations system elements would be maintained during project construction.

The existing median barrier structure separating the I-680 northbound and southbound lanes between the Ygnacio Valley Road Undercrossing to the Geary Road Overcrossing and from the Rudgear Road Undercrossing (Post Mile 12.6) to the westbound SR 24 connector for I-680 northbound would be upgraded to meet current design standards. Ramp metering system infrastructure (i.e., conduit, pull-boxes, limit lines, metering poles, signal heads, and controller boxes) would be installed at the Rudgear Road, South Main Street, Olympic Boulevard, Ygnacio Valley Road, North Main Street, and Geary Road southbound on-ramps, but it would not be made operational as part of this project⁶. Conduit and pull-boxes would be placed adjacent to existing edge of pavement shoulder. This work may require excavating a trench of up to 30 inches in depth.

The existing stormwater retention and drainage systems would be modified as necessary. Any asphalt concrete dikes found to be damaged would be repaired. The existing metal beam guard railings would be upgraded or replaced to meet current Caltrans standards. Southbound on-ramps would be widened to accommodate HOV bypass lanes at Rudgear Road, South Main Street, and North Main Street. Minor pavement widening of the mainline would be performed between the paved area of the North Main Street on-ramp and the North Main Street Bridge.

Specific construction staging requirements would be defined during the final design process, and a construction staging plan would be developed by the contractor. At this time, it appears that no staging areas outside of the existing roadway ROW would be required. If offsite staging is required, the contractor would be expected to make arrangements and clear the locations environmentally.

The Build Alternative has a cost estimate of \$76.6 million. This includes roadway items, such as excavation, clearing and grubbing, pavement, structure items, construction costs, and right of way items (utility relocation).

1.4.2 No Build Alternative

The No Build Alternative would not construct the 5.4 miles of HOV lane between Livorna Road and Geary Road, and it is considered the baseline for comparing environmental impacts. Under the No Build Alternative, peak-hour congestion and delay on southbound

⁶ Ramp metering will not be turned on as part of this project; however, the underlying ramp metering system will be fully operational, including collecting and sending traffic monitoring information to the Traffic Management Center.

I-680 would continue, and the opportunity to encourage HOV usage and transit would not be realized. By 2040, under no-build conditions, all mixed-flow lane segments on southbound I-680 would function at LOS E or F during both morning and afternoon peak hours (Traffic Operations Analysis Report, 2013). In addition, predicted future (2040) noise levels would exceed acceptable levels at many locations; see Section 2.2.5, Noise, for more detail.

There are no major projects currently programmed within the project limits, the only activities that would occur would be ongoing maintenance functions.

1.5 Alternatives Considered but Eliminated from Further Discussion

A second build alternative, Build Alternative 2, was considered but eliminated from further discussion. Build Alternative 2 would have provided an HOV lane by widening the existing freeway throughout the project limits to meet minimum design standards. This alternative would have required partial ROW acquisitions from up to 14 residential and 2 industrial parcels; widening of 5 bridges and 4 overcrossing structures, including replacing the BART viaduct over I-680 with its associated impact on transit operations; and the removal, reconstruction, and relocation of several retaining and soundwalls. Build Alternative 2 was not carried forward for further analysis due to substantially higher costs (\$202.7 million), ROW impacts, potential disruptions to BART operations, and impacts to the local road systems.

1.6 Permits and Approvals Needed

Table 1-2 summarizes the regulatory permits and approvals needed for project construction.

**Table 1-2
Regulatory Permits and Approvals**

Agency	Permit or Approval	Status
U.S. Fish and Wildlife Service (USFWS)	Informal consultation for threatened and endangered species under Section 7 of the Federal Endangered Species Act.	Caltrans requested technical assistance from USFWS. At this time, only informal consultation is anticipated. Caltrans consulted the USFWS by forwarding them a letter describing why the project is not likely to adversely affect federally listed species on August 28, 2013.
U.S. Army Corps of Engineers, San Francisco District	Concurrence of wetland delineation.	Caltrans consulted the U.S. Army Corps of Engineers by forwarding them a copy of the Wetland Delineation on August 6, 2013. Awaiting U.S. Army Corps of Engineers concurrence of wetland delineation.

**Table 1-2
Regulatory Permits and Approvals**

Agency	Permit or Approval	Status
San Francisco Bay Regional Water Quality Control Board and California Department of Toxic Substances	Notification regarding reuse of soils containing aerially deposited lead, if applicable. A remediation plan or variance for aerially deposited lead may be required.	Obtain during the final design phase after a hazardous waste and soils assessment is prepared.
California Environmental Protection Agency	Agency approval may be required.	A voluntary cleanup agreement, transport plan, soil management plan, and health and safety plan for construction operations may be required depending on results of soil tests to be performed prior to construction.
State Water Resources Control Board	General Construction Storm Water Permit – Caltrans; Section 402 Caltrans National Pollutant Discharge Elimination System Permit for greater than 1-acre.	Obtain coverage under the General Permit after jurisdictional delineation approval and before start of construction.
State Historic Preservation Officer	Concurrence with the project Historic Property Survey Report and Section 106 requirement.	Caltrans consulted with the State Historic Preservation Officer by forwarding them a copy of the Historic Property Survey Report on July 3, 2013. Concurrence from the State Historic Preservation Officer was received on August 7, 2013.
City of Walnut Creek	Coordination with the City for any needed encroachment permits for work performed in the public ROW (e.g., sidewalk, curb and gutter; any construction or staging requiring traffic control).	Obtain during the final design phase.
Contra Costa County	Drainage permit needed for drainage facilities in unincorporated County area.	Permit requirement and application will be determined and submitted during the final design phase.

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

This chapter explains the impacts that the project would have on the environment. It describes the regulatory setting, existing environment that could be affected by the project, the potential impacts (Environmental Consequences), and proposed avoidance, minimization, and/or mitigation measures. The environmental resource discussions presented in this chapter are based on the technical studies cited at the beginning of each discussion and listed at the end of this document. An evaluation of the proposed project consistent with CEQA checklist criteria is provided in Appendix A. Avoidance, minimization, and/or mitigation measures for each of the environmental resource areas are discussed in the following sections.

As part of the scoping and environmental analysis for the project, the following environmental issues were considered, but no adverse impacts were identified. Consequently, these issues will not be discussed further.

- **Land Use Impacts** – The proposed project would not alter land uses within the study area; therefore, there are no land use impacts.
- **Farmlands/Timberlands** – No farmlands or timberlands exist in or near the project limits; therefore, no impacts to these resources are anticipated.
- **Growth** – The proposed improvements would not change accessibility along southbound I-680. The small improvements in travel times projected to result from the proposed project are not expected to influence growth; therefore, no growth-related impacts are anticipated (Traffic Operations Analysis Report, 2013).
- **Parks and Recreational Facilities** – All work would be done within the existing Caltrans ROW, where there are no parks or recreational facilities; therefore, no impacts are foreseen.
- **Community Impacts** – The project would not affect community character or cohesion or change public access, divide neighborhoods, separate residences from community facilities, change the quality of life, or increase urbanization or isolation. The project would not cause disproportionately high and adverse effects on any minority or low-income populations as per Executive Order 12808 regarding environmental justice. The project does not require the relocation of any residences, businesses, or other land use.

- **Mineral Resources** – The California Department of Conservation does not designate the project site as a Significant Mineral Aggregate Resources Area; therefore, no impacts resulting from the loss of mineral resources are anticipated.
- **Hydrology and Floodplains** – Federal Emergency Management Agency Flood Insurance mapping shows the project outside the 100-year floodplain; therefore, there are no impacts to the 100-year floodplain. In addition, no adverse impacts to the drainage system are expected (Location Hydraulics Study Report, 2012).
- **Paleontology** – There is a low likelihood of encountering paleontological resources within the project area. The soils within the roadway have been repeatedly disturbed to construct and maintain I-680 over the past several years, and all work would be done within the existing ROW. Due to this, there is little potential for the southbound HOV lane to encounter any fossils within the area; therefore, the project would not affect paleontological resources. Although no published data indicate findings of fossils within the project corridor, a Paleontological Identification Report may be done before approval of the final environmental document.
- **Plant Species** – No special-status plant species were observed during focused plant surveys within the project limits, and all potential habitat is marginal; therefore, no impacts to species-status plant species are anticipated (Natural Environment Study, 2013).
- **Wild/Scenic River or Coastal Zone** – The project would not affect a wild or scenic river, and it is not within the Coastal Zone.

2.1 Human Environment

2.1.1 Consistency with State, Regional, and Local Plans

This section identifies existing regional, local, and area plans and policies that apply to areas along I-680. The proposed project is located in Contra Costa County, extending from 0.6-mile north of the Livorna Road interchange to 0.2-mile north of the Geary Road interchange. The project extends primarily through Walnut Creek, but it also includes portions of unincorporated county lands.

Planning goals and policies of the county and the city affected by the I-680 Southbound HOV Gap Closure Project are described below in Table 2.1-1. The table also presents planning goals and policies included in regional and area transportation plans.

**Table 2.1-1
Consistency with State, Regional, and Local Plans and Programs**

Goals/Policy	Build Alternative	No Build Alternative
Contra Costa County General Plan		
<i>Goal 3A: To coordinate land use with circulation, development of other infrastructure facilities, and protection of agriculture and open space, and to allow growth and the maintenance of the County's quality of life.</i>	Consistent. The Build Alternative would not acquire any land outside of the State-owned ROW, and land uses would not conflict with the proposed land uses for the project. The Build Alternative would keep up with planned growth and enhance the County's quality of life by reducing delay on southbound I-680.	Not Consistent. Under the No Build Alternative, the County's quality of life would not improve or be maintained. Congestion on southbound I-680 would continue to worsen.
City of Walnut Creek General Plan		
<i>Transportation, Policy 1.1: In cooperation with State and regional agencies and other jurisdictions, develop and implement regional solutions to local traffic problems created by growth outside the city.</i>	Consistent. By closing the existing HOV gap on southbound I-680, the Build Alternative would seek to solve a regional traffic problem created by growth outside the city. The Build Alternative would reduce congestion and decrease travel time in both the HOV lane and the single-occupancy lanes.	Not Consistent. The No Build Alternative would not result in any improvements to solve the traffic congestion on southbound I-680.
Metropolitan Transportation Commission Regional Transportation Plan Transportation 2035 Plan for the San Francisco Bay Area and the 2011 Transportation Improvement Program		
Goal: Improve reliability by reducing delay.	Consistent. The Build Alternative would improve the reliability of southbound I-680 by reducing delay. Closing the HOV gap would reduce delay by 8 minutes in the morning peak period and by 6 minutes in the afternoon peak period.	Not Consistent. Under the No Build Alternative, southbound I-680 would not undergo any improvements. Delay would continue to worsen, as would the reliability of the highway.
CCTA's 2009 Countywide Comprehensive Transportation Plan, Regional Measure 2		
Goal #1: Enhance the movement of people and goods on highways and arterial roads.	Consistent. The Build Alternative would reduce delay, congestion, and travel time along southbound I-680. This would increase the efficiency of the highway, thereby enhancing the movement of people and goods.	Not Consistent. Under the No Build Alternative, southbound I-680 would not undergo any improvements. Delay, travel time, and congestion would not improve, which would not enhance the movement of people and goods.

**Table 2.1-1
Consistency with State, Regional, and Local Plans and Programs**

Goals/Policy	Build Alternative	No Build Alternative
Goal #3: Provide and expand safe, convenient, and affordable alternatives to the single-occupancy vehicle.	<p>Consistent.</p> <p>The Build Alternative would encourage the use of the HOV lane by closing the gap in the system and making it more efficient. This provides an alternative to the single-occupancy vehicle and is of no monetary cost to individuals.</p>	<p>Not Consistent.</p> <p>Under the No Build Alternative, southbound I-680 would not undergo any improvements. The HOV lane would remain fragmented and inefficient, which would discourage its use.</p>

Environmental Consequences

As shown in Table 2.1-1, the I-680 Southbound HOV Gap Closure Project is consistent with local planning goals and policies in local and regional plans and studies. The Build Alternative would be consistent with the stated objectives of these jurisdictions. The No Build Alternative would not support achievement of these goals.

Avoidance, Minimization, and/or Mitigation Measures

No measures are needed.

2.1.2 Utilities/Emergency Services

2.1.2.1 Affected Environment

The following summarizes the findings in the *Utilities Report* (2012) prepared for the project. Several underground utilities are located within the project limits. Most of these underground utilities do not require relocation based on the preliminary widening design. There are overhead power and transmission lines that cross over the freeway that may be of concern during the use of tall construction equipment, such as cranes, but may not require relocation.

Pacific Gas & Electric (PG&E) is the primary provider of gas and electricity service in the project area. Astound Broadband and Comcast offer broadband Internet services over telephone phone and cable lines. Water service within Walnut Creek is provided by the East Bay Municipal Utility District. Wastewater collection and treatment services are provided by the Central Contra Costa Sanitary District for wastewater services.

2.1.2.2 Environmental Consequences

South Main Street crossing under I-680 has numerous underground utilities aligned with the local street and overhead PG&E and Astound Broadband lines crossing over I-680. The underground utilities, telecommunication, and fiber-optic lines are owned by the Central

Contra Costa Sanitary District, East Bay Municipal Utility District, Comcast, and Astound Broadband. The power poles for overhead lines may need to be relocated due to bridge widening. Underground utilities may also require relocation as a result of bridge widening construction.

Existing PG&E overhead utilities would be placed underground for approximately 1,400 feet directly adjacent to the existing curb line, and poles would be removed along Danville Boulevard from approximately the intersection of Castle Hill Road to the South Main Street/I-680 southbound off-ramp. Underground lateral service connections would cross Danville Boulevard/South Main Street to the first existing overhead pole location.

Preliminary roadway geometry for the proposed widening has been prepared, but it is subject to change during the design phase of the project. Additional locations of utility relocations would be finalized during the design phase and detailed on the contract plans.

Emergency services in the study area include police, fire, and California Highway Patrol services. No permanent impacts to emergency services would occur with implementation of the proposed project. The proposed project would benefit emergency services by increasing capacity and reducing congestion, thereby improving emergency response times. In addition, by providing standard inside shoulders south of Rudgear Road, emergency service providers could utilize the inside shoulder as a passing lane if there is congestion along southbound I-680. Temporary impacts to emergency services during construction are discussed in Section 2.4.3.

2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures

Design, construction, and inspection of required utility work will be completed in accordance with Caltrans policies and guidelines. Where feasible, relocations will be undertaken in advance of project construction. Caltrans will coordinate with the affected service providers in each instance to ensure that all utility work is performed in accordance with appropriate requirements and criteria.

The contractor will notify emergency service providers of the proposed dates of construction of the overall project work and utility relocation work. Coordination with the utility providers will be initiated during the preliminary engineering phase of the project and will continue through final design and construction. Coordination efforts will include planning for utility rerouting, identifying any other potential conflicts, and formulating strategies for overcoming problems that may arise to ensure minimum disruption of utility service or operation during the utility work and project construction.

Prior to awarding construction contracts for any of the proposed project phases, Caltrans and/or CCTA will coordinate with the Central Contra Costa Sanitary District to identify facilities or pipelines in the vicinity of the project and work with the district to provide assurance that their facilities will not be impacted or will be relocated accordingly.

Measures to avoid or minimize disruptions to utilities and emergency services during the construction phase are discussed in Section 2.4.3, Utilities/Emergency Services.

2.1.3 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.1.3.1 Affected Environment

The information in this section is from the Traffic Operations Analysis Report, I-680 Southbound HOV Gap Closure Project (2013).

Roadways, Pedestrian/Bicycle Facilities and Public Transportation Facilities

Within the project limits, I-680 has 3 to 6 lanes in each direction, with auxiliary lanes at some locations. The existing I-680 corridor does not provide pedestrian or bicycle facilities; however, walkways and cross paths are provided on many streets near the interchanges. Within the study area, pedestrian walkways (overcrossings) are provided at the Trinity Avenue, North Main Street, and Treat Boulevard/Geary Road interchanges. Walkways (undercrossings) are also provided at the Rudgear Road, South Main Street, Lilac Drive, Newell Avenue, Olympic Boulevard, Mt. Diablo Boulevard, Hillside Avenue, and Parkside Drive, and at the Contra Costa Canal Trail.

There are two public transportation facilities within the study area: the Pleasant Hill/Contra Costa Centre BART Station and the Walnut Creek BART Station. The County Connector provides bus service throughout Contra Costa County and the study area. Several express lines provide service along I-680, including the 92x, 95x, and 96x routes.

Traffic Operations Analysis Study Area and Years

A traffic operations analysis was conducted along southbound I-680 between the Concord Avenue interchange in Concord south to the El Pintado Road interchange in Danville, a study segment that is approximately 11 miles in length.

Extensive data collection efforts were undertaken in May 2011 to determine existing peak-period travel times, mainline queuing characteristics, traffic volumes, vehicle occupancies, and truck percentages within study area boundaries. In addition, mainline and ramp lane configurations data were collected along the study segments of southbound I-680. The freeway mainline segments, weaving areas, and ramp junction operations were analyzed

using FREQ macroscopic modeling software. FREQ is a freeway-modeling tool that evaluates basic mainline segments, weaving segments, HOV lanes, and ramp metering.

The operational analysis evaluated existing and future traffic conditions. Existing conditions represent the year 2011, based on the data collected in May 2011. Opening year conditions were projected for the year 2016. Future conditions were projected for the year 2040. The morning and afternoon peak-hour operational models were calibrated and validated to established criteria for freeway, ramp, and intersection volumes, travel times, and observed congested segments.

Existing and Future Year Traffic Conditions (No Build Alternative)

Existing and Future No Build Traffic Volumes

Traffic is carried on three to six through-traffic lanes in each direction. Auxiliary lanes are located from the Treat Boulevard on-ramp to San Luis Road/North Main Street off-ramp, San Luis Road/North Main Street on-ramp to SR 24 off-ramp, SR 24/Olympic Boulevard on-ramps to South Main Street off-ramp, and Rudgear Road on-ramp to Livorna Road off-ramp.

Existing and future peak-period traffic volumes for the freeway and on-ramps and off-ramps in the study area are listed in Tables 2.1-2 and 2.1-3 for the morning and afternoon peak periods, respectively. The predicted (modeled) traffic demand volumes shown in these tables are based on regional projections of land use growth and future travel demand, without the proposed project.

Existing and Future No Build Travel Time and Vehicle Speeds

Travel time, which represents the driving time within a defined roadway segment in the study area, provides a way to compare how a roadway segment performs in different study years and with each alternative. A slower travel time for an alternative or study year (when comparing the same roadway segment) indicates greater congestion.

Within the project limits, bottlenecks develop at the following three key locations in the morning peak hour (8:00 a.m. to 9:00 a.m.):

- North Main Street on-ramp to SR 24 off-ramp
- Rudgear Road on-ramp to Livorna Road off-ramp
- Stone Valley Road on-ramp to El Pintado Road off-ramp

These three bottlenecks operate at LOS E conditions, and the resulting congested segments operate at LOS F conditions. All other study segments operate at LOS D conditions during the morning peak hour. All bottlenecks gradually recede and are generally gone by 9:00 a.m.

During the afternoon peak hour (5:00 p.m. to 6:00 p.m.), bottlenecks develop at the following three locations:

- Rudgear Road on-ramp to Livorna Road off-ramp, congested segment extends upstream to the SR 24 on-ramp
- Livorna Road on-ramp to Stone Valley Road off-ramp
- Stone Valley Road on-ramp to El Pintado Road off-ramp

These bottlenecks also operate at LOS E conditions, and the resulting congested segments operate at LOS F conditions. All study segments north of the SR 24 on-ramp operate at LOS D or better conditions during the afternoon peak hour. Average existing speeds on the freeway are approximately 43 mph for mixed-flow lanes⁷ and 47 mph for HOVs in the morning peak period (5:00 a.m. to 9:00 a.m.) and 49 mph for mixed-flow lanes and 51 mph for HOVs in the afternoon peak period (3:00 p.m. to 7:00 p.m.). Tables 2.1-2 and 2.1-3 represent existing and future vehicle volumes without the project (no-build conditions) for the morning and afternoon peak periods, respectively.

⁷ Single-occupancy vehicles travel in mixed-flow lanes.

**Table 2.1-2
AM Peak-Period Existing Conditions (Year 2011), Opening Year (2016),
and Future (Year 2040) No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	AM Existing (2011) Number of Vehicles				AM Opening Year (2016) Number of Vehicles				AM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
Mainline north of Concord Avenue	2,056	4,750	6,817	5,874	2,100	4,850	6,960	5,990	2,300	5,310	7,630	6,570
Contra Costa Boulevard off-ramp	208	393	649	722	220	400	660	740	220	420	700	780
Contra Costa Boulevard on-ramp	106	223	469	424	110	230	490	440	120	260	540	490
Concord Avenue on-ramp	82	175	357	231	90	180	370	240	90	200	410	270
Mainline between Concord Boulevard and Willow Pass Road	2,036	4,755	6,994	5,807	2,080	4,860	7,160	5,930	2,290	5,350	7,880	6,550
Willow Pass Road off-ramp	172	432	747	827	180	440	760	840	180	460	800	890
Westbound Willow Pass Road on-ramp	22	76	165	211	30	90	180	230	30	100	210	270
Eastbound Willow Pass Road on-ramp	92	214	351	331	100	230	370	350	120	270	440	420
Mainline between Willow Pass Road and SR 242	1,978	4,613	6,763	5,522	2,030	4,740	6,950	5,670	2,260	5,260	7,730	6,350
Gregory Lane/Monument Boulevard off-ramp	141	363	947	824	150	380	990	860	170	440	1,160	1,010

**Table 2.1-2
AM Peak-Period Existing Conditions (Year 2011), Opening Year (2016),
and Future (Year 2040) No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	AM Existing (2011) Number of Vehicles				AM Opening Year (2016) Number of Vehicles				AM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
SR 242 on-ramp	3,386	4,890	3,787	3,263	3,570	5,160	4,000	3,440	4,440	6,410	4,970	4,280
Mainline north of Monument Boulevard	5,223	9,140	9,603	7,961	5,450	9,520	9,960	8,250	6,530	11,230	11,540	9,620
Monument Boulevard on-ramp	272	658	944	742	290	700	1,000	790	360	860	1,240	970
Mainline south of Monument Boulevard	5,945	9,798	10,547	8,703	5,740	10,220	10,960	9,040	6,890	12,090	12,780	10,590
Contra Costa Boulevard on-ramp	145	346	520	561	160	380	570	610	220	510	770	830
Mainline north of Sunnysvale Avenue	5,640	10,144	11,067	9,264	5,900	10,600	11,530	9,650	7,110	12,600	13,550	11,420
Sunnysvale Avenue off-ramp	302	700	1,043	911	340	780	1,160	1,010	490	1,130	1,690	1,470
Sunnysvale Avenue on-ramp	469	933	1,256	1,180	480	950	1,280	1,200	500	1,000	1,350	1,270
Treat Boulevard on-ramp	75	187	248	259	80	190	260	270	80	200	270	280
Mainline between Treat Boulevard and San Luis Road	5,882	10,564	11,528	9,792	6,120	10,960	11,910	10,110	7,200	12,670	13,480	11,500
Southbound North Main Street off-ramp	237	646	1,243	1,343	250	670	1,280	1,390	270	750	1,440	1,560

**Table 2.1-2
AM Peak-Period Existing Conditions (Year 2011), Opening Year (2016),
and Future (Year 2040) No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	AM Existing (2011) Number of Vehicles				AM Opening Year (2016) Number of Vehicles				AM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
San Luis Road off-ramp	22	76	85	118	30	100	110	150	50	180	200	270
San Luis Road on-ramp	113	287	692	644	120	300	730	680	140	360	860	800
Mainline between San Luis Road and Ygnacio Valley Boulevard	5,736	10,129	10,892	8,975	5,960	10,490	11,250	9,250	7,020	12,100	12,700	10,470
SR 24 off-ramp	3,185	4,761	4,921	3,820	3,260	4,870	5,030	3,910	3,580	5,350	5,530	4,290
Ygnacio Valley Boulevard on-ramp	225	710	1,050	917	240	760	1,120	980	310	980	1,440	1,260
Mainline south of Ygnacio Valley Boulevard	2,776	6,078	7,021	6,072	2,940	6,380	7,340	6,320	3,750	7,730	8,610	7,440
Olympic Boulevard off-ramp	168	587	904	1,015	180	600	920	1,030	180	630	970	1,090
Mainline north of Olympic Boulevard	2,608	5,491	6,117	5,057	2,760	5,780	6,420	5,290	3,570	7,100	7,640	6,350
SR 24 on-ramp	263	739	1,352	1,291	340	950	1,730	1,660	690	1,930	3,540	3,380
Olympic Boulevard on-ramp	51	132	339	278	60	140	350	290	60	150	400	320

**Table 2.1-2
AM Peak-Period Existing Conditions (Year 2011), Opening Year (2016),
and Future (Year 2040) No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	AM Existing (2011) Number of Vehicles				AM Opening Year (2016) Number of Vehicles				AM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
Mainline between Olympic Boulevard and South Main Street	2,922	6,362	7,808	6,626	3,160	6,870	8,500	7,240	4,320	9,180	11,580	10,050
South Main Street off-ramp	80	190	715	791	90	200	730	810	90	200	770	850
South Main Street on-ramp	29	71	141	124	40	90	180	160	70	160	330	290
Mainline between South Main Street and Rudgear Road	2,871	6,243	7,234	5,959	3,110	6,760	7,950	6,590	4,300	9,140	11,140	9,490
Rudgear Road on-ramp	69	312	486	445	80	340	530	490	100	460	710	650
Mainline between Rudgear Road and Livorna Road	2,940	6,555	7,720	6,404	3,190	7,100	8,480	7,080	4,400	9,600	11,850	10,140
Livorna Road off-ramp	29	92	292	351	40	100	310	370	40	120	380	460
Livorna Road on-ramp	34	89	269	377	50	120	360	490	90	240	740	1,030
Mainline between Livorna Road and Stone Valley Road	2,945	6,552	7,697	6,430	3,200	7,120	8,530	7,200	4,450	9,720	12,210	10,710
Westbound Stone Valley Road off-ramp	38	90	156	137	60	130	220	190	120	290	500	440

**Table 2.1-2
AM Peak-Period Existing Conditions (Year 2011), Opening Year (2016),
and Future (Year 2040) No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	AM Existing (2011) Number of Vehicles				AM Opening Year (2016) Number of Vehicles				AM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
Eastbound Stone Valley Road off-ramp	20	115	232	225	30	160	320	320	60	370	740	720
Stone Valley Road on-ramp	61	187	447	640	70	190	460	650	70	200	480	690
Mainline between Stone Valley Road and El Pintado Road	2,948	6,534	7,756	6,708	3,180	7,020	8,450	7,340	4,340	9,260	11,450	10,240
El Pintado Road off-ramp	14	26	101	86	20	30	110	90	20	30	110	90
Mainline south of El Pintado Road	2,934	6,508	7,655	6,622	3,160	6,990	8,340	7,250	4,320	9,230	11,340	10,150

¹Two on-ramps at this location.

²Two off-ramps at this location.

Source: Traffic Operations Analysis Report, 2013.

**Table 2.1-3
PM Peak-Period Existing Conditions (Year 2011), Opening Year (Year 2016), and Future (Year 2040), No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	PM Existing (2011) Number of Vehicles				PM Opening Year (2016) Number of Vehicles				PM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
Mainline north of Concord Avenue	4,691	4,709	5,331	4,271	4,920	4,940	5,590	4,480	6,010	6,030	6,830	5,470
Contra Costa Boulevard off-ramp	572	584	650	572	620	630	710	620	830	850	950	830
Contra Costa Boulevard on-ramp	447	596	672	428	470	620	700	450	540	720	820	520
Concord Avenue on-ramp	238	230	230	211	250	240	240	220	290	280	280	260
Mainline between Concord Boulevard and Willow Pass Road	4,804	4,951	5,583	4,338	5,020	5,170	5,820	4,530	6,010	6,180	6,980	5,420
Willow Pass Road off-ramp	732	925	1,074	702	750	940	1,090	720	790	990	1,150	750
Westbound Willow Pass Road on-ramp	403	528	490	382	410	540	500	390	430	570	530	410
Eastbound Willow Pass Road on-ramp	587	525	601	469	600	540	610	480	630	560	650	500
Mainline between Willow Pass Road and SR 242	5,062	5,079	5,600	4,487	5,280	5,310	5,840	4,680	6,280	6,320	7,010	5,580
Gregory Lane/Monument Boulevard off-ramp	842	881	925	787	900	940	990	840	1,160	1,220	1,280	1,090

**Table 2.1-3
PM Peak-Period Existing Conditions (Year 2011), Opening Year (Year 2016), and Future (Year 2040), No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	PM Existing (2011) Number of Vehicles				PM Opening Year (2016) Number of Vehicles				PM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
SR 242 on-ramp	2,548	2,603	2,909	2,093	2,720	2,780	3,100	2,230	3,500	3,580	4,000	2,880
Mainline north of Monument Boulevard	6,768	6,801	7,584	5,793	7,100	7,150	7,950	6,070	8,620	8,680	9,730	7,370
Monument Boulevard on-ramp	577	635	530	463	610	670	560	490	750	820	690	600
Mainline south of Monument Boulevard	7,345	7,436	8,114	6,256	7,710	7,820	8,510	6,560	9,370	9,500	10,420	7,970
Contra Costa Boulevard on-ramp	571	516	555	474	580	530	570	490	610	550	600	510
Mainline north of Sunnyvale Avenue	7,916	7,952	8,669	6,730	8,290	8,350	9,080	7,050	9,980	10,050	11,020	8,480
Sunnyvale Avenue off-ramp	949	1,033	1,095	900	1,000	1,080	1,150	940	1,190	1,290	1,370	1,130
Sunnyvale Avenue on-ramp	842	954	1,171	813	860	970	1,190	830	910	1,030	1,260	870
Treat Boulevard on-ramp	235	219	264	174	240	230	270	180	250	240	280	190
Mainline between Treat Boulevard and San Luis Road	8,044	8,092	9,009	6,817	8,370	8,470	9,390	7,120	9,950	10,030	11,190	8,410
Southbound North Main Street off-ramp	793	862	989	758	810	880	1,010	770	850	930	1,060	810

**Table 2.1-3
PM Peak-Period Existing Conditions (Year 2011), Opening Year (Year 2016), and Future (Year 2040), No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	PM Existing (2011) Number of Vehicles				PM Opening Year (2016) Number of Vehicles				PM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
San Luis Road off-ramp	145	117	128	130	200	170	180	180	450	370	400	410
San Luis Road on-ramp	295	272	309	208	430	400	450	300	1,040	960	1,080	730
Mainline between San Luis Road and Ygnacio Valley Boulevard	7,401	7,385	8,201	6,137	7,810	7,770	8,650	6,470	9,690	9,690	10,810	7,920
SR 24 off-ramp	2,575	2,898	3,069	2,378	2,800	3,150	3,340	2,590	3,860	4,350	4,600	3,570
Ygnacio Valley Boulevard on-ramp	950	1,169	1,271	1,074	970	1,190	1,290	1,090	1,030	1,260	1,370	1,160
Mainline south of Ygnacio Valley Boulevard	5,776	5,656	6,403	4,833	5,980	5,860	6,600	4,970	6,860	6,600	7,580	5,510
Olympic Boulevard off-ramp	982	613	944	852	1,000	630	960	870	1,060	660	1,010	920
Mainline north of Olympic Boulevard	4,794	5,043	5,459	3,981	4,980	5,230	5,640	4,100	5,800	5,940	6,570	4,590
SR 24 on-ramp	1,626	1,665	1,837	1,844	1,770	1,820	2,000	2,010	2,450	2,510	2,760	2,780
Olympic Boulevard on-ramp	404	476	448	352	410	490	460	360	430	510	480	380

**Table 2.1-3
PM Peak-Period Existing Conditions (Year 2011), Opening Year (Year 2016), and
Future (Year 2040), No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	PM Existing (2011) Number of Vehicles				PM Opening Year (2016) Number of Vehicles				PM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
Mainline between Olympic Boulevard and South Main Street	6,824	7,184	7,744	6,177	7,160	7,540	8,100	6,470	8,680	9,810	7,750	
South Main Street off-ramp	764	710	1,088	1,330	780	720	1,110	1,350	820	760	1,170	1,430
South Main Street on-ramp	416	295	328	185	480	340	380	210	750	530	590	330
Mainline between South Main Street and Rudgear Road	6,476	6,769	6,984	5,032	6,860	7,160	7,370	5,330	8,610	8,730	9,230	6,650
Rudgear Road on-ramp	377	428	522	363	390	440	530	370	410	460	560	390
Mainline between Rudgear Road and Livorna Road	6,853	7,197	7,506	5,395	7,250	7,600	7,920	5,700	9,020	9,190	9,790	7,040
Livorna Road off-ramp	416	401	458	759	430	410	470	780	470	450	520	850
Livorna Road on-ramp	162	172	227	384	270	280	370	620	740	780	1,040	1,750
Mainline between Livorna Road and Stone Valley Road	6,599	6,968	7,275	5,020	7,090	7,470	7,800	5,540	9,290	9,520	10,310	7,940
Westbound Stone Valley Road off-ramp	289	267	199	101	320	300	220	120	450	410	310	160

**Table 2.1-3
PM Peak-Period Existing Conditions (Year 2011), Opening Year (Year 2016), and Future (Year 2040), No Build Traffic Demand (Freeway and Ramps)**

Southbound Segments	PM Existing (2011) Number of Vehicles				PM Opening Year (2016) Number of Vehicles				PM Future (2040) Number of Vehicles			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
Eastbound Stone Valley Road off-ramp	275	295	264	104	310	330	290	120	430	460	410	160
Stone Valley Road on-ramp	680	424	453	541	690	440	460	550	730	460	490	580
Mainline between Stone Valley Road and El Pintado Road	6,715	6,830	7,265	5,356	7,150	7,280	7,750	5,850	9,140	9,110	9,590	8,200
El Pintado Road off-ramp	117	77	97	72	120	80	100	80	130	80	100	80
Mainline south of El Pintado Road	6,598	6,753	7,168	5,284	7,030	7,200	7,650	5,770	9,010	9,030	9,980	8,120

Source: Traffic Operations Analysis Report, 2013.

By year 2040 conditions, three additional bottlenecks are expected to develop along the mixed-flow lanes during the morning peak hour (8:00 a.m. to 9:00 a.m):

- Between the North Main Street on-ramp and the SR 24 westbound off-ramp
- Livorna Road on-ramp to the Stone Valley Road off-ramp
- Stone Valley Road on-ramp and El Pintado Road off-ramp

During the afternoon peak hour (5:00 p.m. to 6:00 p.m.), bottlenecks are projected to develop at the following two locations:

- Livorna Road on-ramp to Stone Valley Road off-ramp
- Stone Valley Road on-ramp to El Pintado Road off-ramp

Year 2040 queuing and congestion is expected to extend the entire length of the study corridor under the no-build conditions. Average travel speed during the morning peak period is expected to be approximately 14 mph for mixed-flow lanes and 15 mph for HOVs. Average travel speed during the afternoon peak period is expected to be approximately 12 mph for mixed-flow lanes and 19 mph for HOVs.

Existing and Future No Build Levels of Service

LOS is an indicator of the operating performance of a road or intersection. As explained in Section 1.2.2.1, LOS is a rating of congestion and varies on a scale from LOS A to LOS F, where LOS A represents uncongested, free-flow conditions and LOS E represents very congested conditions. At LOS F, a roadway segment is considered over capacity and operates at stop-and-go conditions.

In accordance with Caltrans criteria, the traffic analysis used LOS D or better (LOS A, B, C, or D) to indicate roadways and intersections that function or will function in the future at an “acceptable” level of performance, while LOS E or F indicate an “unacceptable” level of congestion. Table 2.1-4 lists the existing and future no-build LOS ratings along the mixed-flow lanes for freeway segments within the study area. Future increases in traffic volumes would result in additional congestion in traffic operations on I-680 and its ramps, enough to result in a decrease in LOS ratings along some I-680 segments and ramps, as well as on local roads. By 2040, all mixed-flow lane segments of the I-680 corridor would function at LOS E or F during peak hours.

**Table 2.1-4
Summary of I-680 Mainline Segment Levels of Service
for Existing and Future No-Build Conditions**

Southbound Segments	AM Peak Hour LOS		PM Peak Hour LOS	
	2011	2040	2011	2040
Concord Avenue On-Ramp to Willow Pass Road Off-Ramp	D	F	C	F
Willow Pass Road On-Ramp to Gregory Lane Off-Ramp	D	F	B	F
Gregory Lane Off-Ramp to SR 242 On-Ramp	F	F	C	F
SR 242 On-Ramp to Monument Boulevard On-Ramp	F	F	C	F
Contra Costa Boulevard On-Ramp to Sunnyvale Avenue/North Main Street Off-Ramp	F	F	C	F
Sunnyvale Avenue/North Main Street On-Ramp to Treat Boulevard On-Ramp	F	F	C	F
Treat Boulevard On-Ramp to San Luis Road/North Main Street Off-Ramp	F	F	C	F
San Luis Road/North Main Street On-Ramp to SR 24 Off-Ramp	E	F	C	F
SR 24 Off-Ramp to Ygnacio Valley Road On-Ramp	D	F	C	F
Ygnacio Valley Road On-Ramp to Olympic Boulevard Off-Ramp	D	F	D	F
SR 24 On-Ramp to Olympic Boulevard On-Ramp	F	F	F	F
Olympic Boulevard On-Ramp to South Main Street Off-Ramp	F	F	F	F
South Main Street On-Ramp to Rudgear Road On-Ramp	F	F	F	F
Rudgear Road On-Ramp to Livorna Road Off-Ramp	E	F	E	F
Livorna Road On-Ramp to Stone Valley Road Off-Ramp	F	E	E	F
Stone Valley Road On-Ramp to El Pintado Road Off-Ramp	E	E	E	E

Source: Traffic Operations Analysis Report, 2013.

2.1.3.2 Environmental Consequences

Pedestrian/Bicycle Facilities

The project would not affect any existing pedestrian or bicycle facilities, nor would it create any new pedestrian or bicycle facilities because all of the construction would be in the I-680 ROW. An exception to this is at the South Main Street undercrossing, where a minor realignment of the roadway is proposed to facilitate widening of the bridge structure. The existing sidewalk would be replaced in kind.

Traffic Operations

No Build Alternative

Future mixed-flow lane conditions for the No Build Alternative would be the same as reported in Table 2.1-4 above. Traffic volumes would increase due to regional growth, and drivers would increasingly rely on the I-680 corridor. By 2040, all segments would function at capacity (LOS E or F) during both the morning and the afternoon peak periods. The demand projected in the analysis would exceed capacity in the mainline segment throughout the length of the project. The traffic analysis projects that significant congestion and queues on southbound I-680 would develop as a result of bottlenecks. These bottlenecks would occur between the North Main Street on-ramp and the SR 24 off-ramp, between the Livorna Road on-ramp and the Stone Valley Road off-ramp, and between the Stone Valley Road on-ramp and the El Pintado Road off-ramp during the morning peak period, and between the latter two locations during the afternoon peak period.

Build Alternative

All single-occupancy vehicles and HOV users along the southbound I-680 study corridor would benefit from the proposed project improvements, with HOV users experiencing the greater amount of traffic operation benefits along the study corridor.

With the Build Alternative, the traffic analysis projects that the I-680 mainline segments would operate at or near capacity. Implementation of the project would provide additional mainline capacity to accommodate the HOV lane gap closure; however, year 2040 traffic demands are anticipated to exceed the capacity of southbound I-680 with and without the project, resulting in LOS F operations for most of the study corridor. The additional HOV lane capacity provided by the project would result in slightly lower vehicle queue lengths during the morning and afternoon peak hours. In addition, vehicle miles traveled⁸ and person miles traveled⁹ are expected to increase with implementation of the project due to increased mainline capacity within the project area and growth over time in the region.

The average travel time and speed for single-occupancy vehicles and HOVs with and without the project are presented in Table 2.1-5. The project is expected to provide a travel time savings for single-occupancy vehicles and HOVs compared to no-build conditions. The project is expected to reduce single-occupancy vehicle travel time slightly; however, the project would provide substantial travel time savings (more than 50 percent) to HOVs within the traffic study area.

⁸ A measure of the extent of motor vehicle operation; the total number of vehicle miles traveled within a specific geographic area over a given period of time.

⁹ The number of miles traveled by each person on a trip. The purpose is to account for all miles traveled by all people.

Implementation of the project would provide additional mainline capacity along southbound I-680 between Treat Boulevard and Livorna Road by closing the HOV lane gap. The additional capacity is expected to provide improvements to the single-occupancy vehicles and HOV users that travel southbound I-680 during the typical weekday morning and afternoon peak period. The project would improve the mainline operations along the corridor beginning in the opening year (2016), and the benefits from the project would continue through the future year (2040).

**Table 2.1-5
2040 Measures of Effectiveness for Peak Periods¹**

Measure of Effectiveness	Southbound AM (5:00 to 9:00)			Southbound PM (3:00 to 7:00)		
	No Build	Build Alternative	% Change	No Build	Build Alternative	% Change
Vehicles Miles of Travel (vehicle-miles)	251,540	274,980	9.3	274,730	295,100	7.4
Person Miles of Travel (person-miles)	290,540	334,310	14.9	317,900	356,030	12.0
Single-Occupancy Vehicle Average Travel Time (min:sec)	47:40	44:49	-6.0	53:17	50:40	-4.9
Single-Occupancy Vehicle Average Travel Speed (mph)	14	15	7.1	12	13	8.3
HOV Average Travel Time (min:sec)	43:13	19:40	-54.5	35.04	11:48	-66.3
HOV Average Travel Speed (mph)	15	34	126.7	19	56	194.7
Mainline Vehicle Delay (vehicle-hours)	11,530	10,650	-7.6	14,420	13,660	-5.3
Mainline Person Delay (person-hours)	13,540	11,560	-14.6	16,080	14,000	-12.9
Notes:						
1 The study area segment of I-680 extends between Concord Avenue and El Pintado Road.						

Source: Traffic Operations Analysis Report, 2013.

The following is a summary of the potential project benefits to the southbound I-680 study corridor with project implementation in 2040:

- Decrease in single-occupancy vehicle and HOV travel time. An average estimated travel time savings would range between 4 and 14 percent for single-occupancy vehicles. For HOVs, the decrease in travel time would be even greater, between 37 and 66 percent.
- Increase in single-occupancy vehicle and HOV average travel speeds. An average estimated travel speed increase would range between 5 and 17 percent for single-occupancy vehicles, with a greater speed increase, between 58 and 195 percent, for HOVs.
- Decrease in average vehicle and person delay. The average amount of time that vehicles using I-680 are delayed would be reduced by between 5 and 37 percent. The average amount of time each person (driver or passenger) using I-680 is delayed would be reduced by between 13 and 42 percent.
- Increase in mainline capacity and thus an increase in the vehicle miles traveled and person miles traveled. An average estimated increase would range between 1 and 9 percent for vehicle miles traveled and between 2 and 15 percent for person miles traveled.
- Reduction in bottlenecks and congested segments along the mainline. An average congested segment length reduction would range between 5 and 46 percent.

In summary, all users along the southbound I-680 study corridor would benefit from the proposed project improvements, with HOV users experiencing the greater amount of traffic operation benefits with a travel time savings between 37 and 66 percent and an increase of average travel speeds between 58 and 195 percent. By 2040, this equates to travel speeds increasing from 19 to 56 mph and a travel time savings of approximately 23 minutes during the afternoon peak.

2.1.3.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required.

2.1.4 Visual/Aesthetics

This section describes the existing visual environment of the project area in terms of motorists and area residents.

2.1.4.1 Regulatory Setting

NEPA establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* and culturally pleasing surroundings (42 United States Code 4331[b][2]). To further emphasize this point, FHWA, in its implementation of NEPA (23 United States Code 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse

environmental impacts, including among others, the destruction or disruption of aesthetic values.

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 [PRC] Section 21001[b]).

2.1.4.2 Affected Environment

The information below is based on the *Visual Impact Assessment* (2012) for this project.

The visual analysis followed FHWA’s publication entitled *Visual Impact Assessment for Highway Projects* (FHWA, 1981). The analysis includes visual quality criteria, landscape units, visual character, viewer exposure, and viewer sensitivity.

The study corridor is located between 0.6-mile north of the Livorna Road interchange to 0.2-mile north of the Geary Road interchange in Walnut Creek. It runs approximately 5.4 miles between these project limits. Approximately 3 miles of the study corridor between the Livorna Road and SR 24 interchange are officially designated as a State Scenic Route.

Between the northern and southern project limits, the area is characterized by rolling hills and valleys. Most of the valley areas are developed with suburban-level development. Various land uses are also located along the study corridor, including residential, commercial, and open space. Many of the on-corridor views located within the developed areas of Walnut Creek are limited by soundwalls placed along the freeway. These soundwalls limit the outward and inward views from and to the corridor, respectively. Views to adjacent hillsides and open spaces are present on the south end of the study corridor. Viewer groups are generally categorized by their views, either as highway users (from the road) or as highway neighbors (to the road). Four viewer groups were identified within the project area: freeway travelers, community residents, businesses (including business owners, employees, and customers), and local street users.

From the Geary Road Overcrossing to north of the I-680/SR 24 interchange, development is primarily commercial with offices, stores, and strip malls. Motorists at the northern end of the project enter through this portion. There are many existing bridges over the freeway in this unit that are not found in other units.

As motorists travel southward, the adjacent development develops from a mix of commercial and residential uses to more single-family residential uses with soundwalls. Existing soundwalls partially screen residential areas from motorists’ views and the roadway from residents’ views. As motorists travel southward past the I-680/SR 24 interchange, the views to Mt. Diablo (to the southeast) are dynamic. As mentioned earlier, there are soundwalls

along most of the southbound lanes that block views to the west. The Olympic Boulevard and South Main Street interchanges are landscaped. Farther south, the landscape is characterized by older single-family homes with mature landscaping. Some of the built environment features within or adjacent to the corridor include soundwalls, retaining walls, or a combination of both; the heights of these walls vary, with the combination walls being quite tall. Roadways with a small landscape buffer separate the freeway walls from the residential areas at many locations. Hillsides act as buffers in some cases. Due to the presence of walls and hillsides, the residential areas do not generally have views into the freeway corridor. The existing mature vegetation along the roadways helps to buffer the freeway. At the southern limits of the project corridor, views are primarily scenic, consisting of less developed areas with open spaces and hillsides. East and west views are apparent from both directions of travel.

Because it is not possible to analyze every possible view within the project area, the FHWA analysis methodology recommends selecting key viewpoints that represent the potential visual effects of the project. The key viewpoints include a representation of all critical visual elements of the proposed project and viewer group types, and they represent each landscape unit with views that might be potentially affected by the project. Three key views were selected within the project area. They are shown in Figures 2.1-1 through 2.1-3 and are described here:

- **Viewpoint #7, I-680 Rudgear Road to SR 24 Landscape Unit:** This viewpoint is from the viewpoint of the southbound I-680 traveler and includes a portion of the designated State Scenic Route. The view shows the existing five lanes of the highway. The soundwall along the west side of the freeway limits the views in that direction; however, the views along the highway to the south allow distant views to the hills south of the Walnut Creek area. The visual quality of this view is moderate, with moderate vividness, intactness, and unity.
- **Viewpoint #13, Residential Landscape Unit:** This viewpoint is looking south on Danville Boulevard at Castle Hill Road. The view is from the perspective of the traveler on southbound Danville Boulevard and shows the proposed improvement from the perspective of the adjacent residents. In the existing view, the sound/retaining wall that parallels Danville Boulevard is partially screened by trees and shrubs planted along the base of the wall. The residential side of the street is also heavily forested, which together with the wall plantings helps to buffer the residents from the highway structures. The overall visual quality of the view is moderate, with moderately high vividness and intactness and moderate unity. The plantings and local character of Danville Boulevard increase the overall quality, while the utility poles and lines are detracting elements.

- **Viewpoint #21, I-680 North/Commercial-Residential Landscape Units:** This viewpoint is from the Trinity Avenue Overpass over I-680, looking to the north. Its location on the overpass addresses views from both landscape units because the bridge is a primary access point for residents in this area. The view is from the perspective of a pedestrian on the bridge and shows the improvements in the northern portion of the project area. The view shows the existing six mainline lanes and additional ramp lanes to/from the interchange with SR 24, which is located immediately south of the Trinity Bridge. The character is typical for a freeway. The overall visual quality is moderate, with moderate vividness, intactness, and unity.

2.1.4.3 Environmental Consequences

Overall, the project is not anticipated to substantially alter the existing visual environment of the I-680 corridor. The proposed Build Alternative would add an additional lane of traffic for 5.4 miles to the southbound lanes of I-680 from approximately Livorna Road on the south to Geary Road. All work would be within the current freeway or local street ROW. From the perspective of the freeway traveler, the pavement cross section for the southbound traveler would appear wider than the existing due to the new HOV lane. The new pavement width is not anticipated to be very noticeable because the freeway segments immediately to the north and south already include the HOV lane.

Construction of the project would result in minor visual changes due to widening of the roadway and pavement, construction of the HOV lane, removal of vegetation, reconstruction of structures, widening of one bridge, and addition of signage, ramp metering lights, and devices.

Two sound/retaining walls (10 to 13 feet in height) would be replaced in the southern portion of the project limits, one of which would require the removal of existing vegetation along the wall. In addition, a soundwall as high as 16 feet would be constructed along the edge of northbound I-680, just north of the North Main Street interchange. Therefore, existing views from local streets that parallel the study corridor, particularly in the southern sections of the project corridor, would be altered due to new retaining and higher soundwalls and disturbance of the existing screening vegetation.

The existing median barrier would be removed and replaced with a new median barrier through most of the study corridor, from the North Main Street Overcrossing to Rudgear Road. Because the new barrier is anticipated to look similar to the existing barrier, changes to the visual environment would be minimal. To help identify the new HOV lane and its requirements for motorists, additional signage would be required in the median; however, these signs are not expected to alter the existing visual environment because they already are a part of the visual environment north and south of the study corridor.

Landscaping is provided along state highways for aesthetic, safety, environmental mitigation, or erosion control purposes. Occasionally, highway planting is used to reduce headlight glare; however, the proposed project is not anticipated to add a new source of light or glare. Caltrans has established a plant selection and setback guide for all new landscape plantings. In most instances, these guidelines are more limiting than previous requirements. The primary concern of the requirements is the safety of maintenance workers and travelers on the roadway. Under the revised guidelines, new plantings may be restricted in their locations, and it cannot be assumed that new plantings will be in-kind and in-place of the existing plantings.

Some existing vegetation, consisting of trees and other freeway planting, would be removed. Construction of the proposed project would remove approximately 5.8 acres of existing vegetation, of which 2.7 acres would be paved as part of the project. Of the remaining 3.1 acres, 1.5 acres would be used for stormwater retention; revegetation within these stormwater facilities is generally limited to grasses or groundcovers. Therefore, approximately half of the 3.1 acres would be available for the inclusion of larger plant materials such as trees and shrubs. The vegetation to be removed is a combination of native and ornamental species that have been planted along the corridor. Approximately 212 trees would be affected by the proposed project, primarily Coast Live Oak (*Quercus agrifolia*), Valley Oak (*Quercus lobata*), Coast Redwood (*Sequoia sempervirens*), and non-native plantings. This would partially offset the effects of landscape removal within the median.

These visual impacts would not affect the State Scenic Route designation between the SR 24 interchange and Livorna Road. The visual impacts are minor and the changes are consistent with the existing visual character of the corridor. Revegetation would ensure the visual quality of this segment is maintained.

These limited visual impacts are demonstrated through the effects on the key viewpoints, described in Section 2.1.3.2, Affected Environment. Photographs were taken of the existing view for each key viewpoint and are compared to rendered simulations developed for each key viewpoint. Descriptions of potential changes to the visual quality are as follows:

- **Viewpoint #7, I-680 Rudgear Road to SR 24 Landscape Unit:** The addition of a lane is not anticipated to greatly alter the existing visual character of the view. The freeway will still appear as a wide multi-lane roadway. Relocation of the retaining/soundwall approximately 20 feet out from its existing location would likely not be noticeable from this vantage point, except during construction. The resulting changes to the views along southbound I-680 are not anticipated to be extensive and would likely not substantially alter the existing view. Overall, the visual quality is anticipated to remain the same as existing with moderate vividness, intactness, and unity.

- **Viewpoint #13, Residential Landscape Unit:** The project would remove and replace the existing combination retaining/soundwall with a new wall. This new wall would be located approximately 20 feet closer to the curb along the east side of Danville Boulevard. The wall is anticipated to be taller than the existing by several feet. The larger wall and its closer proximity to the viewer would create more enclosure to the view. The loss of larger screening material would be very noticeable initially, but over time as the new plantings grow, this should diminish; however, the higher wall and lower plantings mean that more of the wall would be exposed than is currently seen. Changes associated with the removal and replacement of the combination retaining/soundwall would be very noticeable to the residents of the area and to those traveling on Danville Boulevard. The resulting visual impact associated with the project for this view is anticipated to be moderate. The overall visual quality of the view would remain at moderate, but the vividness would be reduced to moderate from moderately high. Intactness would lower to moderately low, and unity would remain at moderate.
- **Viewpoint #21, I-680 North/Commercial-Residential Landscape Units:** With only restriping occurring within this stretch of the project, any changes to the visual environment would be very limited. Drivers would notice the addition of the lane and would adjust their driving accordingly, but they would not likely see it as very noticeable. The resulting impact is not anticipated to change the existing visual quality, which should remain at moderate, with moderate vividness, intactness, and unity.

Figures 2.1-1 through 2.1-3 below show the existing view and post-construction view of each key viewpoint.



Figure 2.1-1: Viewpoint #7, I-680 Rudgear Road to SR 24 Landscape Unit

Minimization measures depicted in the simulation include wall texture/patterns in the replacement soundwall. Aesthetic treatments to structures are representative only. Actual types of treatments and landscaping would be designed with input from the community and in collaboration with Caltrans' District Landscape Architect during the design phase.

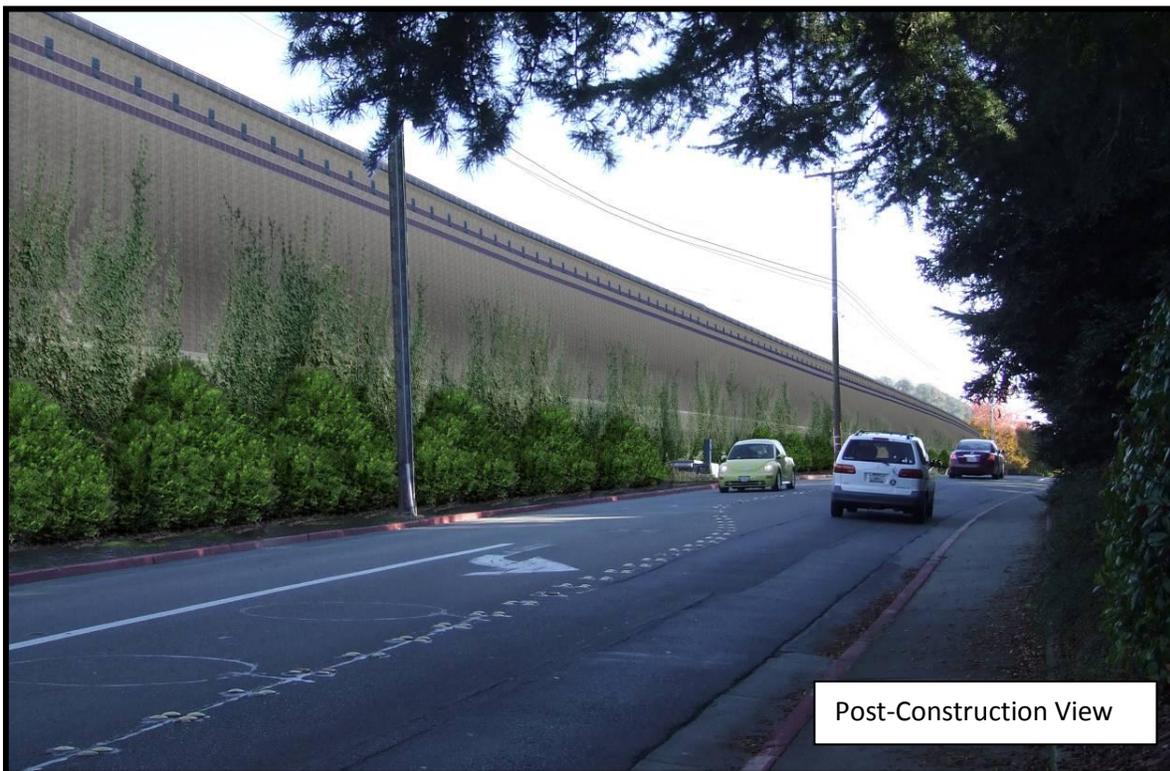
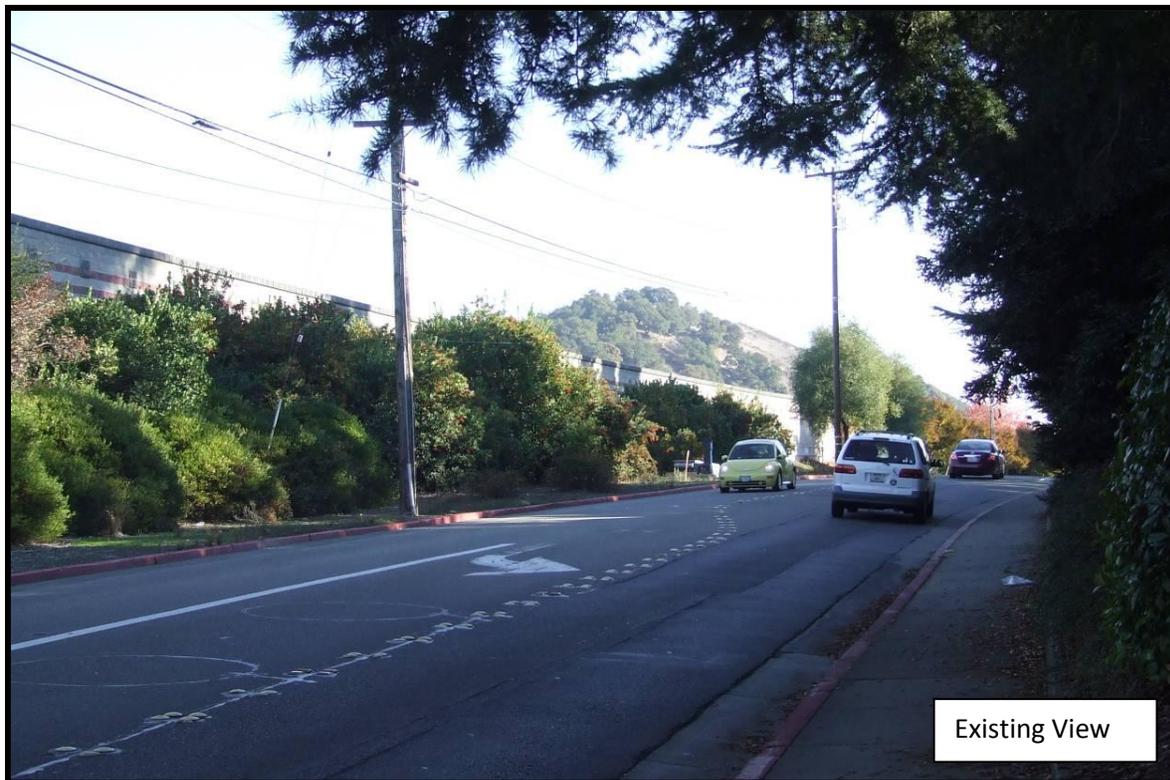


Figure 2.1-2: Viewpoint #13, Residential Landscape Unit

Minimization measures depicted in the simulation include wall texture/patterns in the replacement retaining/soundwall and new plantings, including vines along the new wall. Aesthetic treatments to structures are representative only. Actual types of treatments and landscaping would be designed with input from the community and in collaboration with Caltrans' District Landscape Architect during the design phase.



Figure 2.1-3: Viewpoint #21, I-680 North/Residential-Commercial Landscape Units

Because the changes to this portion of the corridor within the mainline of I-680 are limited to restriping, no minimization measures are seen in this view. (Note that for the sake of clarity, the mesh from the existing chain-link fence on the Trinity Bridge has been removed from this view.) Any types of treatments and landscaping needed would be designed with input from the community and in collaboration with Caltrans' District Landscape Architect during the design phase.

2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures

Visual impacts would be reduced to less than significant levels through the use of aesthetic treatments of color and/or texture applied to both sound and retaining walls. Vegetation preservation, replacement planting, and modifications to drainage and fencing, among other measures, would also be employed to reduce impacts. The following avoidance and minimization measures are proposed to reduce the visual effects of the Build Alternative:

Architectural Detailing: All structural surfaces, which include retaining walls, soundwalls, slope paving, and bridge structures, will receive architectural treatments, including texture and/or color, shadow lines for caps, and other aesthetic enhancements as determined appropriate.

- The specifics of aesthetic enhancements by means of including texture and color will be developed with community involvement, such as an open house, during the design phase.
- Based on the community's input, details of treatments for all structures will be architecturally and visually compatible with the adjacent community and existing structural elements within the highway corridor.
- The community outreach efforts for developing aesthetic design details will include a broad range of interested parties, including affected residents, advocacy groups, and public agencies.

Vegetation Preservation: Existing highway planting will be preserved to the greatest extent feasible.

- Existing vegetation outside of areas to be graded will be protected during construction.
- Replacement planting will be installed in all areas disturbed by construction activity.
- A minimum 30 percent of the new trees planted will be from 24-inch box container stock¹⁰ to provide immediate size in the new landscaping. The remaining trees will be 15-gallon¹¹ size at installation. Final decisions on replacement planting, tree size, and ratio will be determined by the District Landscape Architect.
- Highway planting that is removed by the project including trees, shrubs, and groundcover, will be replaced. Final decisions on replacement planting, tree size, and ratio will be determined by the District Landscape Architect.
- A water-conserving automated irrigation system will be installed, and a 3-year plant establishment period will be included in the contract to assure ongoing success of the plantings.

¹⁰ 24-inch box container stock typically contains trees of 10 to 14 feet and 1.5 to 2.5 inches in diameter trunk width, depending on the species.

¹¹ 15-gallon size trees are typically 6 to 12 feet in height and 0.5 to 1 inch in diameter trunk width, depending on the species.

- Vines will be planted along new walls, including on both sides of the soundwalls wherever possible, to cover the masonry block surfaces with greenery and to deter graffiti.
- Landscaping work will be performed under a separate follow-up contract within 2 years of the roadway construction contract completion.

Drainage, Fencing, and Other Project Features:

- Detention basins will be designed so that they appear to be a natural part of the environment, such as a streambed or riparian pool in an informal, curvilinear manner.
- Detention basins will be located at least 10 feet from free recovery zones to allow for the installation of landscaping.
- Basin slope grading will incorporate slope rounding and variable gradients, and it will be similar to the surrounding topography to de-emphasize the edge. If a wall or hardscape feature is required, it shall be worked into the overall design concept.
- Basins will be designed so that chain-link perimeter fencing is not required.
- The use of bioswales will be limited within corridor landscape areas. When required, they will be located in unobtrusive areas and designed to appear as natural features.
- Cut-off and shielded fixtures will be used for highway and roadway lighting.

2.1.5 Cultural Resources

2.1.5.1 Regulatory Setting

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

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation [36 *Code of Federal Regulations* 800]. On January 1, 2004, a Section 106 Programmatic Agreement between the Advisory Council, FHWA, State Historic Preservation Officer, and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The Programmatic Agreement implements the Advisory Council’s regulations, 36 *Code of Federal Regulations* 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans.

FHWA's responsibilities under the Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code 327).

Historical resources are considered under CEQA, as well as CA PRC Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its ROWs. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

2.1.5.2 Affected Environment

This section summarizes the *Archaeological Survey Report* (2013), the *Historic Resources Evaluation Report* (2013), and the *Historic Property Survey Report* (2013) prepared for this project.

The study areas for cultural resources are referred to as Areas of Potential Effects. The archaeological resources area of potential effects includes the adjacent ROW for the project, proposed project features, project proximity, the surrounding topography, and existing landscaping, including additional areas sufficient for project construction. In some cases, this includes parcels immediately adjacent to the existing ROW. At some other locations, this includes a city street or a frontage road. The architectural area of potential effects encompasses the area of the archaeological area of potential effects, as well as parcels with buildings or structures adjacent to the existing and proposed ROW that could be indirectly affected by project construction or operation.

Archaeological Resources

Records/Archival Review and Archaeological Field Survey Results

Archival research was conducted in October 2011 to develop a historic context and to assess sensitivity for intact buried historic and prehistoric archaeological resources. This included a review of the Historic Properties Directory, the California Inventory of Historic Resources, the Contra Costa Map of Historical Points, and the National Register of Historic Places.

The records search identified nine surveys that were previously conducted within the area of potential effects. The search identified the Contra Costa Canal as the only previously documented historic-period resource within the archaeological area of potential effects. The Contra Costa Canal runs perpendicular beneath I-680 and crosses the area of potential effects south of Treat Boulevard, between North Main Street to the west and Jones Road to the east

in Walnut Creek. On either side of the area of potential effects, the canal crosses through commercial development to the west and high-density residential neighborhoods to the east. Though the canal is both lined and unlined, the portion within the area of potential effects is lined with concrete and is trapezoidal in shape.

The search also identified the former Southern Pacific Railroad Line as a historic period resource located within or adjacent to the project area of potential effects. The Southern Pacific Railroad Line ran parallel to I-680 and crossed the project area of potential effects north of Alamo. The line was abandoned in 1978, and today the Iron Horse Regional Trail follows the former railroad ROW. Although the railroad line traverses into the project's area of potential effects, the corresponding study area extends beyond the project area of potential effects.

A pedestrian field survey of all accessible portions of the archaeological area of potential effects was conducted in November 2011. No new resources or sites were identified or recorded.

Historic Resources

A records search was conducted in October 2011 for an area within a 0.5-mile radius of the historic architectural area of potential effects. In addition, an architectural field survey was conducted in November 2011. Investigations in the architectural area of potential effects identified one historic property, the Contra Costa Canal, that was previously determined to be eligible for inclusion in the National Register of Historic Places and is a historic resource pursuant to CEQA. Nineteen resources in the architectural area of potential effects are listed in the Caltrans Bridge Survey (2010) and have been previously determined not eligible (category 5). Furthermore, eleven resources were newly identified as part of this survey and have been determined not eligible for inclusion in the National Register of Historic Places; five in the vicinity of Alamo and six within Walnut Creek. Four of the five resources in the vicinity of Alamo are ranch-style, single-family homes built between 1950 and 1960. The fifth resource consists of two residences with associated outbuildings. Of the six resources located in Walnut Creek, four can also be characterized as ranch-style, single-family homes built between 1945 and 1965. The remaining two are single-family homes; one, built in 1953, has undergone substantial alterations, and the other, built in 1946, has features associated with the Minimal Traditional architectural style, including the lack of exterior ornamentation.

Consultation

Native American Consultation

A records search of the Sacred Lands File was conducted by the Native American Heritage Commission in December 2011. No sacred lands were identified in the project's area of

potential effects. In addition, three members of the Native American community were contacted via letters and telephone calls; however, no responses were received. Follow-up e-mails were sent to each seeking comments about any concerns or issues pertinent to the project. While one individual expressed no comments on the proposed project, another Native American representative requested additional details that were sent to him. No additional responses were received.

Local Historical Preservation Group

A letter detailing the project, accompanied by a map, was sent, but no response was received.

2.1.5.3 Environmental Consequences

Based on documentary research and a pedestrian survey, it is not anticipated that construction activities would encounter or disturb buried cultural resources. The project area appears to have a low sensitivity for buried cultural resources; therefore, no further archaeological studies are necessary.

Neither the existing Contra Costa Canal nor the former Southern Pacific Railroad line would be affected by any proposed project activities. Because no portion of the canal or former railroad bed would be modified as part of the proposed project, related activities would not directly affect the canal or railroad; therefore, no cultural resources would be affected. There are no newly identified properties within the project's historic architectural area of potential effects that are eligible for the National Register of Historic Places; therefore, there is no potential for impacts to such resources, and no mitigation is proposed. Concurrence from the State Historic Preservation Officer on these findings was received on August 7, 2013.

2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures

No further archaeological work is necessary within the area of potential effects unless the project plans change to include areas that have not been previously surveyed. The project does not warrant the preparation of a formal discovery plan based on the absence of recorded, reported, or identified archaeological sites in and adjacent to the area of potential effects and the perceived low potential for exposing unknown archaeological resources during construction.

If cultural resources 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, California Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner will be contacted. Pursuant to California PRC

Section 5079.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission who will then notify the Most Likely Descendent. At this time, the person who discovered the remains will contact the District 4 Cultural Resources Studies Office so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of California PRC Section 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 Water Quality and Stormwater Runoff

2.2.1.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source¹² unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. This act and its amendments are known today as the Clean Water Act. Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the National Pollutant Discharge Elimination System permit scheme. The following are important Clean Water Act sections:

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

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

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

¹² A point source is any discrete conveyance such as a pipe or a man-made ditch.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the U.S. Army Corps of Engineers Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with U.S. Environmental Protection Agency's (EPA) Section 404 (b)(1) Guidelines (U.S. EPA *Code of Federal Regulations* 40 Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by EPA in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent¹³ standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the U.S. Army Corps of Engineers, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 *Code of Federal Regulations* 320.4. A discussion of the least environmentally damaging practicable alternative determination, if any, for the document is included in Section 2.3.2, Wetlands and Other Waters of the United States.

State Requirements: Porter-Cologne Water Quality Control Act

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

The State Water Resources Control Board and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives and beneficial uses)

¹³ EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

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

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Resources Control Board administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, Total Maximum Daily Loads, and National Pollutant Discharge Elimination System permits. Regional Water Quality Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollution Discharge Elimination System Program**

Municipal Separate Storm Sewer Systems

Section 402(p) of the Clean Water Act requires the issuance of National Pollutant Discharge Elimination System permits for five categories of stormwater discharges, including Municipal Separate Storm Sewer Systems. A Municipal Separate Storm Sewer System is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that is designed or used for collecting or conveying stormwater.” The State Water Resources Control Board has identified Caltrans as an owner/operator of a Municipal Separate Storm Sewer System under federal regulations. Caltrans Municipal Separate Storm Sewer System permit covers all Caltrans ROWs, properties, facilities, and activities in the state. The State Water Resources Control Board

or the Regional Water Quality Control Board issues National Pollutant Discharge Elimination System permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans Municipal Separate Storm Sewer System Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012, and became effective on July 1, 2013. The permit has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges; and
3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices, to the maximum extent practicable, and other measures as the State Water Resources Control Board determines to be necessary to meet the water quality standards.

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

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates stormwater discharges from construction sites that result in a disturbed soil area of 1-acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1-acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of

less than 1-acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the Regional Water Quality Control Board. Operators of regulated construction sites are required to develop stormwater pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan. In accordance with Caltrans Standard Specifications, a Water Pollution Control Plan is necessary for projects with disturbed soil area less than 1-acre.

Section 401 Permitting

Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by the U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, dependent on the project location, and are required before the U.S. Army Corps of Engineers issues a 404 permit.

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

2.2.1.2 Affected Environment

The following summarizes the findings of the *Water Quality Study* (2013) and the *Storm Water Data Report* (2013).

Surface Water

The project is within the San Francisco Bay Hydrologic Unit, specifically within the Walnut Creek Watershed, in the southernmost portion of the Suisun Basin. The project crosses three water bodies: Las Trampas Creek, Tice Creek, and San Ramon Creek. All three creeks are identified as waters of the U.S.

Beneficial uses are critical to water quality management in California. According to state law, the beneficial uses of California's waters that may be protected against quality degradation include, but are not limited to, "domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves" (Water Code Section 13050). Walnut Creek is the only receiving water body for the project that is listed by the San Francisco Bay Regional Water Quality Control Board for beneficial uses. It has the existing beneficial uses of cold freshwater habitat, fish migration, fish spawning, warm freshwater habitat, and wildlife habitat, in addition to the potential beneficial uses of water contact and noncontact recreation.

Groundwater

The San Francisco Bay Hydrologic Region has 11 delineated groundwater basins. The project is primarily in an urban area, but the northern and southern limits may extend into Ygnacio Basin and the San Ramon Valley Basin, respectively. The Web Soil Survey conducted for the project indicates that the depth to the water table from the ground surface is greater than 6.5 feet.

The Ygnacio Valley groundwater basin has the potential beneficial uses of municipal and domestic water supply, industrial process and service water supply, and agricultural water supply. The San Ramon Valley groundwater basin has the existing beneficial uses of municipal and agricultural water supply, and the potential beneficial use of industrial process and service water supply.

Pollutants

Pollutants related to vehicular traffic, such as oil, and resulting from construction activities, such as sediment and construction material, are potential possible pollutants that may affect water quality within the project area.

2.2.1.3 Environmental Consequences

Surface Water Impacts

All work associated with the Build Alternative is within existing Caltrans or local street ROW. There would be no fill in creeks. The project has the potential for temporary water

quality impacts to waters of the U.S. or State, which may include increased concentrations of sediment and other pollutants that may enter creeks in the project vicinity due to road construction.

Groundwater Impacts

The project improvements would not involve substantial excavations. Excavation work would mostly consist of roadbed construction for the southbound HOV lane, relocation of retaining walls, and possibly utility relocations. Based on the depth of groundwater identified in the project area, encountering groundwater is not anticipated.

The roadway widening may have localized impacts to the flow of groundwater. The proposed widening of the southbound I-680 would result in an increase in impervious area of approximately 2.7 acres. Existing groundwater recharge areas in the project vicinity within the Ygnacio Basin and the San Ramon Valley Basin may be slightly affected due to this increase in impervious areas, which decreases the amount of area available for infiltration; however, impacts are not anticipated due to the highly variable nature of existing groundwater flow paths, and the relatively small area of possible impacts in comparison to the overall groundwater area.

Stormwater Impacts

Stormwater runoff from the I-680 project corridor drains directly into creek crossings beneath the highway and to nearby storm drain systems, which ultimately discharge into Suisan Bay. The proposed widening of the southbound I-680 would result in an increase in impervious area of approximately 2.7 acres. Stormwater runoff from this area could carry additional pollutant loadings from the roadway to the receiving body. Due to the small increase in the impervious area compared to the entire watershed, permanent impacts to water quality of the receiving body would be less than significant. Temporary, construction-period impacts are discussed in Section 2.4.5.

2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures

Water Resources

Impacts to waters of the U.S. would be minimized. Environmentally sensitive areas within the project limits have been identified, and these areas will be avoided. Temporary, construction-period avoidance measures are discussed in Section 2.4.5.2.

Groundwater and Stormwater

Impacts to groundwater and surface water as a result of stormwater runoff will be avoided or minimized through implementation of design features, or best management practices, which will be developed and incorporated into the project design and operations prior to the project

startup. The project performed a risk assessment in accordance with the Construction General Permit and determined the project risk level, which is based on potential erosion and transport to receiving waters, described in Section 2.2.1.1, Regulatory Setting. The project has a high erosion risk and a high receiving water risk, resulting in a Risk Level 3 classification; therefore, stormwater sampling is required at all discharge locations for this project.

Best management practices will be incorporated into the contract documents of the project to reduce the discharge of pollutants temporarily, during construction, and permanently to the maximum extent practicable. Construction site best management practices will be implemented during construction activities to reduce pollutants in stormwater discharges throughout construction. Design pollution prevention best management practices are permanent measures to improve stormwater quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Treatment best management practices are permanent devices and facilities that treat stormwater runoff. These three broad sets of best management practices shall be implemented.

A Notice of Intent will be filed with the State Water Resources Control Board's Storm Water Multiple Application and Report Tracking System. A Storm Water Pollution Prevention Plan will also need to be implemented to address the temporary water quality impacts resulting from construction activities.

Best management practices include the measures of soil stabilization, sediment control, wind erosion control, tracking control, non-stormwater management, and waste management/materials pollution control. A suggested list of best management practices to address temporary and permanent impacts is provided in Section 5 of the Water Quality Study (2013) prepared as part of this project.

2.2.2 Geology/Soils/Seismic/Topography

2.2.2.1 Regulatory Setting

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

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. Structures are designed using Caltrans Seismic Design Criteria.

The Seismic Design Criteria provide the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see Caltrans Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

2.2.2.2 Affected Environment

Information in this section is derived from the *Preliminary Geotechnical Report* (2013).

Regional Geologic Setting

The project alignment is located in the eastern portion of the San Francisco Bay Area in the Coast Range geomorphic province. The Coast Ranges are mountain ranges that are typically 2,000 to 4,000 feet, but occasionally 6,000 feet, above sea level. The region consists of marine and nonmarine sedimentary rock with age ranges from Late Cretaceous to Pliocene, the dominant rock type being the Contra Costa and San Pablo Groups. The area also has a high number of faults, which produced the northwest trending ridge and valley systems characteristic of this area.

Site Geology

The project alignment is situated on alluvial fans and fluvial deposits¹⁴ from the Pleistocene and Holocene age, undifferentiated gravels, and bedrock outcrop. Alluvial fan deposits from the Holocene are brown or tan, medium dense to dense, gravely sand or sandy gravel that generally grade upward to sandy or silty clay. Alluvial fan deposits from the Pleistocene are brown dense gravely and clayey sand or clayey gravel that fines upward to sandy clay. Undifferentiated gravels consist of semi-consolidated to unconsolidated poorly sorted gravel, sand, silt, and clay distributed in isolated patches. The bedrock units have not been mapped.

Subsurface Conditions

Based on borings from the Las Trampas Creek, the subsurface consists of varying thickness of loose to medium dense silty sand in the upper 10 to 25 feet overlying sandstone. The South Main Street Undercrossing borings show the soil/bedrock boundary at approximately 40 feet below existing I-680. The groundwater elevation is approximately 20 feet below I-680.

Geologic Hazards

This section summarizes the potential geologic hazards in the project area.

¹⁴ Alluvial fans and fluvial deposits are a fan- or cone-shaped deposit of sediment crossed and built up by streams.

Surface Fault Rupture and Ground Shaking

Surface fault rupture is a slip on a fault plane that has spread upward to, and offset or disturbed, the earth's surface. Faults in the vicinity of the site with a moderate to high potential for surface rupture include the Calaveras Fault, the Hayward Fault, the Pleasanton Fault, the Mountain Diablo Thrust Fault, and the Greenville Fault. Based on the State Alquist-Priolo Earthquake Fault Zones Map of the Diablo (1982) and Walnut Creek (1993) Quadrangles, the project alignment is not within the fault zone.

Strong earthquake ground shaking is likely the most important seismic hazard that can be expected anywhere in the Bay Area. A deterministic seismic hazard map indicates that this area may experience motions of 0.7 g (acceleration equivalent to 70 percent of the force of gravity). The earthquake shaking potential for this site is considered strong.

Liquefaction

Liquefaction refers to the process by which water-saturated, unconsolidated sediments are transformed into a substance that acts like a liquid, often in an earthquake. By undermining the foundations and base courses of infrastructure, liquefaction can cause serious damage. Submerged sands and silts of low relative density are the type of soils that are usually susceptible to liquefaction. Clays are generally not susceptible to liquefaction.

Within the project area, the potential for liquefaction varies from very low to high, with 20 to 30 percent being moderate susceptibility, and 20 to 30 percent carrying high susceptibility.

2.2.2.3 Environmental Consequences

Fault Rupture and Ground Shaking

Based on the Caltrans Deterministic Fault Map and the Alquist-Priolo Earthquake Fault Zone, no active faults pass through the project alignment; therefore, the potential for ground surface rupture due to faulting within the project area is considered relatively low.

However, the site is near major, active faults and will on average experience stronger earthquake shaking more frequently; therefore, the earthquake shaking potential for this site is considered strong.

Liquefaction

The extent to which any of the underlying soils may be prone to liquefy is a function of their grain-size distribution, density, and level of saturation; therefore, the potential for liquefaction in the event of an earthquake at the project site is considered moderate to high because the project is in an area of loose to medium density silty sand.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

Fault Rupture

- Any proposed engineering design will be carried out in accordance with Caltrans Seismic Design Criteria and the regulations detailed in the Alquist-Priolo Earthquake Fault Zoning Act.

Ground Shaking

- Roadways and bridges will be designed and constructed at a minimum to the seismic design requirements for ground shaking specified in the Uniform Building Code for Seismic Zone 4.
- To satisfy the provisions of the 1998 California Building Code, the proposed facilities will be designed to withstand ground motions equating to approximately a 500-year return period (10 percent probability of exceedance in 50 years). Bridges will be designed in accordance with the latest Caltrans Seismic Design Criteria.

Liquefaction

- Site-specific exploratory borings and accompanying laboratory testing during final design of the project bridge structures will be required to delineate any potentially liquefiable materials. Potentially liquefiable deposits will be removed or engineered (i.e., dewatered or densified) to reduce their liquefaction potential, or the engineering design will incorporate pile foundations that extend beyond potentially liquefiable deposits.

2.2.3 Hazardous Waste/Materials

The *Initial Site Assessment* for the proposed project would be completed during the design phase of the project. The following information is considered preliminary.

2.2.3.1 Regulatory Setting

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

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

grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

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

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

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

2.2.3.2 Affected Environment

Previous environmental investigations and documentation for projects located at and near the study area found that vehicular traffic on I-680 may have contaminated the project area with aurally deposited lead from leaded gasoline used prior to its phase-out beginning in 1978. In addition, because the project area was historically used as farmland, surface soil may contain residual agricultural chemicals at concentrations that may be hazardous.

2.2.3.3 Environmental Consequences

The most likely contaminants potentially present within the project area would be pesticides and aerially deposited lead in surface soil. There is a potential for residual aerially deposited lead in the surface soil and petroleum hydrocarbons in shallow groundwater due to fuel storage or maintenance of vehicles. Caltrans will conduct further investigations prior to construction and will coordinate with all necessary regulatory agencies, possibly including, but not limited to, EPA, Department of Toxic Substances Control, Regional Water Quality Control Board, and Contra Costa Department of Environmental Health.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

Testing for aerially deposited lead will be performed at the design phase prior to project construction. If aerially deposited lead is found, special handling of the contaminated soil will be required and will include implementing a health and safety plan. If construction crews encounter soil or groundwater contamination, all activities involving contaminated soil or groundwater will comply with the various regulatory agencies' requirements.

Material from structures that is removed or modified by the project will be handled and disposed of in accordance with all local, State, and federal requirements.

The costs for special handling of aerially deposited lead-contaminated soils, if any, are unknown at this stage of preliminary design and environmental review; however, approximately \$200 per cubic meter should be allocated for handling of hazardous waste. If hazardous wastes are found, removal is estimated to take approximately 2 months, depending on the nature and extent of the materials. The costs for special handling, if required, of contaminated building materials from structures that have to be removed will be estimated during final design.

2.2.4 Air Quality

2.2.4.1 Regulatory Setting

The Federal Clean Air Act, as amended, is the primary federal law that governs air quality, while the California Clean Air Act is its companion state law. These laws, and related regulations by EPA and California Air Resources Board, set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards. National Ambient Air Quality Standards and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide; nitrogen dioxide; ozone; particulate matter, which is broken down for regulatory purposes into particles of 10 micrometers or smaller (respirable particulate matter) and particles of 2.5 micrometers and smaller (fine particulate matter); and sulfur dioxide. In addition, national and state standards

exist for lead and state standards exist for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The National Ambient Air Quality Standards and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel “Conformity” requirement under the Federal Clean Air Act also applies.

Conformity

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

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the National Ambient Air Quality Standards, and only for the specific National Ambient Air Quality Standards that are or were violated. EPA regulations at 40 *Code of Federal Regulations* 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for National Ambient Air Quality Standards and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the National Ambient Air Quality Standards for carbon monoxide, nitrogen dioxide, ozone, particulate matter (respirable and fine), and in some areas (although not in California) sulfur dioxide. California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except sulfur dioxide and also has a nonattainment area for lead; however, lead is not currently required by the Federal Clean Air Act to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans and Federal Transportation Improvement Programs that include all transportation projects planned for a region over a period of at least 20 years (for the Regional Transportation Plan) and 4 years (for the Transportation Improvement Program). Regional Transportation Plan and Federal Transportation Improvement Program conformity uses travel demand and emission models to determine

whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the State Implementation Plan are met. If the conformity analysis is successful, the Metropolitan Planning Organization, FHWA, and Federal Transit Administration make determinations that the Regional Transportation Plan and Federal Transportation Improvement Program are in conformity with the State Implementation Plan for achieving the goals of the Federal Clean Air Act. Otherwise, the projects in the Regional Transportation Plan and/or Federal Transportation Improvement Program must be modified until conformity is attained. If the design concept, scope, and “open-to-traffic” schedule of a proposed transportation project are the same as described in the Regional Transportation Plan and Federal Transportation Improvement Program, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

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

2.2.4.2 Affected Environment

The following summarizes the findings of the *Air Quality Conformity Analysis* (2013).

Climate, Meteorology, and Topography

The Bay Area Air Basin is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns (Bay Area Air Quality Management District, 2013). These topographic features combine with climatological factors to influence air pollution potential.

The climate of the Bay Area Air Basin is dominated by the strength and location of a semipermanent, subtropical high-pressure cell. During the summer, the Pacific high pressure

cell is centered over the northeastern Pacific Ocean, resulting in stable weather conditions and a steady northwesterly wind flow. Steady sea breezes tend to enhance the horizontal dispersion of air pollutants from their points of origin; however, elevated temperature inversions can develop during this period, limiting vertical dispersion of pollutants.

In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms with their associated winds and precipitation. Overall, regionwide weather conditions tend to be less stable during this time; however, in the absence of storm activity and other non-solar wind-generating processes, light winds result. This season tends to be characterized by its own patterns of air pollutant emissions, some of which are influenced by ambient temperatures, and secondary pollutant formation. This results in ranges of air pollutant concentrations that tend to be distinct from those in the summer months.

Air Quality Pollutants of Concern

Air quality studies generally focus on six pollutants that are most commonly measured and regulated: carbon monoxide, ozone, nitrogen dioxide, sulfur dioxide, respirable particulate matter, and fine particulate matter.

- Carbon Monoxide, a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue and can impair central nervous system functions. Carbon monoxide is emitted almost exclusively from the incomplete combustion of fossil fuels. Automobile exhausts release most of the carbon monoxide in urban areas. Carbon monoxide dissipates relatively quickly, so ambient carbon monoxide concentrations generally follow the spatial and temporal distributions of vehicular traffic. Carbon monoxide concentrations are influenced by local weather conditions, primarily wind speed, as well as topography and atmospheric stability.
- Ozone, a colorless toxic gas, is the chief component of urban smog. Ozone enters the bloodstream and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. Ozone also damages vegetation by inhibiting growth. Ozone forms in the atmosphere through a chemical reaction between reactive organic gases and nitrogen oxides under sunlight. Motor vehicles are the major sources of reactive organic gases and nitrogen oxides. Ozone is present in relatively high concentrations within the Bay Area Air Basin.
- Nitrogen dioxide, a brownish gas, irritates the lungs. It can cause breathing difficulties at high concentrations. Like ozone, nitrogen dioxide is not directly emitted, but it is formed through a reaction between nitric oxide and atmospheric oxygen. Nitric oxide and nitrogen dioxide are collectively referred to as nitrogen oxides and are major contributors

to ozone formation. Nitrogen dioxide also contributes to the formation of respirable particulate matter (refer to discussion of respirable particulate matter below).

- Sulfur dioxide is a product of high-sulfur fuel combustion. The main sources of sulfur dioxide are coal and oil used in power stations, in industries, and for domestic heating. Industrial chemical manufacturing is another source of sulfur dioxide. Sulfur dioxide is an irritant gas that attacks the throat and lungs. Sulfur dioxide concentrations have been reduced to levels well below the state and national standards, but further reductions in emissions are needed to attain compliance with standards for sulfates and respirable particulate matter, of which sulfur dioxide is a contributor.
- Particulate matter consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Respirable particulate matter refers to particulate matter less than 10 microns in diameter, approximately one-seventh the thickness of a human hair. Fine particulate matter refers to particulate matter that is 2.5 microns or less in diameter, roughly 1/28th the diameter of a human hair. Respirable particulate matter and fine particulate matter pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. Major sources of respirable particulate matter include motor vehicles; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter results from fuel combustion (i.e., from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, fine particulate matter can be formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds.
- Lead in air was attributed primarily to mobile emissions prior to 1978. The phase-out of leaded gasoline between 1978 and 1987 has reduced the overall inventory of airborne lead by nearly 95 percent. Currently, industrial sources are the primary source of airborne lead. Because the proposed project does not contain an industrial component, lead emissions were not analyzed.

The National Ambient Air Quality Standards and California Ambient Air Quality Standards have been established for criteria pollutants and are summarized in Table 2.2-1. The California Ambient Air Quality Standards are more stringent than the National Ambient Air Quality Standards; the California Ambient Air Quality Standards are used as the standard in the air quality analysis for this project.

**Table 2.2-1
National and California Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards ^a		National Standards ^b	
		Concentration	Attainment Status	Concentration ^c	Attainment Status
Ozone	8 Hour	0.070 ppm	N ^d	0.075 ppm	N ^e
	1 Hour	0.09 ppm	N		(See footnote "f")
Carbon Monoxide	8 Hour	9.0 ppm	A	9 ppm	A ^g
	1 Hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide	1 Hour	0.18 ppm	A	0.100 ppm (See footnote "h")	U
	Annual	0.030 ppm		0.053 ppm	A
Sulfur Dioxide ⁱ	24 Hour	0.04 ppm	A	0.14 ppm	A
	1 Hour	0.25 ppm	A	0.075 ppm	A
	Annual			0.030 ppm	A
Respirable Particulate Matter	Annual	20 µg/m ³	N ^j		
	24 Hour	50 µg/m ³	N	150 µg/m ³	U
Particulate Matter - Fine	Annual	12 µg/m ³	N ^j	15 µg/m ³ (See footnote "k")	A
	24 Hour			35 µg/m ³ (See footnote "l")	N ^m
Lead ⁿ	30-day Average	1.5 µg/m ³		-	A
	Calendar Quarter	-		1.5 µg/m ³	A
	Rolling 3-Month Average ^o	-		0.15 µg/m ³	(See footnote "o")

A=Attainment; N=Nonattainment; U=Unclassified; N/A=Not Applicable; ppm=parts per million; µg/m³=micrograms per cubic meter
Notes:

a. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and respirable particulate matter are values that are not to be exceeded. The standards for Lake Tahoe carbon monoxide and lead are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for lead and the respirable particulate matter annual standard), then some measurements may be excluded. In particular, measurements are excluded that the Air Resources Board determines would occur less than once per year on the average. The Lake Tahoe carbon monoxide standard is 6.0 ppm, a level two-thirds as high as the state standard for the remainder of California.

b. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates, and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.075 ppm (75 parts per billion) or less. The 24-hour respirable particulate matter standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour fine particulate matter standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for respirable particulate matter is met if the 3-year average falls below the standard at every site. The annual fine particulate matter standard is met if the 3-year average of annual averages spatially averaged across officially designed clusters of sites falls below the standard.

Table 2.2-1
National and California Ambient Air Quality Standards

- c. National air quality standards are set by EPA at levels determined to be protective of public health with an adequate margin of safety.
- d. The 8-hour California ozone standard was approved by the Air Resources Board on April 28, 2005, and became effective on May 17, 2006.
- e. Final designations effective July 20, 2012; the Bay Area Air Basin is designated as “marginal” nonattainment.
- f. The national 1-hour ozone standard was revoked by EPA on June 15, 2005.
- g. In April 1998, the Bay Area Air Basin was redesignated to attainment for the national 8-hour carbon monoxide standard. The former carbon monoxide Nonattainment Area is now the carbon monoxide Maintenance Area.
- h. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).
- i. On June 2, 2010, EPA established a new 1-hour sulfur dioxide standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour sulfur dioxide National Ambient Air Quality Standards, however, must continue to be used until 1-year following EPA’s initial designations for the new 1-hour sulfur dioxide National Ambient Air Quality Standards. EPA expects to designate areas by June 2013.
- j. In June 2002, the Air Resources Board established new annual standards for fine particulate matter and respirable particulate matter.
- k. On December 14, 2012, EPA lowered the federal primary fine particulate matter annual standard from 15.0 $\mu\text{g}/\text{m}^3$ to 12.0 $\mu\text{g}/\text{m}^3$. The new annual standard became effective on March 15, 2013.
- l. EPA lowered the 24-hour fine particulate matter standard from 65 $\mu\text{g}/\text{m}^3$ to 35 $\mu\text{g}/\text{m}^3$ in 2006. EPA designated the Bay Area as nonattainment of the fine particulate matter standard on October 8, 2009. The effective date of the designation was December 14, 2009. EPA’s October 29, 2012, proposal to determine that the Bay Area Air Basin has attained the 2006 24-hour fine particulate matter National Ambient Air Quality Standards suspended associated attainment planning requirements. The proposed determination was finalized on January 9, 2013.
- m. On December 18, 2012, EPA published a final rule determining that the San Francisco Bay Area nonattainment area has attained and continues to attain the 2006 24-hour fine particulate matter National Ambient Air Quality Standards. Accordingly, the requirements for the Bay Area Air Quality Management District to submit an attainment demonstration, together with reasonably available control measures, a reasonable further progress plan, and contingency measures for failure to meet reasonable further progress and attainment deadlines were suspended so long as the area continues to attain the 2006 24-hour fine particulate matter National Ambient Air Quality Standards. However, the Bay Area Air Quality Management District would need to submit a redesignation request and associated maintenance plan – and EPA would need to finalize approval of both the request and the plan – before the Bay Area Air Basin could be redesignated from nonattainment to attainment/maintenance.
- n. The Air Resources Board has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure below which there are no adverse health effects determined.
- o. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

Source: Bay Area Air Quality Management District, 2013; EPA, 2012b, 2013a, 2013b; Burch, 2013.

Attainment Status of the Bay Area Air Basin

Within the project vicinity, air quality is monitored, evaluated, and controlled by EPA, Air Resources Board, and the Bay Area Air Quality Management District. These three agencies develop rules and regulations to attain the goals or directives imposed by legislation. The major elements of the air quality regulatory framework are summarized in Section 2.2.4.1, Regulatory Setting, above.

As described in Section 2.2.4.1, federally funded transportation projects, such as the I-680 Southbound Gap Closure Project, must be included in a Regional Transportation Plan and Transportation Improvement Program that demonstrate the achievement of the air quality goals of the State Implementation Plan. This project is included in the Metropolitan Transportation Commission’s most recent Regional Transportation Plan, the *Transportation*

2035 Plan for the San Francisco Bay Area (Metropolitan Transportation Commission, 2009, Regional Transportation Plan ID No. 22353). The project is also included in the 2011 Regional Transportation Improvement Program (Metropolitan Transportation Commission, 2010), which was adopted by the Metropolitan Transportation Commission on October 27, 2010 (Transportation Improvement Program ID No. CC 070017).

EPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether the National Ambient Air Quality Standards have been achieved. An area is designated unclassified when insufficient air quality data are available on which to base an attainment or nonattainment designation. EPA classified the Bay Area Air Basin as nonattainment for ozone for the national 8-hour standard, and for fine particulate matter for the 24-hour standard, and in attainment or unclassified for the other criteria pollutants. The Bay Area/Contra Costa County is classified as a maintenance area for carbon monoxide, meaning that the area had a history of nonattainment for this pollutant but now meets the National Ambient Air Quality Standards.

The Air Resources Board regulates mobile emissions sources and oversees the activities of county and regional air quality management districts. The Air Resources Board regulates local air quality indirectly by establishing vehicle emission standards through its planning, coordinating, and research activities. California has adopted ambient standards that are more stringent than the national standards for the criteria air pollutants. Under the California Clean Air Act, areas are also designated as being in attainment, in nonattainment, or unclassified with respect to the California Ambient Air Quality Standards. The California Clean Air Act requires that districts design a plan to achieve an annual reduction of 5 percent or more in district-wide emissions for each nonattainment criteria pollutant or its precursor(s).¹⁵ The Bay Area Air Basin is in nonattainment for the State ozone and particulate matter standards. The air basin is designated as an attainment area for State carbon monoxide, lead, nitrogen oxides, and sulfur dioxide standards.

The Bay Area Air Quality Management District has jurisdiction over air quality in the Bay Area Air Basin and regulates most air pollutant sources except for motor vehicles, locomotives, aircraft, agriculture equipment, and marine vessels. In 1996, the Bay Area Air Quality Management District published its CEQA Guidelines (revised in 1999), which advises local jurisdictions on procedures for addressing air quality in environmental documents. The Bay Area Air Quality Management District coordinates with the Association of Bay Area Governments and the Metropolitan Transportation Commission in the development and implementation of transportation plans required by the federal and State Clean Air Acts.

¹⁵ A precursor is a compound that chemically reacts with another to form a criteria pollutant. For example, organic compounds are precursors for ozone.

Existing Air Quality

Air quality is influenced by much more than air pollutant emissions. The air quality in any given location is influenced by the spatial distribution of those emissions, as well as by other factors. Table 2.2-2 summarizes ambient air quality data recorded at a monitoring station in Concord near the project corridor. It shows exceedances of the 1-hour ozone California Ambient Air Quality Standards and of the 8-hour ozone National Ambient Air Quality Standards and California Ambient Air Quality Standards. Between 2008 and 2010, the respirable particulate matter California Ambient Air Quality Standards was exceeded once. The 24-hour-average fine particulate matter National Ambient Air Quality Standards was exceeded several times during this period. In recent years, carbon monoxide concentrations in the project vicinity and throughout the Bay Area Air Basin have remained well below the applicable National Ambient Air Quality Standards and California Ambient Air Quality Standards. Nitrogen dioxide concentrations have also remained well below the applicable National Ambient Air Quality Standards and California Ambient Air Quality Standards at this station in recent years.

**Table 2.2-2
Air Monitoring Data Summary for Key Criteria Air Pollutants**

Pollutant	Averaging Period	Parameter	Concord-2975 Treat Boulevard (ADAM ID 2266)		
			2008	2009	2010
Ozone	1-hour	Maximum Concentration (ppm)	0.119	0.106	0.103
		Days > California Ambient Air Quality Standards (0.09 ppm)	3	2	2
	8-hour	Maximum Concentration, Natl. Spec. (ppm)	0.088	0.088	0.087
		Days > National Ambient Air Quality Standards (≥ 0.076 ppm)	6	2	1
		Maximum Concentration, CA Spec. (ppm)	0.089	0.088	0.087
		Days > California Ambient Air Quality Standards (≥ 0.071 ppm)	8	5	4
Respirable Particulate Matter	24 hour	Maximum Concentration, Natl. Spec. ($\mu\text{g}/\text{m}^3$)	49.4	31.0	39.7
		Calc. Days > National Ambient Air Quality Standards ($150 \mu\text{g}/\text{m}^3$)	0	0	0
		Maximum Concentration, CA Spec. ($\mu\text{g}/\text{m}^3$)	50.5	32.5	41.3
		Calc. Days > California Ambient Air Quality Standards ($50 \mu\text{g}/\text{m}^3$)	1	0	0
	Annual Mean	Concentration ($\mu\text{g}/\text{m}^3$)	17.5	14.7	13.7
		> California Ambient Air Quality Standards ($20 \mu\text{g}/\text{m}^3$)	No	No	No

**Table 2.2-2
Air Monitoring Data Summary for Key Criteria Air Pollutants**

Pollutant	Averaging Period	Parameter	Concord-2975 Treat Boulevard (ADAM ID 2266)		
			2008	2009	2010
Fine Particulate Matter PM _{2.5}	24 hour	Maximum Concentration ($\mu\text{g}/\text{m}^3$)	60.3	39.0	36.4
		Est. Days > National Ambient Air Quality Standards ($35 \mu\text{g}/\text{m}^3$)	7	1	1
		98 th Percentile ($\mu\text{g}/\text{m}^3$)	35.2	29.2	26.8
	Annual Mean	Concentration ($\mu\text{g}/\text{m}^3$)	9.3	8.3	7.0
		> National Ambient Air Quality Standards ($15 \mu\text{g}/\text{m}^3$)	No	No	No
		Concentration, 3-year Maximum ($\mu\text{g}/\text{m}^3$)	*	*	*
		> California Ambient Air Quality Standards ($12 \mu\text{g}/\text{m}^3$)	*	*	*
Carbon Monoxide	1-hour	Maximum Concentration (ppm)	*	*	*
		Days > National Ambient Air Quality Standards (35 ppm)	*	*	*
		Days > California Ambient Air Quality Standards (20 ppm)	*	*	*
	8-hour	Maximum Concentration (ppm)	1.13	1.09	0.95
		Days > National Ambient Air Quality Standards (9 ppm)	0	0	0
		Days > California Ambient Air Quality Standards (9.0 ppm)	0	0	0
Nitrogen Dioxide	1-hour	Maximum Concentration (ppm)	0.050	0.040	0.042
		Days > California Ambient Air Quality Standards (0.18 ppm)	0	0	0
	Annual Mean	Concentration (ppm)	0.010	0.009	0.008
		> National Ambient Air Quality Standards (0.053 ppm)	No	No	No
		> California Ambient Air Quality Standards (0.030 ppm)	No	No	No
ppm=parts per million; $\mu\text{g}/\text{m}^3$ =micrograms per cubic meter Footnotes: * - Data not monitored or otherwise not available.					

Source: California Air Resources Board, 2009, 2011, 2013.

2.2.4.3 Environmental Consequences

Generally, a transportation project is not a project of concern unless it changes capacity or alignment of a road with more than 125,000 average annual daily traffic and 8 percent trucks (more than 10,000 truck average annual daily traffic [8 percent of 125,000]), or otherwise may substantially increase or concentrate diesel exhaust emissions. Interagency consultation concurrence is required for determinations that a project is not a "Project of Air Quality Concern".

This project does not change the alignment of I-680 in the project area. The project was determined to not be a Project of Air Quality Concern after interagency consultation completed in 2012.

Transportation Conformity with Air Quality Plans

The proposed project is listed in *Transportation 2035 Plan for the San Francisco Bay Area*, adopted in 2009 by the Metropolitan Transportation Commission (Regional Transportation Plan ID No. 22353), the financially constrained Regional Transportation Plan, which was found to conform by the Metropolitan Transportation Commission on October 27, 2010 (Metropolitan Transportation Commission Resolution No. 3756) (Metropolitan Transportation Commission 2010). FHWA and the Federal Transit Administration made a regional conformity determination on December 14, 2010. The project is also included in the Metropolitan Transportation Commission's financially constrained 2011 Regional Transportation Improvement Program, which was adopted by the Metropolitan Transportation Commission on October 27, 2010 (Transportation Improvement Program ID No. CC 050028), page S2-228. The design concept and scope of the proposed project is consistent with the project description in the 2009 Regional Transportation Plan and the 2011 Regional Transportation Improvement Program, and the open to traffic assumptions of the Metropolitan Transportation Commission's regional emissions analysis.

Evaluation of Potential for Traffic-Related Carbon Monoxide Impacts

The carbon monoxide impacts analysis followed the procedures in *Transportation Project-Level Carbon Monoxide Protocol*, prepared by the University of California, Davis, Institute of Transportation Studies (Carbon Monoxide Protocol; Garza, Graney, and Sperling, 1998). This protocol applies screening procedures, based on the attainment status of the area in which the project is planned, to evaluate potential carbon monoxide impacts of the project and assess the need for any further detailed analysis. The project is within a carbon monoxide maintenance area where continued attainment of the federal carbon monoxide standard has been verified. The area is in attainment for the State carbon monoxide standard. The project is included in a conforming Regional Transportation Plan and Regional Transportation Improvement Program. Based on the Carbon Monoxide Protocol, the screening procedure in

“Level 7” was followed to screen the Build versus No Build Alternatives for the following criteria:

- a. **The project would not significantly increase the percentage of vehicles operating in cold-start mode.** Vehicles using the proposed HOV lane would already have traveled a sufficient distance on I-680 to not be in cold start mode. No change is expected in the vehicle operating mode, and there would be no increase in the percentage of vehicles operating in cold-start mode as a result of the project.
- b. **The project would not significantly increase traffic volumes.** The maximum percent increase in peak traffic volumes during peak periods with the project is approximately 1.1 percent. The proposed project would maintain or improve LOS within the study area; therefore, there would be no reduction in average speeds.
- c. **The project would not worsen traffic flow.** The proposed HOV lane would improve traffic flow on I-680, resulting in reduced travel time for users of the HOV lane. The HOV lane would alleviate volume on the mixed-flow lanes during the morning and afternoon peak commute periods and result in overall freeway operations improvements.

Based on the Carbon Monoxide Protocol, this project is not expected to cause an exceedance of the federal or State carbon monoxide standards.

Particulate Matter “Hot Spot” Analysis

A particulate matter “hot spot” analysis is required for transportation projects that are funded or approved by FHWA or the Federal Transit Administration and are in federal nonattainment or maintenance areas for the respirable particulate matter or fine particulate matter standards. This project is in an area that is in nonattainment for the federal fine particulate matter 24-hour standard.

Based on the recent interagency consultation with the Air Quality Conformity Task Force, completed in 2012, this project does not fit the definition of a Project of Air Quality Concern as defined by 40 *Code of Federal Regulations* 93.123(b)(1) or 40 *Code of Federal Regulations* 93.128; therefore, it is not subject to fine particulate matter project-level conformity analysis (Metropolitan Transportation Commission, 2012).

Regional Air Pollutant Cumulative Impact Analysis

To determine impacts to regional air quality, project emissions would normally be compared to thresholds adopted by the Bay Area Air Quality Management District; however, the Bay Area Air Quality Management District thresholds adopted in 2010 are not recommended for use in CEQA analysis at this time due to an order by the Alameda County Superior Court to set aside the thresholds until the Bay Area Air Quality Management District has complied

with the requirements of CEQA. The Bay Area Air Quality Management District has a pending appeal with the State Court of Appeals.

The region's vehicle miles traveled would remain at about the same level as the No Build Alternative. Increase in vehicle miles traveled from other than the project is predicted at only 0.9 percent in 2016 with the Build Alternative. Consequently, vehicle emissions in the region would not appreciably increase. Although vehicle miles traveled would increase with the project, it is not significant with respect to the region as a whole, therefore, no substantial impacts associated with operational emissions are anticipated under the No Build Alternative and Build Alternative. Additionally, the project is anticipated to improve the flow of traffic and reduce congestion at nearby roadways.

Mobile Source Air Toxics

In addition to the criteria air pollutants for which standards exist, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources. Mobile source air toxics are a subset of the air toxics defined by the federal Clean Air Act. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

Available technical tools do not enable prediction of project-specific health impacts of the emission changes associated with this project. Due to these limitations, the following discussion is included in accordance with Council on Environmental Quality regulations (40 *Code of Federal Regulations* 1502.22[b]).

Evaluating the environmental health impacts from mobile source air toxics on a proposed highway project requires several key elements, including emissions modeling; dispersion modeling to estimate ambient concentrations resulting from the estimated emissions; exposure modeling to estimate human exposure to the estimated concentrations; and final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the mobile source air toxic health impacts of this project. Detail on these limitations is provided in FHWA guidance on air toxic analysis.

As discussed above, technical shortcomings of emission and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of mobile source air toxic emissions and effects of this project; however, even though no reliable methods exist that accurately estimate the health impacts of mobile source air toxics at the project level, it is possible to qualitatively assess the levels of future mobile source air toxic

emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from mobile source air toxics, it can provide a basis for identifying and comparing the potential differences among mobile source air toxic emissions, if any, from the alternatives. The qualitative assessment presented below is derived in part from a study conducted by FHWA entitled “A Methodology for Evaluating Mobile Source Air Toxic Emissions among Transportation Project Alternatives” (FHWA, 2006).

For the proposed project and the No Build Alternative, the amount of mobile source air toxics emitted would be proportional to the vehicle miles traveled generated by the project, assuming that other variables, such as fleet mix, are the same under each alternative, and decrease as speeds increase. As previously indicated, the vehicle miles traveled for the proposed project would increase slightly in comparison to No Build Alternative, although it is not significant with respect to the region as a whole. Because there is not a significant increase in vehicle miles traveled, there would be no appreciable increase in mobile source air toxic emissions for the proposed project in the general project area. According to EPA’s MOBILE6 emissions model, emissions of all priority mobile source air toxics, with the exception of diesel particulate matter, decrease as speed increases. Due to increased speeds from the implementation of the HOV lane, mobile source air toxic emission rates may actually decrease. The extent to which speed-related emissions decrease cannot be reliably predicted due to the inherent deficiencies of the technical models.

The estimated vehicle miles traveled increase in the general project area from other than the proposed project is 0.9 percent in the year 2016. There would be no appreciable difference in overall mobile source air toxic emissions in the general project area. Regardless, mobile source air toxic emissions would likely be lower than current levels in future years as a result of EPA national programs that are projected to reduce mobile source air toxic emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle miles traveled growth rates, and local control measures; however, the magnitude of EPA-projected reductions is so great (even after accounting for vehicle miles traveled growth) that mobile source air toxic emissions in the study area are likely to be lower in the future.

Air Quality CEQA Compliance

In accordance with CEQA, compliance with State air quality standards was reviewed to evaluate the potential to violate State air quality standards or contribute substantially to an existing or projected air quality violation.

As shown in Table 2.2-1, the project area is in attainment for State carbon monoxide standards and in nonattainment for State standards for respirable particulate matter, fine particulate matter, and ozone. Based on the carbon monoxide protocol procedures described

above (see discussion under the heading, Evaluation of Potential for Traffic-Related Carbon Monoxide Impacts) the Build Alternative and No Build Alternative are not expected to cause an exceedance of the State carbon monoxide standards. With regard to potential operational impacts for respirable particulate matter, fine particulate matter, and ozone for the Build Alternative and No Build Alternative, the amount of the respective pollutants emitted would be proportional to the vehicle miles traveled generated by the project, assuming that other variables, such as fleet mix, are the same under each alternative. As previously indicated, the vehicle miles traveled for the proposed project would increase slightly as compared to the No Build Alternative, although it is not significant with respect to the region as a whole. Because there is no significant increase in vehicle miles traveled, there would be no appreciable increase in emissions of respirable particulate matter, fine particulate matter, or ozone precursors in the general project area as a result of the Build Alternative.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

No substantial impacts to air quality will result from operation of the proposed project; therefore, no avoidance, minimization, or mitigation measures are required. Measures to address temporary construction-related air quality impacts are discussed in Section 2.4.7.

2.2.4.5 Climate Change

Climate change is analyzed at the end of this chapter, in Section 2.6. Neither EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change Web site (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision making and improve efficiency at the program level, and it will inform the analysis and stewardship needs of project-level decision making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

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

2.2.5 Noise

2.2.5.1 Regulatory Setting

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

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. Section 2.2.5.3, Environmental Consequences, includes information on noise analysis under CEQA.

National Environmental Policy Act and 23 Code of Federal Regulations 772

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (*23 Code of Federal Regulations 772*) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criteria for residences (67 A-weighted decibels) are lower than the noise abatement criteria for commercial areas (72 A-weighted decibels). Table 2.2-3 lists the noise abatement criteria for use in the NEPA-*23 Code of Federal Regulations 772* analysis.

**Table 2.2-3
Noise Abatement Criteria**

Activity Category	Noise Abatement Criteria, Hourly A-Weighted Noise Level, $L_{eq}(h)$	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 ¹	67 (Exterior)	Residential.

**Table 2.2-3
Noise Abatement Criteria**

Activity Category	Noise Abatement Criteria, Hourly A-Weighted Noise Level, $L_{eq}(h)$	Description of Activity Category
C ¹	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day-care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day-care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No noise abatement criteria—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (e.g., water resources, water treatment, electrical), and warehousing.
G	No noise abatement criteria—reporting only	Undeveloped lands that are not permitted.

¹ Includes undeveloped lands permitted for this activity category.

Figure 2.2-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

In accordance with Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects* (May 2011), a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 A-weighted decibels or more increase) or when the future noise level with the project approaches or exceeds the noise abatement criteria shown in Table 2.2-3. Approaching the noise abatement criteria is defined as coming within 1 A-weighted decibel of the noise abatement criteria.

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

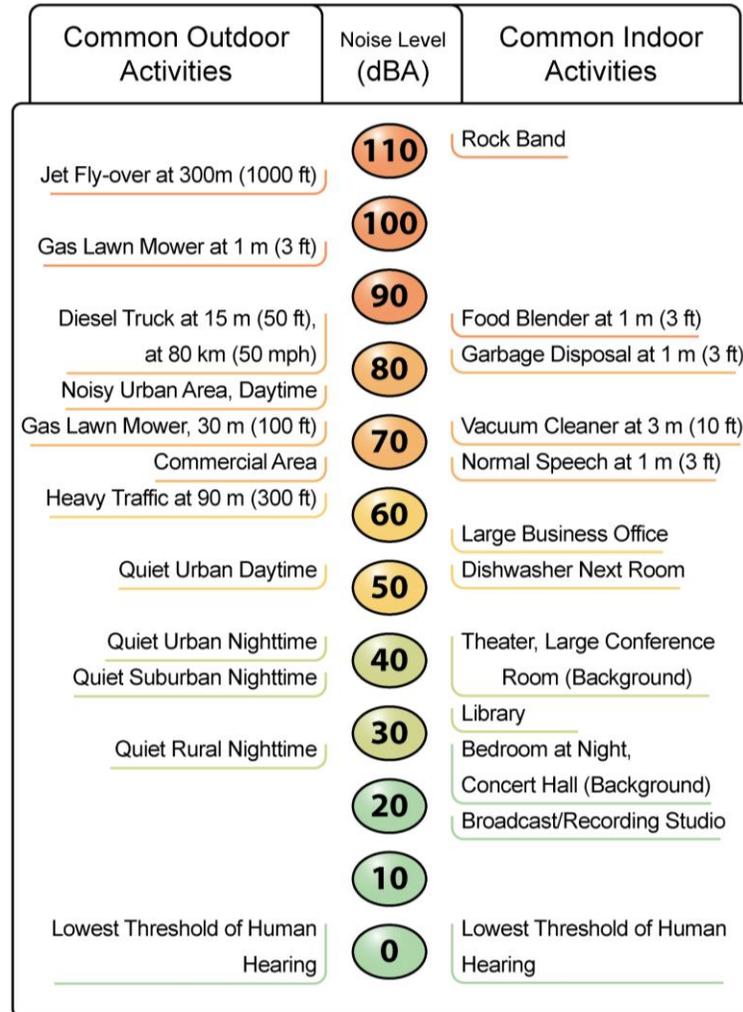


Figure 2.2-1: Noise Levels of Common Activities

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 7 A-weighted decibel reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance and the cost per benefited residence.

2.2.5.2 Affected Environment

The applicable technical reports for the evaluation of noise impacts are the *Noise Study Report* (2013) and the *Noise Abatement Decision Report* (2013). The following summarizes the *Noise Study Report* and discusses anticipated noise effects of the proposed project and

recommended noise abatement measures. Maps showing the location of noise-sensitive receptors and proposed locations of soundwalls are provided in Appendix H. Noise impacts and abatement measures would be subject to reassessment during final design based on further technical studies and public input. The type, location, and size of soundwalls, if any, would be established with the participation of the affected residents and business owners.

Noise-sensitive land uses within the project limits are single-family and multi-family residences, commercial developments, and light industrial areas. Single-family residences and multi-family residences are classified as Activity Category B land uses. The outdoor use area of Kaiser Permanente Walnut Creek Hospital, Las Lomas High School, and Saint Mary Catholic Church, along with Contra Costa Canal Trail, are classified as Activity Category C land uses. All residential areas fall under Category B, while Category C includes open space areas such as sport areas, amphitheaters, playgrounds, and recreation areas. As shown in Table 2.2-3, noise at both of these category locations cannot exceed the noise abatement criteria of 67 A-weighted decibels.

Noise measurements were conducted in February 2012 to determine the existing noise conditions at representative receptor locations in the project area. Short-term (20 minutes) and long-term (24 hours) measurements were collected. For the short-term measurements, most measurements were conducted at frequent outdoor use areas such as on sidewalks or in front yards. Noise measurement locations are shown in maps provided in Appendix H. Measurement results indicate that traffic noise at many measurement sites along the project corridor adjacent to existing freeways already approach or exceed the noise abatement criteria of 67 A-weighted decibels.

The long-term measurements were conducted to observe hourly noise variation and identify peak noise hours. Measurement results indicate that peak noise hours occur between 6:00 a.m. and 7:00 a.m., and noise levels approach or exceed the noise abatement criteria of 67 A-weighted decibels.

Following established methods for a traffic noise study, the short-term and long-term measurements, together with the measured traffic conditions, vehicle mix, and site-specific geographical information, were then used to determine future, design year (2040) noise levels in the project area. Calculated and measured noise levels were compared to assess any differences, to calibrate or validate the FHWA Traffic Noise Model for use in determining noise levels with and without the project, and to consider any applicable noise abatement measures.

2.2.5.3 Environmental Consequences

The proposed project is a Type 1 project. A Type 1 project is a project that involves construction of a highway on a new location, the physical alteration of an existing highway, the addition of

through-traffic lanes (HOV), or restriping existing pavement. Under Title 23 *Code of Federal Regulations* 772.11, noise abatement must be considered for Type 1 projects if the project is predicted to result in a traffic noise impact. Results of the *Noise Study Report* indicate that predicted traffic noise levels ($L_{eq}[h]$) for the design year, 2040 with-project conditions approach or exceed the noise abatement criteria of 67 A-weighted decibels for Activity Category B and C land uses at some of the residences throughout the study corridor; therefore, traffic noise impacts are predicted to occur at Activity Category B and C land uses within the project area.

Table 2.2-4 shows the predicted future noise levels at all of the receiver locations. Maps showing the location of noise-sensitive receptors and proposed locations of soundwalls are provided in Appendix H. If the noise level approaches or exceeds the noise abatement criteria, an impact would occur and abatement measures for those locations are proposed. Please note that, at some receptors, future noise levels are shown to be lower than existing conditions. This is because, in some locations, the measurements of existing noise levels include surface street traffic, whereas surface street traffic is not included in the modeling of future noise levels.

**Table 2.2-4
Existing (2011) and Predicted Future (2040) Noise Levels**

Receiver ID ¹	Existing 2011 Noise Level (A-weighted decibels)	Predicted 2040 Noise Level without Project (A-weighted decibels)	Predicted 2040 Noise Level with Project (A-weighted decibels)	Noise Increase (A-weighted decibels)	Approach or Exceeds Noise Abatement Criteria? ²	Reasonable and Feasible
R 1	52	54	54	2	No	-
R 2	53	55	55	2	No	-
R 3	53	55	56	2	No	-
R 4	53	55	55	2	No	-
R 5	51	53	55	2	No	-
R 6	54	56	56	2	No	-
R 7	56	56	57	0	No	-
R 8	54	54	57	0	No	-
R 9	70	64	64	-6	No	-
R 10	71	65	67	-6	Yes	No
R 11	70	66	69	-4	Yes	No
R 12	75	71	72	-4	Yes	No
R 13	67	63	63	-4	No	-
R 14	66	62	62	-4	No	-
R 15	71	65	62	-6	No	-
R 16	68	62	62	-6	No	-
R 17	67	61	62	-6	No	-
R 18	68	63	63	-5	No	-

**Table 2.2-4
Existing (2011) and Predicted Future (2040) Noise Levels**

Receiver ID ¹	Existing 2011 Noise Level (A-weighted decibels)	Predicted 2040 Noise Level without Project (A-weighted decibels)	Predicted 2040 Noise Level with Project (A-weighted decibels)	Noise Increase (A-weighted decibels)	Approach or Exceeds Noise Abatement Criteria? ²	Reasonable and Feasible
R 19	69	64	64	-5	No	-
R 20	68	64	65	-4	No	-
R 21	70	66	66	-4	Yes	No
R 22	71	67	67	-4	Yes	No
R 23	66	64	64	-2	No	-
R 24	65	63	63	-2	No	-
R 25	76	69	70	-7	Yes	No
R 26	60	63	66	3	Yes	No
R 27	58	61	63	3	No	-
R 28	68	68	68	0	Yes	No
R 29	64	64	65	0	No	-
R 30	63	63	63	0	No	-
R 31	63	63	63	0	No	-
R 32	59	60	61	1	No	-
R 33	75	76	77	1	Yes	-
R 34	72	72	73	0	Yes	No
R 35	64	64	64	0	No	-
R 36	65	65	65	0	No	-
R 37	65	65	65	0	No	-
R 38	63	63	64	0	No	-
R 39	62	63	63	1	No	-
R 40	62	63	63	1	No	-
R 41	64	62	63	-2	No	-
R 42	65	63	64	-2	No	-
R 43	64	63	63	-1	No	-
R 44	61	60	62	-1	No	-
R 45	65	64	64	-1	No	-
R 46	67	64	64	-3	No	-
R 47	71	68	68	-3	Yes	No
R 48	67	64	64	-3	No	-
R 49	66	63	63	-3	No	-
R 50	66	63	63	-3	No	-
R 51	73	71	71	-2	Yes	No
R 52	49	51	51	2	No	-
R 53	63	65	65	2	No	-

**Table 2.2-4
Existing (2011) and Predicted Future (2040) Noise Levels**

Receiver ID ¹	Existing 2011 Noise Level (A-weighted decibels)	Predicted 2040 Noise Level without Project (A-weighted decibels)	Predicted 2040 Noise Level with Project (A-weighted decibels)	Noise Increase (A-weighted decibels)	Approach or Exceeds Noise Abatement Criteria? ²	Reasonable and Feasible
R 54	61	63	63	2	No	-
R 55	64	66	66	2	Yes	No
R 56	61	63	63	2	No	-
R 57	59	61	61	2	No	-
R 58	58	60	60	2	No	-
R 59	63	65	65	2	No	-
R 60	58	59	61	1	No	-
R 61	59	59	60	0	No	-
R 62	72	73	74	1	Yes	No
R 63	58	58	58	0	No	-
R 64	66	65	66	-1	Yes	No
R 65	63	63	63	0	No	-
R 66	58	58	59	0	No	-
R 67	58	53	53	-5	No	-
R 68	58	58	59	0	No	-
R 69	64	64	64	0	No	-
R 70	64	64	64	0	No	-
R 71	74	64	65	-10	No	-
R 72	74	64	64	-10	No	-
R 73	74	64	64	-10	No	-
R 74	63	64	64	1	No	-
R 75	69	67	67	-2	Yes	Yes
R 76	67	65	65	-2	No	-
R 77	61	61	61	0	No	-
R 78	61	61	61	0	No	-
R 79	64	62	62	-2	No	-
R 80	63	61	62	-2	No	-
R 81	61	59	60	-2	No	-

Notes:

- 1 Receiver locations are shown on the layout sheets in Appendix F of the Noise Study Report, and are also included in Appendix H of this document.
- 2 Locations that approach or exceed the noise abatement criteria require consideration of noise abatement measures. For residential land uses, 67 A-weighted decibels is the level considered to approach or exceed the noise abatement criteria.

Source: Noise Study Report, 2013.

CEQA Evaluation

For the purpose of evaluating noise impacts under CEQA, year 2011 noise levels were identified as the baseline and were compared with Year 2040 predicted noise levels to evaluate the potential for a substantial permanent increase in ambient noise levels in the project vicinity. Caltrans does not have a standard for making this determination. In the absence of a standard, a 12-decibel increase between existing and design year with-project conditions was used for evaluating noise impacts under CEQA for the proposed project. The proposed project would not result in a 12-decibel increase between existing and design year conditions; therefore, no noise impacts under CEQA are anticipated.

2.2.5.4 Avoidance, Minimization, and/or Abatement Measures

Noise abatement is considered when the noise abatement criteria of 67 A-weighted decibels is approached or exceeded. Potential noise abatement measures identified in the Protocol include the following:

- Constructing noise barriers;
- Using traffic management measures to regulate types of vehicles and speeds;
- Avoiding the impact by using design alternatives, such as altering the horizontal alignment (i.e., moving the location of the roadway away from the sensitive land use) and altering the vertical alignment (i.e., changing the elevation of the project; for example, designing the project so that the roadway surface is low enough to avoid noise impacts to sensitive receptors);
- Acquiring property to serve as a buffer zone (i.e., an area between the roadway and the sensitive receptor that serves to buffer noise impacts); and
- Acoustically insulating public use or nonprofit institutional structures.

These abatement options have been considered; however, because of the constrained configuration (i.e., lack of space to implement new design options) and suburban location (i.e., lack of public use or nonprofit institutions), abatement in the form of soundwalls is the only abatement measure considered to be feasible. Noise barrier analysis was conducted by placing soundwalls at the highway mainline shoulders, on-/off-ramp shoulders, and ROW lines.

Caltrans' acoustical design goal must be met for a noise barrier to be considered reasonable. The design goal is that a barrier must be predicted to provide at least 7 decibels of noise reduction at one or more benefited receivers. In addition, the estimated cost to build the noise barrier should be equal to or less than the total cost allowance of benefited receivers calculated for the barrier to be considered reasonable from a cost perspective.

The analysis was conducted with barrier heights ranging from 8 to 16 feet. The barrier heights and locations were evaluated first to determine if a minimum 5-decibel noise reduction at the outdoor frequent use areas of the representative receivers could be achieved, then second, to determine if a minimum 7-decibel noise reduction at one of the benefited receivers could be achieved. The reason for limiting the maximum soundwall height to 16 feet above the ground line is to comply with the suggestions set forth by the Highway Design Manual (Caltrans, 2006). Table 2.2-5 summarizes the results of noise barrier evaluation.

**Table 2.2-5
Summary of Noise Barrier Evaluation**

Barrier Number	Protected Receivers (Receiver Number)	Type and Number of Benefited Land Uses ¹	Barrier Location/ Highway Side	Barrier Height/ Total Length	Reasonable Allowance Cost per Barrier(s) ²
S633 ³	R1 to R4	Cluster of SFR	Shoulder on Retaining Wall/Southbound	10 to 12 feet / 703 feet	*
S681 ⁴	R9 to R11	4 SFR	Shoulder & Retaining Wall/Southbound	8 to 14 feet / 835 feet	\$220,000
S681 ³	R12 to R17	2 SFR		8 to 12 feet / 2,185 feet	*
S736 & S742	R62	16 MFR	ROW & Shoulder/ Northbound	12 feet / 748 feet & 8 feet / 477 feet	\$880,000
S779	R34	6 MFR	Retaining Wall/ Southbound	14 to 16 feet / 396 feet	\$330,000
S826	R75 to R77	33 MFR	Shoulder/Northbound	8 to 14 feet / 1,414 feet	\$1,815,000

Notes:
 1 – Land Use: SFR – single-family residence; MFR – multi-family residential.
 2 – Based on the base reasonable allowance of \$55,000 per benefited receiver.
 3 – Replacement-in-kind soundwall with the same height at a new location.
 4 – New extension of an existing soundwall.
 * S633 and S681 would replace existing soundwalls in-kind; reasonable allowance cost is not applicable.

Source: Noise Abatement Decision Report, 2013.

South of Rudgear Road to SR 24 Junction

The future predicted noise levels range from 51 to 76 A-weighted decibels, which either approach or exceed the noise abatement criteria for Category B at some of the impacted locations; therefore, consideration of noise abatement is required. Traffic noise impacts are identified for 11 residential receivers, which represent 23 single-family residences and 20 multi-family residences.

Soundwall S633: Soundwall S633 would be located at the edge of shoulder on top of a retaining wall along the southbound I-680 corridor south of the intersection with Rudgear Road. No traffic noise impact is predicted within the outdoor frequent use areas of the cluster of single-family residences represented by Receivers R1 through R4 behind this wall. Soundwall S633 would be a replacement in-kind of a portion of the existing Soundwall SW30 due to the slight shift of the retaining wall away from the shoulder. This soundwall would connect to the existing portion of Soundwall SW30 and ties into the berm at its northern end.

Soundwall S681: Soundwall S681 would be located at the edge of shoulder of the southbound I-680 corridor just south of the intersection with Rudgear Road and would end at the Main Street loop on-ramp. Portions of this soundwall would be located on the I-680 overcrossing of Rudgear Road and South Main Street, and the remaining portion would be located on the proposed retaining wall. Soundwall S681 would be a replacement in-kind of a portion of the existing Soundwall S2 due to the slight shift of the retaining wall away from the shoulder. This soundwall would provide the feasible requirement of 5 decibels of traffic noise reduction to four single-family residences located behind it, but it would not meet the design goal of providing 7 decibels or more in traffic noise reduction to any receiver. Feasible noise abatement was not possible at three single-family residences represented by Receiver R12.

Soundwall S736 and S742: Soundwalls S736 and S742 would work as a system and need to be located along the northbound I-680 corridor just north of the intersection with Newell Avenue. Soundwall S736 would be located on the edge of shoulder of the northbound I-680 mainline and would overlap with Soundwall S742. The latter would be located on the edge of shoulder of the connector from northbound I-680 to northbound SR 24 and would be an extension of the existing connector Soundwall S750. Soundwall S742 would also replace a portion of the 3-foot-high safety barrier along the connector edge of shoulder. The solid 3-foot-high safety barrier along the shoulder is considered in the noise impact analysis, and it is assumed that it would be retained for noise reduction in addition to safety-related issues. Traffic noise increases are predicted within the already affected outdoor frequent use areas of 16 multi-family residences represented by Receiver R62. This soundwall would meet the feasibility requirement by providing 5 decibels or more of traffic noise reduction at the impacted receiver, but it fails to meet the design goal by not providing 7 decibels in traffic noise reduction at the receiver.

In this segment, Soundwalls S633 and S681 would replace existing soundwalls in-kind. Proposed Soundwalls S736 and S742 failed to meet the design goal of providing 7 decibels of noise reduction; therefore, they are not considered reasonable.

SR 24 Junction to S Main Street

The future predicted noise levels ranges from 60 to 73 A-weighted decibels, which in some cases either approach or exceed the noise abatement criteria for residential and open space land uses; therefore, consideration of noise abatement is required. Traffic noise impacts are identified for 4 residential and open space receivers, which represent 7 single-family residences, 20 multi-family residences, and a hiking trail.

Soundwall S779: Soundwall S779 would be located on top of the retaining wall along the southbound side of I-680 just north of the Trinity Avenue Overpass. Traffic noise impacts are predicted within the outdoor frequent use areas of six multi-family residences represented by Receiver R34. This soundwall would meet the feasibility requirement by providing 5 decibels or more reduction at Receiver R34, but it would not meet the design goal of a 7-decibel traffic noise reduction.

Soundwall S826: Soundwall S826 would be located at the edge of shoulder of northbound I-680 just north of the Main Street intersection. Traffic noise impacts are predicted within the outdoor frequent use areas of 14 multi-family residences represented by Receiver R75. This soundwall would provide 5 decibels or more of traffic noise reduction at 14 impacted receivers and 19 unaffected receivers. Soundwall S826 would also meet the design goal by providing at least 7 decibels in traffic noise reduction to Receiver R76.

Soundwall S826 would be adjacent to BART's Pittsburg/Bay Point rail line tracks that run outside the Caltrans ROW to the east. Noise from BART trains reflecting off of soundwall S826 is a possible concern. The affected residents, however, would benefit more from the noise attenuation provided by the soundwall because it would reduce the constant freeway-generated traffic noise. BART train operations are periodic and essentially do not operate on this particular line for a 4-hour span after midnight on weekdays and a near 6-hour stretch on weekends. There would be a net gain from constructing soundwall S826 in terms of overall noise reduction, even though the soundwall is provided for purposes of abating noise generated from freeway traffic only. Both the freeway and BART line are elevated relative to the adjacent residences, conditions under which the reflective noise would be less of an issue. In addition, the moving train itself would act as a noise shield for reflected noise from the soundwall. Lastly, there is an existing 6-foot-high soundwall along a portion of the BART line that would also provide some additional noise abatement; therefore, reflective noise from BART trains is not expected to be an issue.

Only Soundwall S826 in this segment meets the design goal of providing 7 decibels of noise reduction; therefore, it is considered reasonable based on the Caltrans design goal.

Locations where Soundwalls were Determined Feasible and Reasonable

One soundwall, S826, was determined to be feasible and reasonable based on the Caltrans design goal of providing at least 7 decibels of noise reduction; therefore, a cost reasonableness calculation has been completed for this wall only, shown in Table 2.2-6.

**Table 2.2-6
Preliminary Reasonableness Determination for Soundwalls**

Soundwall	Type ¹ and Number of Benefited Land Uses	Barrier Height / Total Length	Reasonable Allowance ²	Preliminary Cost Estimate	Is Soundwall within Reasonable Allowance?	
					Yes	No
S826	33 MFR	8 to 14 feet / 1,414 feet	\$1,815,000	\$670,000	X	
Notes 1 – Land Use: MFR – multi-family residential. 2 – Based on the base reasonable allowance of \$55,000 per benefited receiver. 3 – Preliminary cost estimate is based on current costs at the time the cost estimates were prepared (2012).						

Source: Noise Abatement Decision Report, 2013.

Based on preliminary estimates, Soundwall 826 can be considered reasonable from a cost perspective.

Noise Abatement Decision

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a barrier at the edge of the shoulder of northbound I-680 just north of the North Main Street interchange, with respective lengths and average heights of 1,414 feet and 8 to 14 feet. Calculations based on preliminary design data indicate that the barrier will reduce noise levels by 7 decibels for 33 residences at a cost of \$670,000. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement will be made upon completion of the project design and public involvement processes.

2.3 Biological Environment

2.3.1 Natural Communities

The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

2.3.1.1 Affected Environment

The following is summarized from the *Natural Environment Study* (2013).

The study area is situated in the valley between the Oakland Hills-Berkley Hills on the west and Mount Diablo on the east. Most of the study area consists of developed lands that are dominated by structures and paved areas, but include landscaped areas and ornamental tree habitats. The study area supports some undeveloped habitats adjacent to I-680, including coastal oak woodland, valley foothill riparian, annual grassland, ruderal, and coastal scrub. Despite intensive human use, these lands provide limited habitat for wildlife species adapted to this setting. No critical habitat is present within the biological study area. Aquatic habitat also exists in the creek crossings under I-680. The project crosses three creeks – Tice Creek, Las Trampas Creek, and San Ramon Creek – and a section of the Contra Costa Canal. Riparian vegetation is present in the biological study area along Las Trampas Creek, which provides foraging habitat for many species of amphibians and reptiles and acts as a wildlife migration and movement corridor. Because most of the vicinity is developed, and all creeks are concrete lined except for Las Trampas Creek, the only suitable migration corridor within the biological study area is Las Trampas Creek.

2.3.1.2 Environmental Consequences

The project would permanently impact approximately 2.23-acre of ornamental landscaping, 1.64-acre of coastal oak woodland, 0.335-acre of annual grassland, 0.02-acre of ruderal landscaping, and 2.40 acres of developed areas, for a total of 6.62 acres of permanently impacted habitat. Permanent impacts would result from the installation of new pavement, soundwalls, and retaining walls. Temporary impacts to vegetation communities due to construction are discussed below in Section 2.4.9.

Tree removal associated with the proposed project would be located within the Caltrans ROW. Of the 3,341 individual trees mapped in the ROW, approximately 212 individual trees are expected to be removed. Most of these trees (111) are less than 4 inches in diameter at breast height, 57 trees are between 4 and 8 inches in diameter at breast height, 30 trees are

between 8 and 12 inches in diameter at breast height, 12 trees are between 12 and 20 inches in diameter at breast height, and 2 trees are greater than 20 inches in diameter at breast height. Native tree species primarily affected are coast redwood (*Sequoia sempervirens*), coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*). Table 2.3-1 summarizes the anticipated tree species and approximate quantities potentially affected by the project. As project design becomes more refined, these numbers may change.

**Table 2.3-1
Anticipated Tree Species and Approximate Quantities Affected by Project**

Tree Species	Quantity Potentially Affected
Native Species	
Madrone (<i>Arbutus menziesii</i>)	2
Incense Cedar (<i>Calocedrus decurrens</i>)	1
Knobcone Pine (<i>Pinus attenuate</i>)	1
Coast Live Oak (<i>Quercus agrifolia</i>)	81
Valley Oak (<i>Quercus lobata</i>)	49
Black Willow (<i>Salix goodingii</i>)	3
Arroyo Willow (<i>Salix lasiolepis</i>)	2
Coast Redwood (<i>Sequoia sempervirens</i>)	25
Ornamental Plantings	
Non-native Plantings	48
TOTAL	212

Source: Visual Impact Assessment, 2012.

The project would not impact any of the stream corridors located in the biological study area. No habitat would be fragmented, and no wildlife corridors or fish passages would be affected.

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

Existing native vegetation will be preserved to the greatest extent feasible, and new landscaping will be planted within the ROW where feasible. Existing vegetation outside of areas to be graded will be protected during construction. All trees and native vegetation that is removed will be replaced in-kind in the adjacent ROW, with the exception of retention basin areas that initially supported trees or shrubs. Retention basins will be replanted with herbaceous vegetation. Trees will only be removed if they are in the permanent or temporary disturbance footprint of the proposed project or otherwise present a safety hazard.

Temporary construction site best management practices are listed in Section 2.4.9.2. These best management practices will prevent any construction debris, sediment, or toxins from entering San Ramon Creek and Las Trampas Creek and affecting any fish downstream of the project construction area.

2.3.2 Wetlands and Other Waters of the United States

2.3.2.1 Regulatory Setting

Wetlands and other waters are protected under many laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 United States Code 1344) is the primary law regulating wetlands and surface waters. One purpose of the Clean Water Act is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. 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 (i.e., water-loving) vegetation, wetland hydrology, and hydric soils (i.e., soils formed during 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 discharge of dredged or fill material cannot 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 with oversight by the EPA.

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

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the U.S. Army Corps of Engineers Standard permits. There are two types of Standard Permits: Individual Permits and Letters of Permission. For Standard Permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with EPA's Section 404(b)(1) Guidelines (EPA 40 *Code of Federal Regulations* Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by EPA in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no

practicable alternative that would have less adverse effects. The Guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (Executive Order 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this Executive Order states that a federal agency, such as FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm.

At the State level, wetlands and waters are regulated primarily by the State Water Resources Control Board, the Regional Water Quality Control Boards, and the California Department of Fish and Wildlife. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Wildlife before beginning construction. If the California Department of Fish and Wildlife determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. The California Department of Fish and Wildlife 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 U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act. In compliance with Section 401 of the Clean Water Act, the Regional Water Quality Control Boards also issue water quality certifications for activities that may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see Section 2.2.1, Water Quality and Stormwater Runoff, for additional details.

2.3.2.2 Affected Environment

The following is summarized from the *Wetland Delineation Report* (2013).

A delineation of wetlands and other waters of the U.S. in the I-680 Southbound HOV Gap Closure Project vicinity was conducted on October 13, 2011, in accordance with the methods defined by the U.S. Army Corps of Engineers. This delineation is subject to verification by the U.S. Army Corps of Engineers and, until such time, the following information is considered preliminary.

Based on the delineation, an isolated seep¹⁶ was mapped on the west side of I-680, and the extent of this nonjurisdictional wetland is 0.07-acre. No jurisdictional wetlands were mapped in the study area. In addition, potential other waters of the U.S. occur at the following locations along the project corridor:

- San Ramon Creek;
- Tice Creek;
- Las Trampas Creek; and
- Contra Costa Canal.

The reach of San Ramon Creek that passes through the study area is a 22-foot-deep rectangular concrete channel that is fenced to limit access. The channel is 30.5 feet wide on the east side of I-680 and approximately 31 feet wide on the west side of I-680. The total length of San Ramon Creek in the study area is 185 feet, and the total area of the creek is 0.11-acre. No vegetation or sensitive species habitat is present within the creek within the study area.

The portion of Tice Creek that passes through the study area is confined within a concrete-lined channel. Immediately west of the western edge of the I-680 ROW, the creek passes into an underground culvert and flows underground under I-680, and continues underground to its confluence with San Ramon Creek. The channel width of Tice Creek could not be determined. Based on the assumed location of the underground channel, the total length of the creek is approximately 296 feet. No vegetation or sensitive species habitat is present within the creek within the study area.

Las Trampas Creek is partially channelized by the piers supporting the I-680 crossing at this point. The channel bottom is not concrete-lined, and the banks around the piers support riparian (i.e., natural) vegetation dominated by horsetail, California blackberry, smilo grass, nettle, and alder. Within the study area, the width of this channel is 40.5 feet. The total length and area of the creek within the study area is 300 feet and 0.3-acre, respectively.

¹⁶ A seep is a moist or wet place where water, usually groundwater, reaches the earth's surface from an underground aquifer.

The Contra Costa Canal, just west of I-680, is 16.4 feet wide. The channel widens as it passes under I-680 and narrows again on the other side. Because the sections of the canal under I-680 and east of I-680 are not accessible, no measurements were obtained. No construction work has been proposed in this canal. No vegetation or sensitive species habitat is present within the canal within the study area.

2.3.2.3 Environmental Consequences

No wetlands are present within the biological study area. No construction is proposed within the banks of any of the creeks or other waterways in the biological study area.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

Temporary construction site best management practices, such as the isolation of work areas from flows, slope stabilization, and erosion control methods, will be used during project construction. These best management practices will prevent any construction debris, sediments, or toxins from entering San Ramon Creek and Las Trampas Creek, and from affecting any fish downstream of the biological study area.

2.3.3 Animal Species

2.3.3.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and the California Department of Fish and Wildlife are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the Federal Endangered Species Act or California Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.4 below. All other special-status animal species are discussed here, including California Department of Fish and Wildlife fully protected species and species of special concern, and USFWS or National Oceanic and Atmospheric Administration's National Marine Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- NEPA
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- CEQA
- Sections 1600 – 1603 of the California Fish and Game Code

- Section 4150 and 4152 of the California Fish and Game Code

Migratory Bird Treaty Act

Nesting activities of numerous birds are protected under the Migratory Bird Treaty Act. Tree removal activities that could alter nesting behavior, jeopardize eggs or young in nests, or reduce parental care would result in a violation.

2.3.3.2 Affected Environment

The following is summarized from the *Natural Environment Study* (2013).

The habitats within the project biological study area and vicinity support a variety of wildlife species typical of the region. Common reptile species that occur include the northwestern fence lizard (*Sceloporus occidentalis*) and side-blotched lizard (*Uta stansburiana*). Although none were observed during project surveys, common amphibian species, such as the Pacific tree frog (*Pseudacris regilla*), are likely to occur in association with the aquatic habitat in the project vicinity of the biological study area.

Bird species inhabiting the project biological study area include species often found in urban environments, such as house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), northern mockingbird (*Mimus polyglottos*), and rock pigeon (*Columba livia*). Additional species typically found in more natural habitat include Anna's hummingbird (*Calypte anna*), northern flicker (*Colaptes auratus*), western bluebird (*Sialia mexicana*), and raptors such as American kestrel (*Falco sparverius*) and red-tailed hawk (*Buteo jamaicensis*). Blacktail deer (*Odocoileus hemionus*) and Botta's pocket gopher (*Thomomys bottae*) are commonly observed mammal species present in the biological study area.

Three impassable barriers are known to occur in Walnut Creek downstream of the project area; therefore, anadromous fish are unlikely to be present in the project area. Essential fish habitat includes waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. No essential fish habitat is identified within Las Trampas, Tice, or San Ramon creeks within the project limits.

Surveys were conducted in May and July 2011 to determine the presence of special-status wildlife species. Nine special-status wildlife species have the potential to occur in the biological study area based on the presence of potential suitable habitat, of which the California tiger salamander, California red-legged frog, Alameda whipsnake, and White-tailed kite are discussed in Section 2.3.4. Habitat in the biological study area was assessed for all of these species, and site surveys were conducted for western burrowing owl, other nesting raptors, and special-status bats (i.e., pallid bat, western mastiff bat, and big free-tailed

bat). The special-status species that could potentially occur in the biological study area are shown in Table 2.3-2.

**Table 2.3-2
Special-Status Species Potentially Occurring or Known to Occur
in the Biological Study Area**

Species	Status	Habitat	Habitat Present/ Absent	Potential to Occur in the Biological Study Area
Reptiles				
Western pond turtle <i>Emys marmorata</i>	CSC	Thoroughly aquatic. Occurs in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and sandy banks and grassy open fields (up to 0.31-mile from water edge) for egg-laying.	Present	Low. Creeks in the biological study area may provide habitat for western pond turtle. One (1) occurrence is documented by the California Natural Diversity Database within a 5-mile radius. It was located 3.82 miles east of the biological study area in 2006.
Birds				
Burrowing owl <i>Athene cucularia</i>	CSC	Open, dry annual or perennial grassland, deserts and scrublands characterized by low-growing vegetation. Depends on burrowing mammals, including California ground squirrel, to create subterranean nests.	Present	Moderate. Grassland areas, such as the open space near the south end of the biological study area, provide potential habitat for burrowing owl. Two (2) occurrences of this species are documented by the California Natural Diversity Database within the 5-mile radius. The closest one is 2.87 miles from the biological study area. Results of the winter surveys conducted for this species in the biological study area were negative.
Mammals				
Pallid bat <i>Antrozous pallidus</i>	CSC	Occurs in deserts, grassland, shrublands, woodlands, and forests. Most common in dry, open habitats with rocky areas for roosting. Roosts must protect from high temperatures.	Present	Moderate. Six (6) occurrences were documented within 5 miles. The closest occurrence is from 1907. It is mapped broadly in Walnut Creek and overlaps with the biological study area.

**Table 2.3-2
Special-Status Species Potentially Occurring or Known to Occur
in the Biological Study Area**

Species	Status	Habitat	Habitat Present/ Absent	Potential to Occur in the Biological Study Area
Western mastiff bat <i>Eumops perotis californicus</i>	CSC	Occurs in open, semi- arid, arid habitats, including conifer and deciduous woodlands, coastal scrub, grassland, and chaparral. Roosts in cliff faces, high buildings, trees, and tunnels.	Present	Low. Woodland and scrub habitats within the biological study area could support Western mastiff bat roosts. Suitable foraging habitat is also present throughout the biological study area; however, no occurrences have been documented in the California Natural Diversity Database within 5 miles of the biological study area.
Big free-tailed bat <i>Nyctinomops macrotis</i>	CSC	Low-lying arid areas in California. Occurs in high cliffs and rocky outcrops.	Present	Low. Limited outcrop habitat is present within the biological study area. No California Natural Diversity Database occurrences have been documented within 5 miles of the biological study area.
<p>Status Codes:</p> <p>Federal and State Status</p> <p>CSC = California species of concern</p> <p>CT = State of California Threatened</p> <p>FP = Fully Protected Species (California Department of Fish and Wildlife)</p> <p>FT = Federally listed as Threatened</p> <p>California Rare Plant Rank (RPR)</p> <p>RPR 1B = rare, threatened or endangered in California and elsewhere</p> <p>RPR 2 = rare, threatened, or endangered in California, but more common elsewhere</p>				

2.3.3.3 Environmental Consequences

A burrowing owl habitat assessment was conducted in May 2011 and reconnaissance-level surveys were conducted on July 14, 15, and 19, 2011, with follow-up protocol winter season surveys conducted between January 9 and 12, 2012. No burrowing owls or signs of burrowing owl activity were observed during the habitat assessment or the protocol winter resident surveys. Although no owls were observed in or near the vicinity of the biological study area during the 2011 surveys, suitable burrows for burrowing owls were observed at the southern end of the biological study area and the adjacent Sugarloaf Open Space. Most of these burrows are active California ground squirrel colonies; some appear to have been excavated by domestic dogs. This suitable habitat is outside the project study area and

separated from the project area by an eight-lane highway with a 3-foot-tall concrete center dividing wall; therefore, no permanent impacts to burrowing owls or their habitat would occur.

A survey for bats was conducted on July 19, 2011. Although no evidence of bats (i.e., pallid bat, western mastiff bat, or big free-tailed bat) was detected during surveys, there is a limited potential that special-status bats could occupy suitable habitat in trees that would be removed during construction. Active bat roosts are protected during the bat breeding season (typically May 1 through September 15).

Suitable nesting trees for raptors (birds) are present throughout the biological study area. Removal of these trees within the biological study area would permanently reduce potential roosting and nesting habitat for raptors within the biological study area.

The project would not affect essential fish habitat or fish passage.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

The following general biological avoidance and minimization measures will be implemented to avoid impacts to all special-status plant and animal species:

- a) A Caltrans-approved biologist will conduct a worker environmental awareness program training session for construction crews before construction activities begin. The worker environmental awareness program will include a brief review of the special-status species and other sensitive resources that can occur in the work area, including species life history and habitat preferences, and their legal status. The program will also cover all avoidance and minimization measures, environmental permits, and proposed project plans, such as the project's Storm Water Pollution Prevention Plan, best management practices, erosion control and sediment plan, and any other required plans. During worker environmental awareness program training, construction personnel will be informed of the importance of avoiding ground-disturbing activities outside of the designated work area. The Caltrans-approved biologist will coordinate with the Resident Engineer to ensure that construction personnel adhere to the guidelines and restrictions. Worker environmental awareness program training sessions will be conducted as needed for new personnel brought onto the job during the construction period.
- b) Environmentally sensitive area fencing will be installed in locations to ensure that the contractor does not disturb environmentally sensitive areas. This fencing will be identified on the final design plans.
- c) To prevent inadvertent entrapment of wildlife during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each

working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped wildlife. If at any time a trapped wildlife is discovered, the Caltrans-approved biologist will be contacted to determine the next steps.

- d) If construction activities are scheduled to occur during the breeding season for raptors and other migratory birds (generally between February 15 and August 31), a Caltrans-approved wildlife biologist will conduct the following focused nesting survey:
- The surveys will be conducted no more than 3 days prior to initiation of construction activities at any time between February 15 and August 31. If no active nests are detected, then no additional avoidance or minimization measures are required.
 - If surveys indicate that raptors or other migratory birds are found actively nesting in any areas that will be directly affected by construction activities, a no-disturbance 50-foot buffer, unless otherwise negotiated with the California Department of Fish and Wildlife or USFWS, will be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a Caltrans-approved wildlife biologist determines that the young have fledged.
- e) Trees, shrubs, ground cover, grasses, bark, leaves, and roots with attached soil will be removed where permanent structures will be placed. Vegetation debris will be cleared away and removed from the site to prevent possibly attracting animals or causing hazardous or unsafe conditions.
- f) Preconstruction surveys will be conducted by a Caltrans-approved biologist during the bat breeding season (typically May 1 through September 15) no more than 3 days before tree removal operations begin. If bats are observed roosting in the trees identified for removal, the biologist will work with the California Department of Fish and Wildlife to determine acceptable ways to minimize disturbance to the roosting bats. If an active maternity roost is identified within the construction area, the Caltrans-approved biologist will consult with the California Department of Fish and Wildlife biologists to determine appropriate measures to protect the maternity roost. Such measures could include prohibiting the removal of the maternity roost tree and trees within 250 feet of the tree until the maternity roost is no longer active.

To prevent potential impacts to burrowing owls, potential burrows will be identified and mapped. Additionally, a Caltrans-approved biologist will conduct a preconstruction burrowing owl survey 3 days prior to any ground disturbance, including vegetation removal. If burrowing owls are identified during preconstruction surveys, the California Department of Fish and Wildlife must be contacted to determine appropriate measures and buffer distances.

Temporary construction site best management practices, such as isolation of work areas from flows, slope stabilization, and erosion control methods, will be used during construction and are further discussed in Section 2.4.9.2. These best management practices will prevent any construction debris, sediment, or toxins from entering San Ramon Creek and Las Trampas Creek and affecting any fish downstream of the project construction area.

2.3.4 Threatened and Endangered Species

2.3.4.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 United States Code Section 1531, *et seq.* See also 50 *Code of Federal Regulations* Part 402. 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, such as FHWA, are required to consult with USFWS and National Oceanic and Atmospheric Administration's National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of the Federal Endangered Species Act 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, California Fish and Game Code Section 2050, *et seq.* The California Endangered Species Act 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 California Department of Fish and Wildlife is the agency responsible for implementing the California Endangered Species Act. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the California Department of Fish and Wildlife. For species listed under both the Federal Endangered Species Act and California Endangered Species Act requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Wildlife may also authorize impacts to the California Endangered Species Act

species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

2.3.4.2 Affected Environment

This section summarizes findings of the *Natural Environment Study* (2013) and the *No Effects Determination* (2012). USFWS, the California Department of Fish and Wildlife, and National Oceanic and Atmospheric Administration's National Marine Fisheries Service are the primary agencies responsible for coordination and review involving special-status species.

The findings summarized in this section were based on extensive research and field surveys for special-status species in the biological study area and its vicinity. Prior to the surveys, record searches of the USFWS species lists, and the California Natural Diversity Database were conducted.

USFWS species records were reviewed at the outset of the biological studies for the project. A copy of the records list is included in Appendix G. On November 8, 2012, Caltrans met with USFWS for Technical Assistance concerning Alameda whipsnake and California red-legged frog. Based on this site visit, Caltrans initiated informal consultation with USFWS for both species under Section 7 of the Federal Endangered Species Act. Caltrans submitted a letter requesting concurrence from USFWS that the project may affect, but is not likely to adversely affect, these species on August 28, 2013, which is included in Appendix G. Concurrence from USFWS is pending. On June 23, 2011, Caltrans District 4 staff submitted a request to the National Oceanic and Atmospheric Administration's National Marine Fisheries Service seeking confirmation that no steelhead (*Oncorhynchus mykiss*) or other listed anadromous salmonids occur within the biological study area, given the presence of three existing barriers to fish passage. On August 10, 2011, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service confirmed that it has no record of any listed anadromous fish in Las Trampas Creek.

Copies of the agency correspondence are provided in Appendix G. The USFWS species list is included in Appendix F.

The threatened or endangered species that could potentially occur in the biological study area are shown in Table 2.3-3.

**Table 2.3-3
Threatened or Endangered Species Potentially Occurring or Known to Occur
in the Biological Study Area**

Species	Status	Habitat	Habitat Present/ Absent	Potential to Occur in the Biological Study Area
Amphibians				
California tiger salamander <i>Ambystoma californiense</i>	FT, CT	Central Valley population is federally listed as threatened, and the Santa Barbara and Sonoma county populations are federally listed as endangered. Require underground refuges, burrows, and seasonal water sources for breeding.	Present	Low. Five (5) occurrences have been documented within 5 miles of the biological study area. The California Natural Diversity Database contained 2 records within 1-mile of the biological study area. Both California tiger salamander localities shown on the map are more than 50 years old (1938 and 1954) and represent observations of adult/ juvenile animals, not breeding pond locations. The exact location of the aquatic habitat that historically provided breeding sites for the California tiger salamander that were encountered in 1938 and 1954 is unknown. The closest Critical Habitat is approximately 15 miles from the biological study area.
California red-legged frog <i>Rana draytonii</i>	FT, CSC	Occurs in lowland and foothills near permanent sources of water with dense, shrubby or riparian vegetation. Requires permanent water for larval development and access to estivation habitat.	Present	Low. There are 12 California Natural Diversity Database occurrences within a 5-mile radius. The closest occurrence was 1.64 miles east in 1994. The nearest critical habitat is 3.2 miles east of the biological study area; however, there is no suitable habitat for this species in the biological study area.

**Table 2.3-3
Threatened or Endangered Species Potentially Occurring or Known to Occur
in the Biological Study Area**

Species	Status	Habitat	Habitat Present/Absent	Potential to Occur in the Biological Study Area
Reptiles				
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FT, CT	Typical of chaparral and scrub habitats, but will also use adjacent grassland, oak savanna, and woodland habitats. Mostly observed on south-facing slopes and ravines with rock outcrops, deep crevices, abundant rodent burrows, or where shrubs provide cover.	Present	Low. There are 80 California Natural Diversity Database occurrences within a 5-mile radius. The closest Critical Habitat is 0.67-mile south of the biological study area. Critical Habitat is also located east and west of the biological study area. There are 5 California Natural Diversity Database records of Alameda whipsnake within 1-mile of the biological study area, located west of the biological study area in Alamo Hills; however, there is no core habitat for this species in the biological study area.
Birds				
White-tailed kite <i>Elanus leucurus</i>	FP	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Present	Moderate. Grassland areas in the biological study area provide potential breeding habitat for this species. There are no California Natural Diversity Database occurrences of this species within the 5-mile radius. During focused burrowing owl surveys, 1 white-tailed kite was observed foraging, and a pair of kites was observed displaying perch-territoriality (breeding behavior) on the east side of I-680 in Sugarloaf Open Space, adjacent to the biological study area.
Fish				
Delta Smelt <i>Hypomesus transpacificus</i>	FT CE	Delta smelt occur in Suisun Bay and Suisun Marsh, as well as downstream of Isleton on the Sacramento River and downstream of Mossdale on the San Joaquin River.	Absent	Low. There is no habitat for delta smelt in the project area, and the passage barriers on Walnut Creek, downstream of the project area, prevent movement of delta smelt into the project area. There is no critical habitat for this species in the project area.

**Table 2.3-3
Threatened or Endangered Species Potentially Occurring or Known to Occur
in the Biological Study Area**

Species	Status	Habitat	Habitat Present/ Absent	Potential to Occur in the Biological Study Area
Central California Coastal steelhead <i>Oncorhynchus mykiss</i>	FT	Central California Coastal steelhead typically spend from a few months to 3 years in the Pacific Ocean before returning to fresh water. Streams along the central California coast and in the San Francisco Bay Area may support this species. The highest quality rearing habitat features complexity such as woody debris to provide forage and cover.	Absent	Low. There are three passage barriers on Walnut Creek, downstream of the project area, that prevent movement of Central California Coastal steelhead into the project area. Critical habitat has been designated for Central California Coastal steelhead, but there is no critical habitat for this species in the project area.
Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT CSC	Central Valley steelhead typically spend from a few months to 3 years in the Pacific Ocean before returning to fresh water. Populations exist in the upper Sacramento River and its tributaries, as well as in the American and Feather rivers. Small populations have also been identified in the Stanislaus, Mokelumne, and Calaveras rivers. Steelhead likely use Suisun Marsh, the Delta, and the Yolo Bypass for rearing.	Absent	Low. There are three passage barriers on Walnut Creek, downstream of the project area, that prevent movement of Central Valley steelhead into the project area. Critical habitat has been designated for the Central Valley steelhead, but there is no critical habitat for this species in the project area.

**Table 2.3-3
Threatened or Endangered Species Potentially Occurring or Known to Occur
in the Biological Study Area**

Species	Status	Habitat	Habitat Present/ Absent	Potential to Occur in the Biological Study Area
Central Valley spring-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	FT CT	Central Valley spring-run Chinook salmon exist in the Sacramento River and its tributaries, including the Feather River. Preferred spawning habitat consists of swift, relatively shallow riffles or the margins of deeper riffles, with a substrate of clean, loose gravel.	Absent	Low. There are three passage barriers on Walnut Creek, downstream of the project area, that prevent movement of Central Valley spring-run Chinook salmon into the Project area. Critical habitat has been designated for Central Valley spring-run Chinook salmon, but there is no critical habitat for this species in the project area.
Winter-run Chinook salmon, Sacramento River <i>Oncorhynchus tshawytscha</i>	FE CE	Winter-run Chinook salmon migrate within the lower Sacramento River, the Delta, and San Francisco Bay. Adults may spend 2 to 4 years in the ocean environment.	Absent	Low. There are three passage barriers on Walnut Creek, downstream of the project area, that prevent movement of winter-run Chinook salmon into the project area. Critical habitat has been designated for winter-run Chinook salmon, but there is no critical habitat for this species in the project area.
Status Codes: Federal and State Status CSC = California species of concern CE = State of California Endangered CT = State of California Threatened FP = Fully Protected Species (California Department of Fish and Wildlife) FE = Federally listed as Endangered FT = Federally listed as Threatened California Rare Plant Rank (RPR) RPR 1B = rare, threatened, or endangered in California and elsewhere RPR 2 = rare, threatened, or endangered in California, but more common elsewhere				

California Red-Legged Frog

The California red-legged frog is a federally threatened species and a California species of special concern. This species is generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby vegetation such as willows, cattails, and bulrushes dominate and water quality is good. A habitat assessment was conducted on December 2, 2011, and January 17, 2012 (concurrently with assessments for Alameda whipsnake and California tiger salamander). The California Natural Diversity Database

contains 13 records for the California red-legged frog within 5 miles of the biological study area, but none of these records occur within 1-mile. All 13 of these records are separated from the biological study area by urban development. The closest locations that could reasonably be expected to support breeding are ponds within a tributary of San Ramon Creek; however, this segment is shallow and concrete lined with only sparse vegetation. These ponds are east of I-680 and more than 2.5 miles from where San Ramon Creek crosses I-680. In addition, the California red-legged frog breeding is known from Las Trampas Creek upstream of I-680, approximately 6 miles from the project area, in an oxbow-type habitat.

During the assessment site visit, no individual California red-legged frog and no aquatic habitat of any kind were observed within the biological study area outside of the creek crossings described above.

California Tiger Salamander

The California tiger salamander is a federally threatened species and a California threatened species. This species ranges from Sonoma County south to Santa Barbara County and east to the foothills of the Sierra Nevada. Appropriate breeding habitat for this species is generally found in seasonal pools, low-gradient streams, and stock ponds that retain water long enough for larvae to metamorphose. A habitat assessment was conducted for the California tiger salamander (concurrently with assessments for California red-legged frog and Alameda whipsnake) in the biological study area on December 2, 2011, and January 17, 2012. A search of the California Natural Diversity Database revealed the presence of five records for the California tiger salamander within 5 miles of the biological study area. Two of these records occur within 1-mile of the biological study area. Of these two closest records, one was recorded in 1938 and the other was recorded in 1954. The three remaining records occur between 3 and 5 miles of the biological study area and were recorded in 1920, 1921, and 1952. All five of these locations are considered extirpated because the entire area within and surrounding these locations has been converted to urban development since the species was last sighted.

No suitable breeding habitat for the California tiger salamander was observed within the biological study area or within the undeveloped habitat that is contiguous with the biological study area. While potentially suitable upland habitat for the California tiger salamander is present in some of the undeveloped areas adjacent to the biological study area, such as the Sugar Loaf and Acalanes Ridge Open Space areas, no potential breeding sites are in these areas.

Alameda Whipsnake

The Alameda whipsnake is a federally threatened species and a California threatened species. This species range has always been restricted, limited to the coastal scrub and oak woodland

communities of the East Bay in Contra Costa, Alameda, and parts of San Joaquin and Santa Clara counties. A habitat assessment was conducted for Alameda whipsnake (concurrently with assessments for California red-legged frog and California tiger salamander) in the biological study area on December 2, 2011, and January 17, 2012. No Alameda whipsnakes were observed in the biological study area during the habitat assessments.

The results of this assessment indicate that suitable habitat for the Alameda whipsnake, such as coastal scrub or grassland habitat, is not present within the biological study area boundaries. The biological study area is located outside of designated critical habitat for Alameda whipsnake. The closest critical habitat is 0.67-mile south of the biological study area. Critical habitat is also located east and west of the biological study area. There are 80 California Natural Diversity Database records of this species within a 5-mile radius of the biological study area, and 5 of these records occur within 1-mile of the biological study area.

The site assessment for potential Alameda whipsnake habitat identified only one potential core habitat area (i.e., an area that could support a breeding resident population of Alameda whipsnake). This potential core habitat is outside the biological study area, on private property adjacent to Sugarloaf Open Space near the Rudgear Road interchange. It should be noted that extensive urban development and associated roads isolate the Sugar Loaf Open Space Area and the adjacent undeveloped lands from known populations of Alameda whipsnake. This potential core habitat is outside the biological study area and is isolated from the I-680 southbound construction area by I-680, which includes eight lanes of freeway with an approximately 3-foot-high concrete dividing wall between the northbound and southbound lanes.

White-Tailed Kite

White-tailed kites are designated as a fully protected species by the California Fish and Game Code. They are often found in close proximity to agricultural areas. White-tailed kites are monogamous and typically construct loose stick nests near the top of oaks, willows, or other stands of trees. During the nonbreeding season, they may reside in communal roost sites. During focused surveys for burrowing owl in May 2011, one white-tailed kite was observed foraging, and a pair of kites was observed displaying perch-territoriality (breeding behavior) adjacent to the biological study area, on the east side of I-680 in Sugarloaf Open Space.

White-tailed kites could use trees throughout the biological study area for roosting and nesting, but trees within the biological study area are less likely to be selected than trees farther from the highway, due to proximity to road noise in the biological study area.

Delta Smelt

Delta smelt, a fish species that is endemic to the Bay Delta, is federally listed as threatened, and is listed as endangered under the California Endangered Species Act. Delta smelt occur in Suisun Bay and Suisun Marsh, as well as downstream of Isleton on the Sacramento River and downstream of Mossdale on the San Joaquin River. Adults begin moving upstream to freshwater sloughs and channels in September or October. They spawn from February to July, with peak activity in mid-April and May.

There is no habitat or designated critical habitat for delta smelt in the project area, and the passage barriers on Walnut Creek, downstream of the project area, prevent movement of delta smelt into the project area.

Central California Coastal Steelhead

Steelhead on the northern California coast and from San Francisco Bay tributaries is included in the Central California Coastal steelhead Environmentally Significant Unit. This Environmentally Significant Unit is federally listed as threatened. Central California Coastal steelhead typically spend from a few months to 3 years in the Pacific Ocean before returning to freshwater. Two life history types of steelhead are recognized: summer steelhead and winter steelhead.

There are three passage barriers on Walnut Creek, downstream of the project area, that prevent movement of Central California coastal steelhead into the project area, and no critical habitat for this species is located in the project area.

Central Valley Steelhead

The Central Valley steelhead Environmentally Significant Unit is federally listed as threatened. The Central Valley steelhead is not listed under the California Endangered Species Act, but it is designated as a California Species of Special Concern. Due to the presence of dams, Central Valley steelhead populations have been reduced from their previous range throughout the Sacramento and San Joaquin rivers. Two life history types of steelhead are recognized: summer steelhead and winter steelhead.

There are three passage barriers on Walnut Creek, downstream of the project area, that prevent movement of Central Valley steelhead into the project area, and no critical habitat for this species is located in the project area.

Central Valley Spring-Run Chinook Salmon

The Central Valley spring-run Chinook salmon Environmentally Significant Unit is federally listed as threatened and is also listed as threatened under the California Endangered Species Act. Spring-run Chinook salmon travel far upriver, remaining in cool water pools to mature

during the spring and summer months, and finally spawn in the early fall. Preferred spawning habitat consists of swift, relatively shallow riffles or the margins of deeper riffles, with a substrate of clean, loose gravel.

There are three passage barriers on Walnut Creek, downstream of the project area, that prevent movement of Central Valley steelhead into the project area, and no critical habitat for this species is located in the project area.

Winter-Run Chinook Salmon, Sacramento River

Winter-run Chinook salmon, Sacramento River Environmentally Significant Unit is federally listed as endangered and is also listed as endangered under the California Endangered Species Act. Winter-run Chinook salmon adults enter freshwater in winter or early spring. The peak movement of adults entering the Sacramento River basin occurs in March. Spawning typically takes place between mid-April and mid-August.

There are three passage barriers on Walnut Creek, downstream of the project area, that prevent movement of Central Valley steelhead into the project area, and no critical habitat for this species is located in the project area.

2.3.4.3 Environmental Consequences

No permanent impacts should occur to the following species, which have been identified as having the potential to occur in the regional area but were determined to not be present or affected by the project: California tiger salamander, Delta smelt, Central California coastal steelhead, Central Valley steelhead, Central Valley spring-run Chinook salmon, and winter-run Chinook salmon.

Alameda Whipsnake

Alameda whipsnake is not likely to be present in the biological study area due to the isolation of the biological study area from areas where Alameda whipsnake is known to occur. Additionally, the lack of suitable habitat for Alameda whipsnake and their prey species would not likely attract Alameda whipsnake into the biological study area. Although small areas of undeveloped land are adjacent to the biological study area on the west side, none of these areas contain the core habitat required to support a resident population of Alameda whipsnake.

The biological study area does not support any core type habitat for the Alameda whipsnake, but it does potentially provide marginal areas that the Alameda whipsnake could utilize. Because Alameda whipsnake is not expected to be present in the biological study area, the project is not likely to have any impact on the species. The avoidance and minimization measures described below should be sufficient to provide protection for this species. Caltrans

is seeking a letter of concurrence from USFWS that the project is not likely to adversely affect the Alameda whipsnake.

California Red-Legged Frog

While there is a limited possibility that the California red-legged frog could move into portions of the biological study area near Las Trampas Creek and San Ramon Creek, they are highly unlikely to move through these segments due to lack of suitable habitat and exit points along these segments are scarce or nonexistent. In addition, the land within 1-mile of the ROW is almost entirely urban, consisting of residential and commercial development, along with a number of heavily traveled roads. This development, which contains structural barriers, including, but not limited to, concrete road dividers, retaining walls, and residential fences, represents a major barrier to dispersal of California red-legged frog, separating the known occurrences from the biological study area. Additionally, because aquatic habitat does not exist within the biological study area, the California red-legged frog would not be attracted into the project area. The generally accepted maximum dispersal distance for the California red-legged frog is 1-mile, and the nearest records are approximately 2 miles from the biological study area. The lack of aquatic habitat, the amount of urban development and human activity surrounding the biological study area, and the distance and isolation of the biological study area from areas of suitable habitat where the California red-legged frog is known to occur make it highly unlikely that this species could occur within the project area.

Implementing the avoidance and minimization measures described below should eliminate potential impacts to the California red-legged frog in the biological study area. Caltrans is seeking a letter of concurrence from USFWS that the project is not likely to adversely affect the California red-legged frog.

White-Tailed Kite

Removal of trees within the biological study area may reduce potential roosting and nesting habitat for white-tailed kite and other nesting raptors within the biological study area. Additional temporary disturbances, such as noise during ground disturbance, vegetation removal, and construction, could potentially affect the white-tailed kite and other nesting raptors during the nesting and foraging activities.

2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures are specific to each special-status species. Additional measures may be added as a result of informal consultation with USFWS.

Alameda Whipsnake and California Red-Legged Frog

General construction best management practices and standard avoidance and minimization measures, described in Sections 2.3.3.4 and 2.4.9.2, will be implemented during construction,

and a Caltrans-approved biologist will conduct preconstruction training for contractors on the identification of special-status species and their protected status. Preconstruction surveys and periodic monitoring will be conducted to ensure general biological compliance.

Prior to construction, environmentally sensitive area fencing will be installed adjacent to the southbound side of I-680 at the northern limits of the work area from Rudgear Road south to the end of the biological study area to prevent the contractors from entering sensitive areas. The undeveloped habitat in this area is considered an Environmentally Sensitive Area, and all construction and potential staging areas will be limited in the Environmentally Sensitive Area to areas south of the exclusion fencing.

White-Tailed Kite

To ensure project activities do not result in a violation of the Migratory Bird Treaty Act, the project activities involving ground disturbance, removal or alteration of vegetation, tree trimming, operation of heavy machinery, effect pile driving, jackhammering, blasting, or elevated work will take place during the nonbreeding season (September 1 through February 14). If work commences outside of this timeframe, a Caltrans-approved biologist will conduct a preconstruction bird survey no more than 3 days prior to the start of construction. If an active nest is found during preconstruction surveys, the USFWS and California Department of Fish and Wildlife will be notified regarding the status of the nest. Construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or the Caltrans approved biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius established by USFWS and/or California Department of Fish and Wildlife) delineated by highly visible temporary construction fencing or alteration of the construction schedule.

Lastly, temporary construction site best management practices, such as isolation of work areas from flows, slope stabilization, and erosion control methods, will be used during construction and are further described in Section 2.4.9.2. These best management practices will prevent any construction debris, sediment, or toxins from entering San Ramon Creek and affecting any fish downstream of the project construction area.

2.3.5 Invasive Species

2.3.5.1 Regulatory Setting

On February 3, 1999, former President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the U.S. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem

whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999, directs the use of the State's invasive species list currently maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the NEPA analysis for a proposed project.

2.3.5.2 Affected Environment

This section summarizes findings of the *Natural Environment Study* (2013).

Plants in the project area include invasive species. The California Invasive Plant Council's Invasive Plant Inventory (<http://www.cal-ipc.org/ip/inventory/index.php>) lists plants categorized as having high, moderate, or low impacts based on their documented impacts, potential to spread, and the range of habitat they tolerate. Yellow star thistle is found in the project area.

2.3.5.3 Environmental Consequences

None of the identified species on the California list of noxious weeds is currently used by Caltrans for erosion control or landscaping; however, project construction activities could have the potential to inadvertently spread these species if they are present.

2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures

In compliance with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from FHWA, the landscaping and erosion control included in the project will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. The contractor will be required to use equipment that is cleaned and inspected for plant material prior to arrival and use at the project site.

2.4 Construction Phase Impacts

2.4.1 Construction Schedule, Work Hours, and Staging

Project construction is expected to take approximately 2 years. It is anticipated that the project would be constructed with minimum disruption to the traveling public and surrounding communities. The construction contract would be followed by a replacement planting contract that would require approximately 6 months to complete, and it would be followed by a 3-year plant establishment period.

As much work as possible would be done during daylight hours, but there would be some work in night-time hours to permit temporary closures for tasks that could interfere with mainline traffic or create safety hazards. Any required lane closures would be limited to non-peak travel periods. Examples of tasks requiring lane closures include placing and removing temporary construction barriers, connecting or conforming to ramps to the mainline or local streets, or paving operations and lane striping.

Some short-term closures (from a few hours to a few days) of existing interchange ramps may be necessary during construction of conforms between existing and new roadways, paving operations, and lane striping. Construction activities at the Rudgear Road and South Main Street on-ramps would be greatly facilitated by complete closures; the need for this will be investigated further in the design phase. Advance notice would be provided of ramp closures, and traffic would be detoured to the adjacent interchanges for these periods. To maintain traffic on I-680 and local streets, construction activities requiring traffic lane or ramp closures would not be permitted to occur simultaneously at adjacent interchanges.

At this time, it appears that no staging areas outside of the existing roadway ROW would be required. If offsite staging is required, the contractor would be expected to make arrangements and clear the locations environmentally.

Each construction stage would maintain all lanes of traffic on I-680 in each direction during peak periods, and all existing bicycle and pedestrian access would be maintained throughout the construction period, except during critical short-term construction activities requiring closure to perform construction or for safety reasons. Closures would require advance approval by the Resident Engineer and would be allowed only during periods of low traffic defined through traffic studies made during the design phase in support of the construction project.

Construction for the mainline widening would require two primary stages. Stage 1 would provide for outside widening and construction of the retaining walls and soundwalls, and it would involve closure of the outside shoulder. Once the outside widening construction is complete, traffic would be shifted to allow reconstruction of the median area to provide the

southbound HOV lane, paved median shoulders, new median barrier, and replacement drainage facilities. Soundwalls would be constructed as early as practicable to help mitigate construction noise.

2.4.2 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.4.2.1 Environmental Consequences

Potential impacts to vehicular and nonmotorized transportation include short-term temporary traffic, access interruptions, or traffic detours.

Approximately 1,300 feet of South Main Street would be restriped during project construction for a duration of 6 months to reconstruct a soundwall. The lanes would be shifted 2 to 3 feet towards the shoulder. There is currently no bicycle lane here. In addition, a segment of South Main Street would be realigned at the ramp intersection to facilitate widening of the South Main Street undercrossing bridge structure, requiring replacement of the existing sidewalk.

2.4.2.2 Avoidance, Minimization, and Mitigation Measures

A Traffic Management Plan will be prepared during the final design phase to address temporary impacts from staged construction, detours, and specific traffic handling concerns during project construction. Traffic service will be maintained by keeping all lanes open to traffic during peak periods, restricting temporary lane closures to off-peak or night-time periods, providing adequate detours, and avoiding simultaneous construction at adjacent interchanges. A temporary sidewalk will be constructed to maintain pedestrian access during the realignment of South Main Street.

2.4.3 Utilities/Emergency Services

2.4.3.1 Environmental Consequences

Caltrans would coordinate with all utility providers during the design phase of the project to incorporate effective design treatments and construction procedures to avoid adverse impacts to existing utilities and traffic during construction. Nonetheless, the potential exists during construction activities to encounter previously unknown utilities within the area of roadway improvements. In addition, utility relocations may require short-term, limited interruptions of service. No interference to existing utility services is anticipated during realignment of the overhead power transmission lines because PG&E would put customer loads on alternate lines until the connections are reestablished.

As stated in Section 2.4.1, project construction would be staged to maintain through traffic on I-680, although detours and limited short-term, temporary closures could be necessary on freeway ramps and other roadways in the project limits. These detours and closures could

interfere with emergency service providers; however, the impact can be minimized with the measures discussed below.

2.4.3.2 Avoidance, Minimization, and Mitigation Measures

If previously unknown underground utilities are encountered, the construction contractor will coordinate with the utility provider to develop plans to address the utility conflict, protect the utility if needed, and limit service interruptions. Any short-term, limited service interruptions of known utilities will be scheduled well in advance, and appropriate notification will be provided to users.

Caltrans will also coordinate with emergency service providers and through the public information program to avoid emergency service delays by ensuring that all providers are aware well in advance of road closures or detours. A Traffic Management Plan will also be developed as part of the project to address traffic impacts from staged construction, detours, and specific traffic handling concerns such as emergency access during project construction. To reduce temporary, construction-related impacts to area emergency services and facilities, emergency service providers will be provided advance notice of ramp closures and detour routes.

With implementation of these measures, access will be maintained for emergency response vehicles, and no disruption to existing emergency service access should occur.

2.4.4 Visual/Aesthetics

2.4.4.1 Environmental Consequences

Construction activities for the project would involve the use of a variety of construction equipment, stockpiling of soils and materials, and other visual signs of construction. While construction activity would be evident to motorists, to corridor residents and employees/employers at businesses in the project area, these visual changes would be short term. The construction contractor would be responsible to clear the worksite of any trash or debris created by construction workers or activities and to maintain the site in an orderly manner.

2.4.4.2 Avoidance, Minimization, and Mitigation Measures

No substantial adverse impacts are anticipated; therefore, no mitigation is necessary beyond best management practices.

2.4.5 Water Quality and Stormwater Runoff

2.4.5.1 Environmental Consequences

During construction, the proposed Build Alternative for the project has the potential for temporary water quality impacts due to grading and other construction activities. Stormwater

runoff from the project site may transport pollutants to nearby creeks and storm drains if best management practices are not properly implemented. In addition, fueling or maintenance of construction vehicles may occur within the project site during construction, so there is risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or surface water receiving bodies.

2.4.5.2 Avoidance, Minimization, and Mitigation Measures

Measures will be implemented to prevent any construction materials or debris from entering surface waters or channels within the project vicinity. Erosion control best management practices will be implemented prior to, during, and after construction to prevent silt and sediment from entering surface waters. There will be no construction work in environmentally sensitive areas. Best management practices will be incorporated into the contract documents of the project to reduce the discharge of pollutants temporarily, during construction, and permanently to the maximum extent practicable. Construction site best management practices will be implemented during construction activities to reduce pollutants in stormwater discharges throughout construction.

2.4.6 Hazardous Waste/Materials

2.4.6.1 Environmental Consequences

The potential exists for the release of hazardous materials that are used for construction operations and for encountering aeriaily deposited lead in median soils, groundwater, or at the edge of roadway paving.

2.4.6.2 Avoidance, Minimization, and Mitigation Measures

If construction encounters soil or groundwater contamination, all activities involving contaminated soil or groundwater will be planned to comply with the various regulatory agencies' requirements.

Material from structures that is removed or modified by the project will be handled and disposed of in accordance with all local, State, and federal requirements.

2.4.7 Air Quality

2.4.7.1 Environmental Consequences

Construction is a source of dust emissions that can have temporary impacts on local air quality (i.e., exceedances of the State air quality standards for respirable particulate matter). Construction emissions would result from earth moving and heavy equipment use for land clearing, ground excavation, cut and fill operations, and construction of the project facilities.

Dust emissions would vary from day to day depending on the level of activity, the specific operations, and the prevailing weather.

In addition to particulate emissions from earth moving, combustion emissions (i.e., carbon monoxide, nitrogen oxides, respirable particulate matter, and reactive organic gases) from construction equipment may create a temporary impact on local air quality. Such equipment is typically fueled with diesel and can contribute nitrogen oxide and respirable particulate matter emissions during the construction period.

Construction would involve the demolition and removal of portions of the South Main Street undercrossing bridge structure. Structures should be investigated for potential hazardous materials such as asbestos prior to construction. Based on a map of naturally occurring asbestos in California developed by the California Department of Conservation, Division of Mines and Geology (2000), the project location is not within a mapped area of naturally occurring asbestos. Emissions of asbestos from ground-clearing activities are not anticipated.

2.4.7.2 Avoidance, Minimization, and Compensation Measures

Construction impacts to air quality are temporary in nature; therefore, they will not result in long-term adverse conditions. Implementation of the following measures will reduce any air quality impacts resulting from construction activities:

- The construction contractor shall comply with Caltrans' Standard Specifications in Section 14 (2010).
 - Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
 - Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18. Water or dust palliative will be applied to the site and equipment as frequently as necessary to control fugitive dust emissions.
- Soil binder will be spread on any unpaved roads used for construction purposes and on all project construction parking areas.
- Trucks will be washed off as they leave the ROW as necessary to control fugitive dust emissions.
- Construction equipment and vehicles will be properly tuned and maintained. Low-sulfur fuel will be used in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.

- Equipment and materials storage sites will be located as far away from residential and park uses as practical. Construction areas will be kept clean and orderly.
- Construction activities involving extended idling of diesel equipment at sensitive land uses, such as residents and schools, will be prohibited.
- Track-out reduction measures, such as gravel pads at project access points, will be used to minimize dust and mud deposits on roads affected by construction traffic.
- All transported loads of soils and wet materials will be covered prior to transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to reduce respirable particulate matter and deposition of particulate matter during transportation.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be removed to decrease particulate matter.
- To the extent feasible, construction traffic will be routed and scheduled to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Mulch will be installed or vegetation will be planted as soon as practical after grading to reduce windblown particulate matter in the area.

As an additional measure, structures will be investigated for potential hazardous materials, such as asbestos, prior to construction.

Implementation of the above measures will reduce construction-related emissions to a less than substantial level.

2.4.8 Noise

2.4.8.1 Environmental Consequences

During the construction phases of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 2.4-1 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 80 to 89 A-weighted decibels at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of approximately 6 decibels per doubling of distance.

**Table 2.4-1
Construction Equipment Noise**

Equipment	Maximum Noise Level (A-weighted decibels at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2006.

Effective noise control during the construction of a project means minimizing noise disturbances to the surrounding community. A combination of abatement techniques with equipment noise control and administrative measures would be selected to provide the most effective means to minimize effects of the construction activity noise.

2.4.8.2 Avoidance, Minimization, and Compensation Measures

The following control measures will be implemented to minimize noise disturbances at sensitive receptors during periods of construction:

Equipment Noise Control

- Ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators, intact and operational. All construction equipment will be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding) (Caltrans, 1999). An internal combustion engine cannot be operated on the jobsite without the appropriate muffler
- Turn off idling equipment.

Administrative Measures

- Implement a construction noise monitoring program to limit the impacts.
- Plan noisier operations during times least sensitive to receptors.
- Keep noise levels relatively uniform and avoid impulsive noises.
- Maintain good public relations with the community to minimize objections to the unavoidable construction impacts. Provide frequent activity updates of all construction activities and notify adjacent residents in advance of construction work.
- Install acoustic barriers around stationary construction noise sources.

- During the construction period, the contractors will be required to comply with local noise ordinances, including Title 4, Chapter 6, of the Walnut Creek Municipal Code.

Application of the abatement measures will reduce construction noise at the sensitive receptors; however, a temporary increase in noise will likely occur.

2.4.9 Biological Resources

2.4.9.1 Environmental Consequences

Construction activities, such as land clearing, grading/excavation, and paving, and the installation of retention basins would temporarily impact 1.91 acres of ornamental landscaping, 0.53-acre of coastal oak woodland, 0.16-acre of annual grassland, and 0.95-acre of developed area, for a total of 3.55 acres.

2.4.9.2 Avoidance, Minimization, and/or Mitigation Measures

The following temporary construction site best management practices will be implemented to avoid and minimize impacts to all listed habitats and species:

- A speed limit of 15 mph will be established and enforced within the construction area (excludes the interstate) to reduce dust and excessive soil disturbance, which may adversely affect habitat areas in the vicinity.
- Construction access, staging, storage, and parking areas within the project ROW will be located outside of any designated Environmentally Sensitive Areas or outside of the ROW in areas that have been environmentally cleared and permitted by the contractor.
- Caltrans will install standard erosion control measures such as, but not limited to, silt fencing.
- Concrete wash areas and locations or stockpiles of debris or excavated material will be located so they do not drain directly into jurisdictional waterways.
- Access routes, storage areas, and contractor parking will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
- Any borrow or fill materials used for the project will be certified, to the maximum extent practicable, to be nontoxic and weed free.
- All food and food-related trash items will be kept in sealed trash containers and removed from the site at the end of each day.
- All pets are prohibited within the project footprint during the construction period.
- All firearms, except those carried by authorized security personnel, or local, state, or federal law enforcement officials, will be prohibited within the project area.

- All equipment will be maintained to prevent the leakage of vehicle fluids, such as gasoline, oils, or solvents into the work area. A Spill Response Plan will be developed to address potential spills of hazardous materials such as fuels, oils, and solvents. Additionally, any such materials will be stored in sealable containers in a designated location that is at least 50 feet from any aquatic habitats.
- Vegetation will be cleared only where necessary and will be cut above the soil level, except in areas where excavation for roadway construction is required. All removed desirable vegetation will be replaced in-kind as described in the Visual Impact Assessment.
- Plastic mono-filament netting (erosion control matting) will not be used for erosion control or other purposes in environmentally sensitive areas to prevent wildlife from becoming entangled or trapped in the netting.

Trees will only be removed if they are in the permanent or temporary disturbance footprint of the proposed project or otherwise present a safety hazard. Existing native vegetation will be preserved to the greatest extent feasible, and new landscaping will be planted within the ROW where feasible. Existing vegetation outside of areas to be graded will be protected during construction.

Invasive Species

The following measure will help to limit the spread of invasive weeds during and after project construction.

- **Implement revegetation and restoration measures required in the Storm Water Pollution Prevention Plan:** Once construction is complete, Caltrans will require the contractor to implement the measure set forth in the Storm Water Pollution Prevention Plan to revegetate and restore disturbed areas that will remain unpaved immediately after construction. The revegetation portion of the Storm Water Pollution Prevention Plan will require the use of certified weed-free native and nonnative mixes.

2.5 Cumulative Impacts

This section discusses the cumulative impacts of the planned growth and projects in the regional area and of specific projects near the I-680 Southbound HOV Gap Closure Project.

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 proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as 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. A definition of cumulative impacts, under NEPA, can be found in 40 *Code of Federal Regulations*, Section 1508.7 of the Council on Environmental Quality Regulations.

2.5.2 Cumulative Impact Analysis

The cumulative impacts analysis focuses on the resources that the project may affect. According to the Caltrans eight-step approach for developing a cumulative impact analysis, if the project would not result in impacts to a resource, it could not contribute to a cumulative impact. The proposed project would not cause direct or indirect impacts on any resource. All potential impacts will be minimized through the avoidance and minimization measures presented in Chapter 2. Because no resources have been identified as potentially significant, the proposed project would not result in cumulative impacts; therefore, no avoidance or minimization measures are required.

2.6 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gases generated by human activity, including carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, hydrofluorocarbons-23 (fluoroform), hydrofluorocarbons-134a (s, s, s, 2-tetrafluoroethane), and hydrofluorocarbons-152a (difluoroethane).

In the U.S., the main source of greenhouse gas emissions is electricity generation, followed by transportation. In California, however, transportation sources, including passenger cars, light-duty trucks, other trucks, buses, and motorcycles, make up the largest source, second to electricity generation, of greenhouse gas-emitting sources. The dominant greenhouse gas emitted is carbon dioxide, which is mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: "Greenhouse Gas Mitigation" and "Adaptation." "Greenhouse Gas Mitigation" is a term for reducing greenhouse gas emissions to reduce or "mitigate" the impacts of climate change. "Adaptation," refers to the effort of planning for and adapting to impacts resulting from climate change, such as adjusting transportation design standards to withstand more intense storms and higher sea levels.¹⁷

There are four primary strategies for reducing greenhouse gas emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity, (3) transitioning to lower greenhouse gas-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued collectively.¹⁸ The following Regulatory Setting section outlines State and federal efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

2.6.1 Regulatory Setting

2.6.1.1 State

With the passage of several pieces of legislation, including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with greenhouse gas emissions and climate change.

¹⁷ http://climatechange.transportation.org/ghg_mitigation/

¹⁸ http://www.fhwa.dot.gov/environment/climate_change/mitigation/

Assembly Bill 1493, Pavley. Vehicular Emissions: Greenhouse Gases, 2002: Requires the Air Resources Board to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order S-3-05 (June 1, 2005): The goal of this executive order is to reduce California's greenhouse gas emissions to (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32, Núñez and Pavley, The Global Warming Solutions Act of 2006: Assembly Bill 32 sets the same overall greenhouse gas emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that the Air Resources Board create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020.

Senate Bill 97 Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research to develop recommended amendments to the CEQA Guidelines for addressing greenhouse gas emissions. The amendments became effective on March 18, 2010.

Senate Bill 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization for each region must then develop a "Sustainable Communities Strategy" that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill 32.

2.6.1.2 Federal

Although climate change and greenhouse gas reduction is a concern at the federal level; currently no regulations or legislation have been enacted specifically addressing greenhouse

gas emissions reductions and climate change at the project level. Neither EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis¹⁹. FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision making and improve efficiency at the program level, and it will inform the analysis and stewardship needs of project-level decision making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by FHWA to lessen climate change impacts correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the “National Clean Car Program” and Executive Order 13514 – *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 (October 5, 2009) is focused on reducing greenhouse gases internally in federal agency missions, programs, and operations, and it also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

EPA’s authority to regulate greenhouse gas emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that greenhouse gases meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court’s ruling, EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court’s interpretation of the existing Act and EPA’s assessment of the scientific evidence that form the basis for EPA’s regulatory actions. EPA, in conjunction with the National Highway Traffic Safety Administration, issued the first of a

¹⁹ To date, no national standards have been established regarding mobile source greenhouse gases, nor has EPA established any ambient standards, criteria or thresholds for greenhouse gases resulting from mobile sources.

series of greenhouse gas emission standards for new cars and light-duty vehicles in April 2010.²⁰

EPA and the National Highway Traffic Safety Administration are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced greenhouse gas emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever greenhouse gas regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle greenhouse gas regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce greenhouse gas emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, EPA and the National Highway Traffic Safety Administration issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards, this program is projected to save approximately 4 billion barrels of oil and 2 billion metric tons of greenhouse gas emissions.

The complementary EPA and National Highway Traffic Safety Administration standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce carbon dioxide emissions by approximately 270 million metric tons and save approximately 530 million barrels of oil over the life of model year 2014 to 2018 heavy-duty vehicles.

2.6.2 Project Analysis

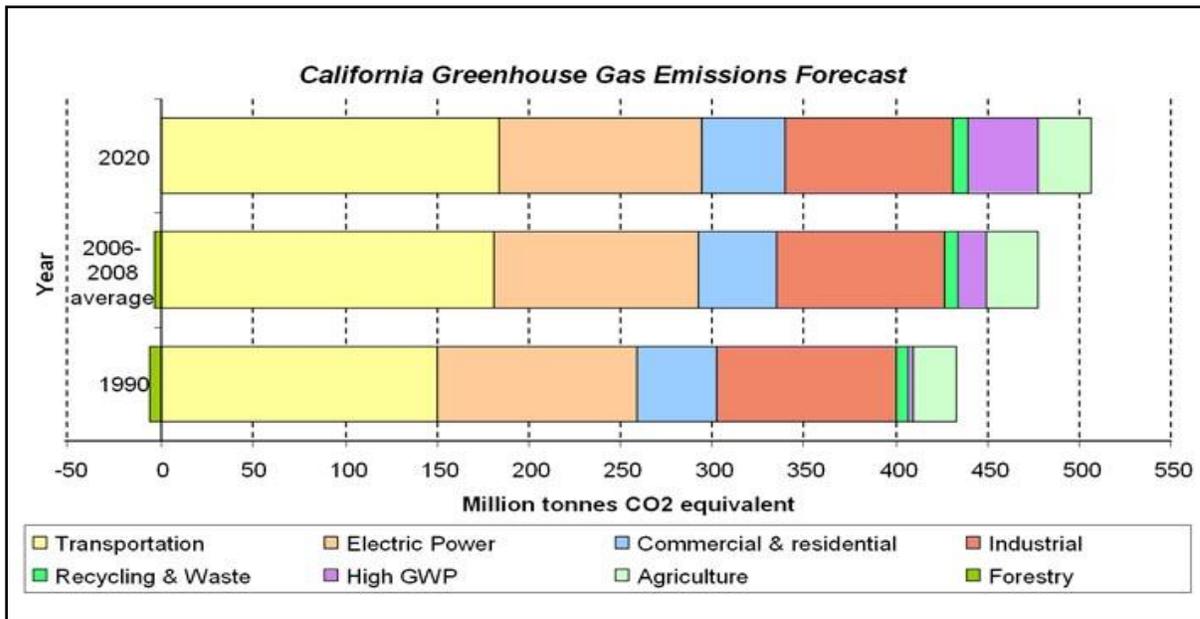
An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of greenhouse gas.²¹ In

²⁰ <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>

²¹ This approach is supported by the Association of Environmental Professionals: *Recommendations by the Association of Environmental Professionals on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management

assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The Assembly Bill 32 Scoping Plan mandated by Assembly Bill 32 contains the main strategies California will use to reduce greenhouse gas emissions. As part of its supporting documentation for the Draft Scoping Plan, the Air Resources Board released the greenhouse gas inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the greenhouse gas inventory for 2006, 2007, and 2008.



Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>.

Figure 2.6-1: California Greenhouse Gas Forecast

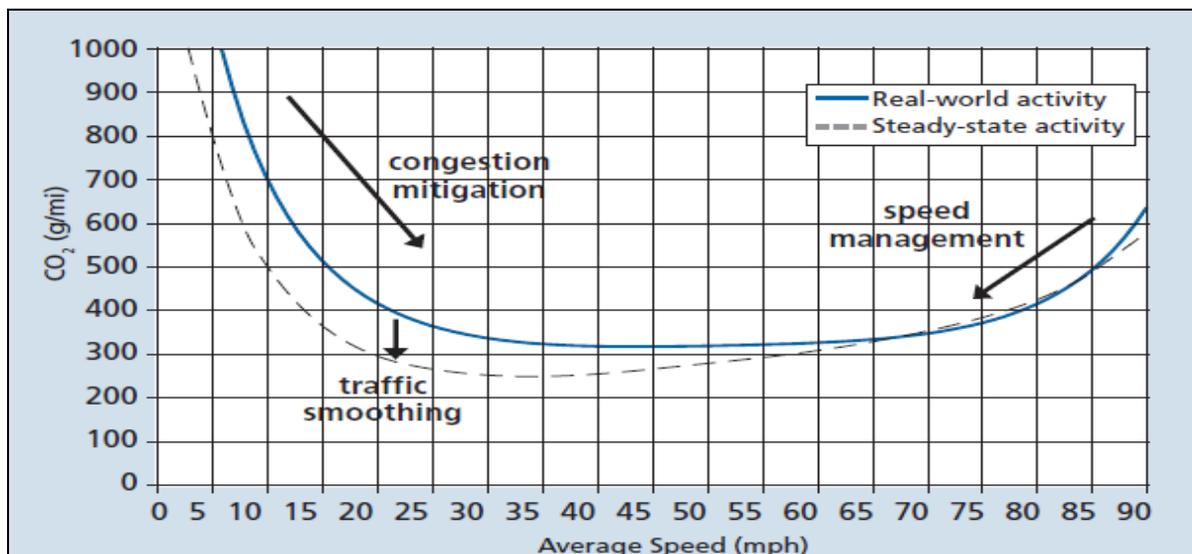
Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California’s greenhouse gas emissions are from the burning of fossil fuels and

District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

40 percent of all human-made greenhouse gas emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.²²

Congestion-Relief Projects

One of the main strategies in Caltrans Climate Action Program to reduce greenhouse gas 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 (zero to 25 mph) and speeds over 55 mph; the most severe emissions occur from zero to 25 mph (see Figure 2.6-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, greenhouse gas emissions, particularly carbon dioxide, may be reduced.



Source: *Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)* <<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>>

Figure 2.6-2: Possible Effect of Traffic Operation Strategies in Reducing On-Road Carbon Dioxide Emission

This project focuses on improving traffic operations on southbound I-680. Current traffic operations are limited through the study area due to the lack of a continuous HOV lane, which contributes to long queues on southbound I-680. The project would improve traffic operations at congested sections and ramp locations, reducing or avoiding traffic queues that currently impact I-680 operations between Livorna Road and Geary Road. The Traffic Operations Analysis Report for this project estimates an increase in the number of vehicle

²² Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

miles traveled on the freeway through the project area (7 to 9 percent, depending on morning or afternoon peak travel period) but an overall reduction in total HOV travel time of 54 to 66 percent, and reductions in person delay time of 12 to 13 percent (Traffic Operations Analysis Report, 2013). Reductions in delays would also reduce emissions of pollutants, including carbon dioxide. The project is also included in the 2011 Regional Transportation Plan and Transportation Improvement Program, which contain adopted strategies for greenhouse gas emissions from transportation sources. Lastly, the project design would improve reliability of transit service through the study area, further encouraging carpooling and vanpooling.

To evaluate potential greenhouse gas impacts of the proposed project, future conditions with and without the project were modeled using the EMFAC11 air pollutant emissions prediction model. Table 2.6-1 demonstrates the potential influence of changes in vehicle miles traveled and average travel speed within the project study area on peak-period carbon dioxide emissions within that area. The EMFAC2011 model considers carbon dioxide emissions both with and without the implementation of Phase I of the California Pavley regulations and the state’s Low Carbon Fuel Standard. Furthermore, the relevant current regional planning process – Plan Bay Area (Association of Bay Area Governments & Metropolitan Transportation Commission, 2013a and 2013b) – either includes or excludes carbon dioxide emission reductions from Pavley Phase I and Low Carbon Fuel Standards depending on the analytical context. Accordingly, Table 2.6-1 considers both of these regulatory scenarios.

Table 2.6-1 Predicted Carbon Dioxide Future Running Exhaust Emissions from Motor Vehicles Traveling within the Project Study Area

Roadway Category	Predicted Emissions (metric tons per day) ^{a,b}					
	Without Pavley I + Low Carbon Fuel Standard			With Pavley I + Low Carbon Fuel Standard		
	No Project	With Project	Change	No Project	With Project	Change
Freeway	2,621	2,632	+11	2,286	2,294	+8
Surface Streets	1,707	1,685	-22	1,486	1,469	-17
Overall	4,328	4,317	-11	3,772	3,763	-9

Abbreviations: Pavley I – A California clean-car standard to reduce greenhouse gas emissions from new passenger vehicles (LDA-MDV) from 2009 through 2016; Low Carbon Fuel Standard: A California fuel standard that requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.

Notes:

^a Speed-range-segregated predicted vehicle miles traveled data were available for 2040 but not Opening Year (2016) scenarios. Composite emission factors (fleet-mix-weighted emission rates per vehicle per mile) are expected to continue to decrease in the future as earlier-model-year, less-carbon-efficient vehicles are replaced by later-model-year, more-carbon-efficient vehicles. To assure a conservative analysis, the 2040 vehicle miles traveled data were used in conjunction with emission factors based on a county-specific fleet mix

for Opening Year (2016) conditions.

^b Predicted emission values are reported to a precision of 1 metric ton per day. While the traffic inputs and modeling methodology do not allow for accuracy to 1 metric ton per day, this level of precision was used to allow the signs (positive or negative) of the changes in predicted emissions to be discerned even where the magnitude of those changes is expected to be very small.

Sources: Parsons, 2013; Air Resources Board, 2011c, 2013f, 2013g; Barrios, 2012b

Table 2.6-1 focuses on carbon dioxide emissions. The carbon dioxide emissions values presented in Table 2.6-1 are only useful for a comparison between build and no build alternatives. The estimated emission values are not necessarily an accurate reflection of what the true carbon dioxide emissions will be because carbon dioxide emissions are dependent on other factors that are not part of the model, such as the fuel mix, rate of acceleration, and the aerodynamics and efficiency of the vehicles. However, the general trend shown in Table 2.6-1 – slight decreases in carbon dioxide emissions – is consistent with the pattern of estimated differences in average speeds and vehicle miles traveled applied as inputs to the emissions analyses.

2.6.3 Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Measures to reduce construction emissions are listed in Section 2.4.7 and include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

CEQA Conclusion

While the build alternative would result in a slight increase in greenhouse gas emissions during construction, it is anticipated that any increase in greenhouse gas emissions would be offset by the reduction of greenhouse gas emissions from the operational improvements of the build alternative. Measures to help reduce greenhouse gas emissions are outlined in the following section.

2.6.4 Greenhouse Gas Reduction Strategies

2.6.4.1 Assembly Bill 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as the Air Resources Board works to implement Executive Order S-3-05 and Executive Order S-01-07 and help achieve the targets set forth in Assembly Bill 32. Many of the strategies Caltrans is using to help meet the targets in Assembly Bill 32 come from former Governor Arnold Schwarzenegger's California Strategic Growth Plan. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in greenhouse gas emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain carbon dioxide reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 2.6-3.



Figure 2.6-3: Mobility Pyramid

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 works closely with local jurisdictions on planning activities but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light- and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that control of the fuel economy standards is held by the EPA and Air Resources Board.

Caltrans is also working towards enhancing the State’s transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill 375 (Steinberg 2008), Senate Bill 391(Liu 2009) requires the State’s long-range transportation plan to meet California’s climate change goals under Assembly Bill 32.

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. The California Transportation Plan defines performance-based goals, policies, and strategies to achieve our collective vision for California’s future, statewide, integrated, multimodal transportation system.

The purpose of the California Transportation Plan is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the California Transportation Plan 2040 will identify the statewide transportation system needed to achieve maximum feasible greenhouse gas emission reductions while meeting the State’s transportation needs.

Table 2.6-2 summarizes the Departmental and statewide efforts that Caltrans is implementing to reduce greenhouse gas emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

**Table 2.6-2
Climate Change/Carbon Dioxide Reduction Strategies**

Strategy	Program	Partnership		Method/ Process	Estimated Carbon Dioxide Savings (million metric tons)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies and other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8

**Table 2.6-2
Climate Change/Carbon Dioxide Reduction Strategies**

Strategy	Program	Partnership		Method/ Process	Estimated Carbon Dioxide Savings (million metric tons)	
		Lead	Agency		2010	2020
Operational Improvements & Intelligent Transportation System Deployment	Strategic Growth Plan	Caltrans	Regions	State Intelligent Transportation System; Congestion Management Plan	0.07	2.17
Mainstream Energy & Greenhouse Gas into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, California EPA, Air Resources Board, California Energy Commission		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	California Environmental Protection Agency, Air Resources Board, Business Transportation and Housing Agency, Metropolitan Planning Organizations		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Climate Change (June 22, 2012) is intended to establish a Caltrans policy that will ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)²³ provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

To the extent that it is applicable or feasible for the project and through coordination with the Project Development Team, the following measures will be included in the project to reduce the greenhouse gas emissions and potential climate change impacts from the project:

1. Caltrans and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems to help manage the efficiency of the existing highway system. Intelligent transportation systems are commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
2. I-680 is part of the Bay Area HOV lane network, and the Metropolitan Transportation Commission and other agencies actively encourage ridesharing (e.g., the “511.org” ridesharing information link provides resources for ride sharing and trip planning). Ridesharing, or carpooling, reduces vehicle trips and their associated emissions.
3. Landscaping reduces surface warming, and through photosynthesis, decreases carbon dioxide. The project will include landscaping, as described in Section 2.1.4. The landscaping will help to offset potential carbon dioxide emissions.
4. The project will utilize energy-efficient lighting, which will be defined during final design.

2.6.5 Adaptation Strategies

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the State’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

²³ http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality, the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, released its interagency task force progress report on October 28, 2011²⁴, outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision makers manage climate risks. Climate change adaptation must also involve the natural environment. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, former Governor Arnold Schwarzenegger signed Executive Order S-13-08, which directed many state agencies to address California's vulnerability to sea level rise caused by climate change. This executive order set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, State, and federal public and private entities to develop The California Climate Adaptation Strategy (December 2009),²⁵ which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across State agencies to promote resiliency.

The strategy outline is in direct response to Executive Order S-13-08, which specifically asked the Resources Agency to identify how State agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other State agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the State's adaptation strategy will be updated to reflect current findings.

²⁴ <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

²⁵ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report²⁶ to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon, and Washington, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (e.g., roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team, as well as Caltrans, as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, the Coastal Ocean Climate Action Team updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge, and storm wave data.

All projects that have filed a Notice of Preparation as of the date of issuance of Executive Order S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. A Notice of Preparation was not required for this project. The proposed project is outside the coastal zone, and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

²⁶ *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects; however, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able to review its current design standards to determine what changes, if any, may be warranted to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to Executive Order S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

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Chapter 3 **Comments and Coordination**

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team meetings, interagency coordination meetings, and public information meetings. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination. Copies of agency correspondence are included in Appendix G.

3.1 Agency Consultation

This section summarizes the results of contact and consultation with other public agencies during project development. These include specific consultation with federal, State, and local agencies listed below. Copies of written consultation with agencies are included in Appendix G unless otherwise noted.

3.1.1 U.S. Fish and Wildlife Service

Caltrans is in the process of conducting informal consultation with USFWS. USFWS reviews projects consistent with Section 7 of the Federal Endangered Species Act, focusing on identified or potential impacts to protected plant and wildlife species. Consultation with USFWS is also required under the Federal Fish and Wildlife Coordination Act for any impacts to a stream or water body. Coordination on this project began with a request for, and review of, any information on endangered and threatened species in the project region. Caltrans subsequently requested informal consultation on the Alameda whipsnake and California red-legged frog.

3.1.2 U.S. Army Corps of Engineers

Any filling of wetlands or impacts to the waters of the U.S. or navigable waters requires permit review and approval by the U.S. Army Corps of Engineers consistent with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. No impacts to wetlands or other waters of the U.S. have been identified. The Wetland Delineation Study was submitted to the U.S. Army Corps of Engineers for their review and verification in August 2013.

3.1.3 State Historic Preservation Office

Federally funded transportation projects must follow FHWA and Caltrans procedures for historic preservation. A programmatic agreement for compliance with Section 106 of the National Historic Preservation Act would apply to this project. One resource was identified as being previously found eligible for the National Register of Historic Places, the Contra Costa Canal. The canal would not be affected by any proposed project activities because no portion of the canal would be modified during the project. Caltrans sought concurrence with the findings that there are no other eligible properties in the area of potential effects. Concurrence from the State Historic Preservation Officer on these findings was received on August 7, 2013.

3.1.4 National Marine Fisheries Service

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service is responsible for the status of fish stocks, ensures compliance with fisheries regulations, and recovers protected marine species. Any impacts to marine wildlife require review and approval by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service. A No Effects Determination was submitted to the National Oceanic and Atmospheric Administration's National Marine Fisheries Service for their concurrence. This document analyzes the potential effects a project would have on fish stocks. If concurrence is granted, there would be no effects on fish stocks due to the proposed project. Concurrence on the No Effects Determination by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service was received on August 10, 2011.

3.1.5 State Water Resources Control Board

Projects that disturb 1-acre or more of land must obtain coverage under the statewide Construction General Permit (State Water Resources Control Board Order No. 2009-0009-DWQ, amended by 2010-0014-DWQ and 2012-0006-DWQ). To obtain coverage, a Notice of Intent and a Storm Water Pollution Prevention Plan will be filed with the State Water Resources Control Board prior to construction.

3.2 Public Participation

3.2.1 Early Informational Meetings

CCTA conducted several early informational meetings with local transportation planning entities and civic groups throughout the study area for the I-680 Southbound HOV Gap Closure Project. The first was a meeting with the Southwest Area Transportation Committee in Orinda City Offices, 22 Orinda Way, Orinda, on July 11, 2011. On August 2, 2011, at Hap Magee Ranch Park, 1025 La Gonda Way, Alamo, a regular session meeting was held with the Alamo

Municipal Advisory Council. CCTA made a public presentation for the Walnut Creek City Council on September 15, 2011, at Walnut Creek City Hall, 1666 North Main Street, Walnut Creek. Lastly, a meeting with Transportation Partnership and Cooperation was held on October 13, 2011, at Pleasant Hill City Hall Community Room, 100 Gregory Lane, Pleasant Hill.

A PowerPoint presentation was given at all of the aforementioned meetings. The presentation summarized the project and the alternatives, the anticipated environmental technical studies to be completed, and environmental considerations, funding sources, project timeline, and public and agency input opportunities.

3.2.2 Community Meeting

The first community meeting, held on May 31, 2012, at Parkmead Elementary School in Walnut Creek, was attended by approximately 45 people representing a cross section of residents, community organizations, and elected officials, including a staff member representing California Assembly Member Joan Buchanan and Walnut Creek City Council Member Cindy Silva.

The purpose of the meeting was to identify community concerns and questions about the proposed project. CCTA Program Manager Susan Miller, Consultant Project Manager Conrad Kim Franchi of Parsons, and Ivy Morrison of Circle Point made presentations. Representatives from Caltrans (District 4, Oakland) were also present as project partners.

The presentation included an overview of the proposed project, alternatives considered for the project area, project funding and timeline, input opportunities for the public, and input from city and transportation planning entities. The presentation also highlighted visual impact assessments and environmental studies that will be conducted as part of the environmental review process.

Following the presentation, a question and comment session with the project team was provided. Although answers were provided to some of the questions, the purpose of the comment and question sessions was primarily to identify key issues and concerns of community members, which may be addressed in the technical studies and environmental documentation. Many of the questions and concerns raised about environmental topics related to Las Trampas Creek (Walnut Creek) wildlife habitat and flood control during construction.

3.2.3 Public Meeting

The project team will provide an open house meeting with the release of the draft environmental document. It will be held on Wednesday, October 30, 2013 at Parkmead Elementary School (Multi-Purpose Room), 1920 Magnolia Way, Walnut Creek, CA 94595

from 6:30 p.m. to 8:30 p.m. Caltrans and CCTA staff will be present to discuss the proposed project's design features and environmental aspects, and to answer questions. Notification will be sent out in advance of the meeting to all residents and businesses within a half-mile of I-680.

Chapter 4 List of Preparers

This document and its related technical studies were prepared under the supervision of Caltrans District 4. The Project Development Team was responsible for oversight of the project and consists of representatives from Caltrans, CCTA, and the Parsons team.

Key Project Development Team Members

- Yadollah (Hamid) Fathollahi, Project Manager, Caltrans District 4
- Sotero Angeles, Design, Caltrans District 4
- George Acquaye, Design, Caltrans District 4
- Barbara Herczeg, Design, Caltrans District 4
- Phil Cox, Traffic Forecasting, Caltrans District 4
- Ray Ovaici, Traffic Systems, Caltrans District 4
- Joseph Peterson, Hydraulics, Caltrans District 4
- Sharon Patch, Hydraulics, Caltrans District 4
- Cristin Hallissy, Environmental Analysis, Caltrans District 4
- Michele Bellows, Program Manager, NV5/CCTA
- Leo Scott, Program Manager, Gray-Bowen/CCTA
- Kim Franchi, Project Manager, Parsons
- John Kenyon, Deputy Project Manager, Parsons
- Greg King, Environmental Manager, Parsons
- Ivy Morrison, Public Outreach Manager, Circlepoint

Individuals Involved in Caltrans Oversight of the Environmental Studies

- Douglas Bright, Historic and Architectural Resources
- Elizabeth Greene, Historic and Architectural Resources
- Sean Poirier, Draft Initial Study/Environmental Assessment
- Christopher States, Natural Resources Studies
- Sandee Hufana, Natural Resources Studies
- Azadeh Faghihi, Natural Resources Studies
- Elizabeth McKee, Archaeology, Historic Resources
- Kathryn Rose, Archaeology
- Bryan Walker, Visual Impact Assessment
- Thomas Packard, Visual Impact Assessment
- Glenn Kinoshita, Noise and Air Quality Studies
- Ofer Brender, Traffic Operations Analysis Report
- Anna Sojourner, Geotechnical Report
- Brian J. Rowley, Water Quality Studies

Individuals Involved in Technical Studies and Environmental Document Preparation

The following key consulting team staff members were responsible for preparation of the environmental technical studies and the environmental document:

Parsons

Greg King, Environmental Manager. M.A. Public Historic Studies, University of California, Santa Barbara. 33 years of environmental experience. Contribution: Environmental and document project manager.

Laura Prickett, Environmental Manager. Masters in Community Planning, University of Rhode Island. 17 years of experience in water quality issues and environmental management. Contribution: Environmental document oversight and Air Quality Conformity Analysis.

Jennifer Cardamone, Environmental Planner. B.A. Environmental Studies, University of Southern California. 2 years of CEQA/NEPA experience. Contribution: Environmental document preparation.

Elvira Gaddi, Principle Project Manager. M.S. Chemical Engineering, University of Idaho. 32 years of experience in environmental compliance, planning, engineering and management. Contribution: Air Quality Section.

Michael Weber, Senior Noise and Air Quality Specialist. B.A. Mechanical Engineering, University of California, Davis. 25 years of experience. Contribution: Air Quality Conformity Analysis.

Thanh T. Luc, Engineering Manager, Noise and Vibration. B.S. Mechanical Engineering, California State Polytechnic University, Pomona. 23 years of experience in noise and vibration impact assessments. Contribution: Prepared/Reviewed Noise Study Report and Noise Abatement Decision Report.

Bryan Jarjoura, Noise Control Specialist. M.S. Mechanical Engineering, University of Southern California. 5 years of experience in noise impact assessments. Contribution: Noise Study Report.

Jeffrey Lormand, Landscape Architect. M.L.A Landscape Architecture, University of Arizona. 29 years of landscape architecture experience. Contribution: Visual Impact Assessment.

Elizabeth Koos, Technical Editor. 26 years of word processing and editing experience. Contribution: Technical editor of the environmental document.

Cardno ENTRIX

Kate Kissinger, Senior Consultant. B.A. Cultural Anthropology, University of Massachusetts. 11 years of NEPA/CEQA and permitting experience. Contribution: Oversight of Natural Resources Studies.

Gretchen Lebednik, Senior Project Scientist/Vegetation Ecologist. M.S. Botany, University of Washington. 20 years of experience in natural resource permitting. Contribution: Wetland Delineation Report, No Effect Determination, and Natural Environment Study.

Sam Bacchini, Senior Project Scientist. B.A. Zoology, University of California, Davis. 19 years of experience in biology and environmental consulting. Contribution: Natural Environment Study.

Michele Lee, Project Scientist/Botanist/Ecologist. M.S. Wildland Resource Science, University of California, Berkeley. 15 years of experience in biological resources consulting. Contribution: Natural Environment Study.

Rhiannon KlingonSmith, Wildlife Biologist. B.S. Wildlife Biology and Conservation, Humboldt State University. 10 years of experience as a wildlife biologist and botanist. Contribution: Natural Environment Study.

Danica Schaffer-Smith, Senior Staff Biologist. M.S. Environmental Science and Management, University of California, Santa Barbara. 6 years of experience in biological resources consulting. Contribution: Natural Environment Study and Tree Inventory Report.

Circlepoint

Ivy Morrison, Senior Project Manager. M.F.A. Nonfiction Writing, Columbia University. 23 years of public outreach experience. Contribution: Responsible for community meeting planning/organization and notification.

Fehr & Peers

Julie Morgan, Principal. M.S. Transportation Engineering, University of California, Berkeley. 17 years of experience in traffic and transportation engineering. Contribution: Traffic Study and Report.

Eddie Barrios, Senior Associate. M.S. Civil Engineering, University of California, Berkeley. 16 years of experience in traffic and transportation engineering. Contribution: Traffic Study and Report.

Pacific Legacy

John Holson, Principal. M.A. Cultural Resources Management, Sonoma State University. 32 years of experience in California archaeology. Contribution: Historic Properties Survey Report, Archaeological Survey Report, and Historical Resources Evaluation Report.

Hannah Ballard, Senior Archaeologist. M.A. Cultural Resources Management, Sonoma State University. 16 years of experience in California archaeology. Contribution: Archaeological Survey Report.

Katherine Chao, Project Archaeologist. B.A. Cultural Anthropology, University of California, San Diego. 5 years of experience in California archaeology. Contribution: Archaeological Survey Report.

Sandra Ledebuhr, Cultural Resources Specialist. B.A. Cultural Anthropology, Sonoma State University. 4 years of experience in California archaeology. Contribution: Archaeological Survey Report.

Lisa Holm, Project Archaeologist. Ph.D. Cultural Anthropology, University of California, Berkeley. 14 years of experience in California archaeology. Contribution: Archaeological Survey Report.

Starla Lane, Archaeologist. B.A. Cultural Anthropology, California State University, Chico. 10 years of experience in California archaeology. Contribution: Archaeological Survey Report.

Daniel Trout, Project Archaeologist. B.A. Cultural Anthropology, University of California, Berkeley. 15 years of experience in California archaeology. Contribution: Archaeological Survey Report.

Allison Vanderslice, Architectural Historian. M.A. Cultural Resources Management, Sonoma State University. 12 years of experience in evaluating historic properties and cultural resources in California. Contribution: Historic Resources Evaluation Report.

Parikh Consultants

Gary Parikh, Principal. M.A. Geotechnical Engineering, University of California, Berkeley. 40 years of geotechnical engineering experience. Contribution: Preliminary Geotechnical Report.

Lam Tran-Cruz, Senior Project Engineer. M.S. Geotechnical Engineering, San Jose State University. 7 years of geotechnical engineering experience. Contribution: Preliminary Geotechnical Report.

Towill

Sean Fitzpatrick, Project Manager. B.S. Public Administration, University of Southern California. 20 years of aerial mapping and land surveying experience. Contribution: Aerial mapping and control services, land surveying and mapping, and pavement surveys.

WRECO

Chris Sewell, Senior Associate. B.A.S. Civil and Environmental Engineering, University of British Columbia. 13 years of experience in drainage, water supply issues, and hydraulic modeling. Contribution: Location Hydraulic Study, Water Quality Study, Storm Water Data Report, and Hydromodification Report.

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Chapter 5 **Distribution List**

The following 69 agencies, organizations, and individuals received printed or electronic copies of this document. Organizations, businesses, and individuals on the project mailing list, which included 4,500 addresses, were notified of the availability of this document and public meetings as described in Chapter 3.

Federal Agencies

Federal Highway Administration
650 Capitol Mall
Sacramento, CA 95814

National Marine Fisheries Service
Bay Area Office
777 Sonoma Avenue, Room 325
Santa Rosa, CA 94502

U.S. Army Corps of Engineers
Regulatory Branch
San Francisco District
Attention: CESPN-CO-R
1455 Market Street, #16
San Francisco, CA 94103

U.S. Department of Agriculture
Natural Resources Conservation Service
430 G Street, #4164
Davis, CA 95616

U.S. Environmental Protection Agency,
Region 9
75 Hawthorne Street
San Francisco, CA 94105-1839

U.S. Fish and Wildlife Service
U.S. Department of Interior
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

State Agencies

Executive Director
Office of Planning and Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

California Department of Conservation*
801 K Street, MS 24-01
Sacramento, CA 95814

California Department of Fish and Wildlife
Fisheries, Wildlife, and Environmental
Programs
P.O. Box 47
Yountville, CA 94599

Office of Historic Preservation*
1725 23rd Street, #100
Sacramento, CA 95816

California Department of Parks and
Recreation*
Resources Management Division
P.O. Box 942896
Sacramento, CA 94296

* Agency received document through State Clearinghouse

California Department of Water Resources*
Reclamation Board
1416 Ninth Street, Room 1601
Sacramento, CA 95814

California Department of Water Resources*
Environmental Services Office
3251 S Street, Room 111
Sacramento, CA 95816

California Highway Patrol*
Office of Special Projects
2555 1st Avenue
Sacramento, CA 95818

California Resources Agency*
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

California Department of General Services*
Environmental Services Section
1325 J Street, Suite 1910
Sacramento, CA 95814

California Air Resources Board*
Transportation Projects
1102 Q Street
Sacramento, CA 95812

Commission Chair
California Transportation Commission
1120 N Street, Room 2221 – MS-52
Sacramento, CA 95814

Integrated Waste Management Board
P.O. Box 4025
Sacramento, CA 95812

California State Water Resources Control Board*
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812

California Department of Toxic Substances Control*
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

California Energy Commission
1516 Ninth Street, MS-29
Sacramento, CA 95814

Native American Heritage Commission*
915 Capitol Mall, Room 364
Sacramento, CA 95814

Public Utilities Commission*
505 Van Ness Avenue
San Francisco, CA 94102

California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825

Regional

Executive Office, Bruce Wolfe*
Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Executive Director, Ezra Rapport
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Oakland, CA 94604

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Executive Director, Steve Heminger
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Executive Officer Jack Broadbent
Bay Area Air Quality Management
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East Bay Regional Park District
Planning and Stewardship
2950 Peralta Oaks Court, Box 5381
Oakland, CA 94605-0381

Contra Costa County
Department of Conservation and
Development
651 Pine Street, 4th Floor
Martinez, CA 94553

Contra Costa County
Department of Public Works
651 Glacier Drive
Martinez, CA 94553

East Bay Municipal Utility District
375 11th Street
Oakland, CA 94607

Contra Costa Water District
Planning, Engineering, & Construction
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Central Contra Costa Sanitary District
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Bay Area Rapid Transit District
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Oakland CA 94604-2688

Pacific Gas & Electric
Environmental Coordinator
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Allied Waste Services
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Matt Rinn
President
Pleasant Hill Chamber of Commerce
91 Gregory Land, Suite 11
Pleasant Hill, CA 94523

Alamo Municipal Advisory Council
120-B Alamo Plaza
Alamo, CA 94507

Federal Elected Officials

The Honorable Barbara Boxer
United States Senate
1700 Montgomery Street, Suite 240
San Francisco, CA 94111

The Honorable Dianne Feinstein
United States Senate
One Post Street, Suite 2450
San Francisco, CA 94104

The Honorable George Miller
U.S. House of Representatives
1333 Willow Pass Road, Suite 203
Concord, CA 94520

State Elected Officials

The Honorable Mark DeSaulnier
California State Senate
1350 Treat Boulevard, Suite 210
Walnut Creek, CA 94597

The Honorable Susan Bonilla
California State Assembly
2151 Salvio Street, Suite 395
Concord, CA 94520

The Honorable Joan Buchanan
California State Assembly
2694 Bishop Drive, Suite 275
San Ramon, CA 94583

Local Elected Officials

Supervisor John Gioia
Board of Supervisors,
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El Cerrito, CA 94530

Supervisor Candace Andersen
Board of Supervisors,
Contra Costa County District 2
3338 Mt. Diablo Boulevard
Lafayette, CA 94549

Mary Nejedly Piepho
Board of Supervisors,
Contra Costa County District 3
3361 Walnut Boulevard, Suite 140
Brentwood, CA 94513

Supervisor Karen Mitchoff
Board of Supervisors,
Contra Costa County District 4
2151 Salvio Street, Suite R
Concord, CA 94520

Federal D. Glover
Board of Supervisors,
Contra Costa County District 5
315 East Leland Road
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1666 North Main Street
Walnut Creek, CA 94596

Mayor Pro Tem Kristina Lawson
Walnut Creek City Council
1666 North Main Street
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Chapter 6 References

Association of Bay Area Governments and Metropolitan Transportation Commission. 2013a. *Draft Plan Bay Area*. March.

Association of Bay Area Governments & Metropolitan Transportation Commission. 2013b. *Draft Environmental Impact Report: Plan Bay Area*. April.

Bay Area Air Quality Management District. 2012. California Environmental Quality Act – Air Quality Guidelines. May.

Bay Area Air Quality Management District. 2013. Accessed on February 7, 2013. URL: <http://www.baaqmd.gov/Divisions/Communications-and-Outreach/Air-Quality-in-the-Bay-Area/Bay-Area-Climatology/Largescale-Influences/Topography.aspx>.

Bay Area Air Quality Management District. 2013. “Air Quality Standards and Attainment Status,” Accessed January 9, 2013. URL: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm.

California Air Resources Board. 2009. State and Local Air Monitoring Network Plan, June. URL: http://www.arb.ca.gov/adam/netrpt/report_2009.pdf.

California Air Resources Board. 2011. “Database: California Air Quality Data – Selected Data Available for Download,” reviewed through July 18. URL: <http://www.arb.ca.gov/aqd/aqcd/aqcdlld.htm>.

California Air Resources Board. 2013. “iADAM: Air Quality Data Statistics,” accessed January 28. URL: <http://www.arb.ca.gov/adam/>.

California Department of Conservation. 2000. A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos. Division of Mines and Geology. August.

California Environmental Protection Agency, Air Resources Board. Greenhouse Gas Inventory – 2020 Emissions Forecast. April 6, 2012. URL: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>.

Caltrans. 2006. Climate Action Program. December.

Caltrans. 2006. Highway Design Manual, Chapter 1100 Highway Traffic Noise.

- Caltrans. 2011. Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects. May. Sacramento, CA.
- Caltrans. 2012. IS/EA Annotated Outline. Last updated August 2013.
- City of Walnut Creek. 2006. Walnut Creek General Plan 2025. April 4, 2006.
- Contra Costa County. 2005. Contra Costa County General Plan (2005-2020). January 2005.
- Contra Costa County. 2009. 2009 Countywide Comprehensive Transportation Plan. June 17, 2009.
- Environmental Protection Agency (EPA). 2010. Endangered Species Facts: Alameda Whipsnake. February. URL: <http://www.epa.gov/espp/factsheets/alameda-whipsnake.pdf>.
- EPA. 2012a. Transportation and Climate: Regulations and Standards. URL: <http://www.epa.gov/oms/climate/regulations.htm#1-1>.
- EPA. 2012b. 77 FR 46295, "Extension of Deadline for Promulgating Designations for the 2010 Primary Sulfur Dioxide National Ambient Air Quality Standard," August 3. URL: <http://www.gpo.gov/fdsys/pkg/FR-2012-08-03/pdf/2012-19043.pdf>.
- EPA. 2013a. 78 FR 1760, "Determination of Attainment for the San Francisco Bay Area Nonattainment Area for the 2006 Fine Particle Standard; California; Determination Regarding Applicability of Clean Air Act Requirements," January 9. URL: <https://www.federalregister.gov/articles/2013/01/09/2013-00170/determination-of-attainment-for-the-san-francisco-bay-area-nonattainment-area-for-the-2006-fine>.
- EPA. 2013b. 78 FR 3086, "National Ambient Air Quality Standards for Particulate Matter," January 15. URL: <http://www.gpo.gov/fdsys/pkg/FR-2013-01-15/pdf/2012-30946.pdf>.
- Federal Highway Administration (FHWA). 1981. Visual Impact Assessment for Highway Projects. U.S. Department of Transportation, Federal Highway Administration, Office of Environmental Policy. Washington D.C. March.
- FHWA. 2006. A Methodology for Evaluating Mobile Source Air Toxics among Transportation Project Alternatives.
- FHWA. NEPA and Transportation Decision Making. URL: <http://environment.fhwa.dot.gov/projdev/tdmalts.asp#logical>.

- Federal Transit Administration. 2006. Transit Noise and Vibration Impact Assessment. U.S. Department of Transportation. Federal Highway Administration. Office of Planning and Environment. May.
- Metropolitan Transportation Commission. 2009. Transportation 2035 Plan for the San Francisco Bay Area. Metropolitan Transportation Commission. April 22, 2009. URL: http://www.mtc.ca.gov/planning/2035_plan/FINAL/6_Appendix_1-Projects_Final.pdf.
- Metropolitan Transportation Commission. 2011. 2011 Transportation Improvement Program. Metropolitan Transportation Commission. Adopted by Metropolitan Transportation Commission on October 27, 2010 and adopted by FHWA/Federal Transit Administration on December 14, 2010. URL: http://www.mtc.ca.gov/funding/tip/2011/Project_Listings_Final2.pdf.
- Metropolitan Transportation Commission. 2012. E-mail correspondence from the Metropolitan Transportation Commission regarding FMS Project of Air Quality Concern Project Transportation Improvement Program ID CC-050028 (FMS ID: 826.00). December.
- Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010). <http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>.
- Transportation Partnership and Cooperation. 2010. Final Report I-680 HOV/Express Bus Access study. June.
- Transportation and Climate Change Resource Center. American Association of State Highway and Transportation Officials. URL: <http://climatechange.transportation.org/>.

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Appendix A CEQA Environmental Checklist

4-CC-680

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P.M/P.M.

E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	<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 AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<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:				
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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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"/>
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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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"/>

VII. GREENHOUSE GAS EMISSIONS: Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VIII. 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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	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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" 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"/>
X. 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"/>
XI. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

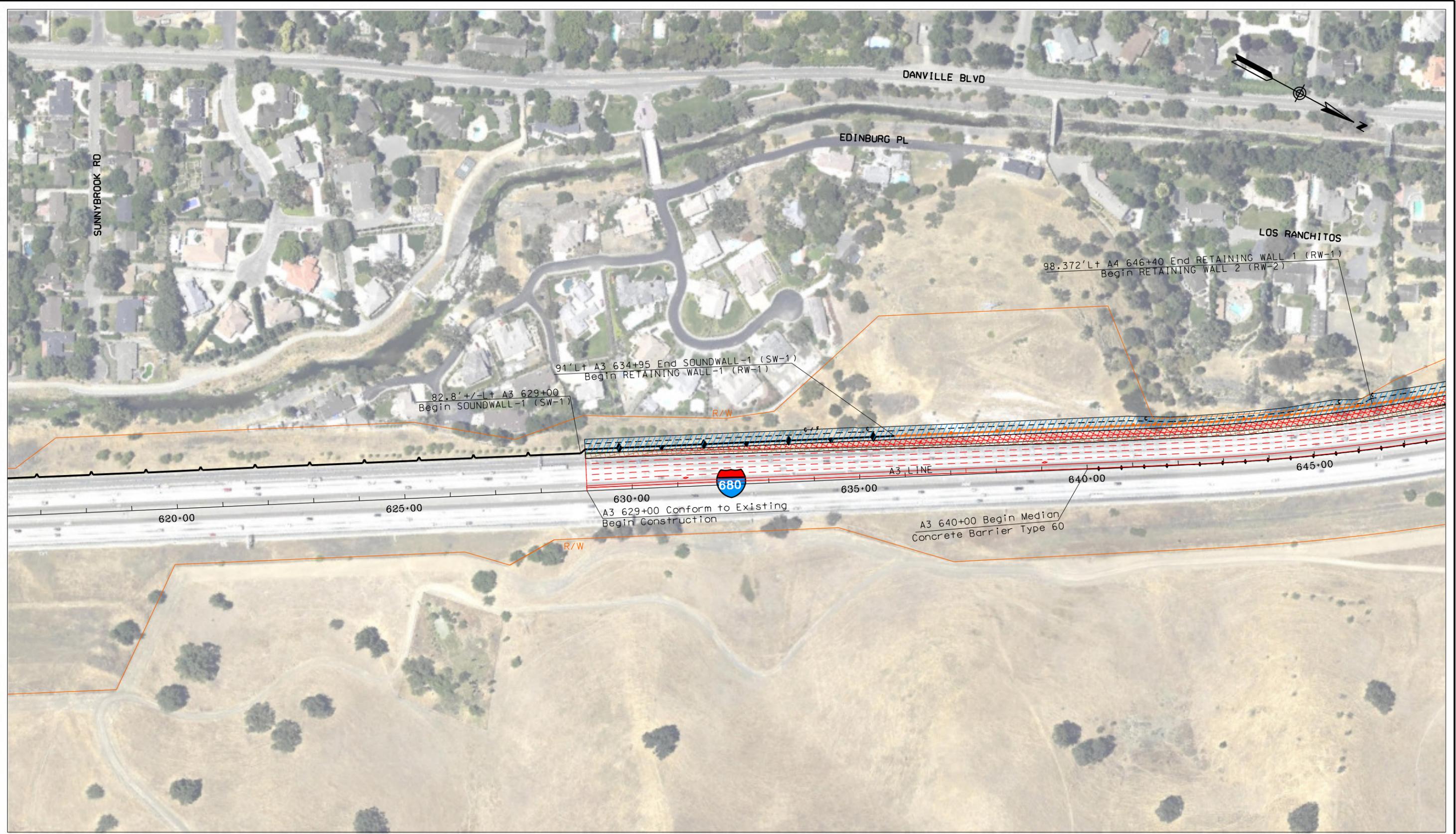
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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"/>
) 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"/>
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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"/>
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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"/>
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

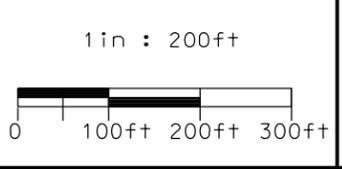
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. 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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVIII. 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, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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"/>

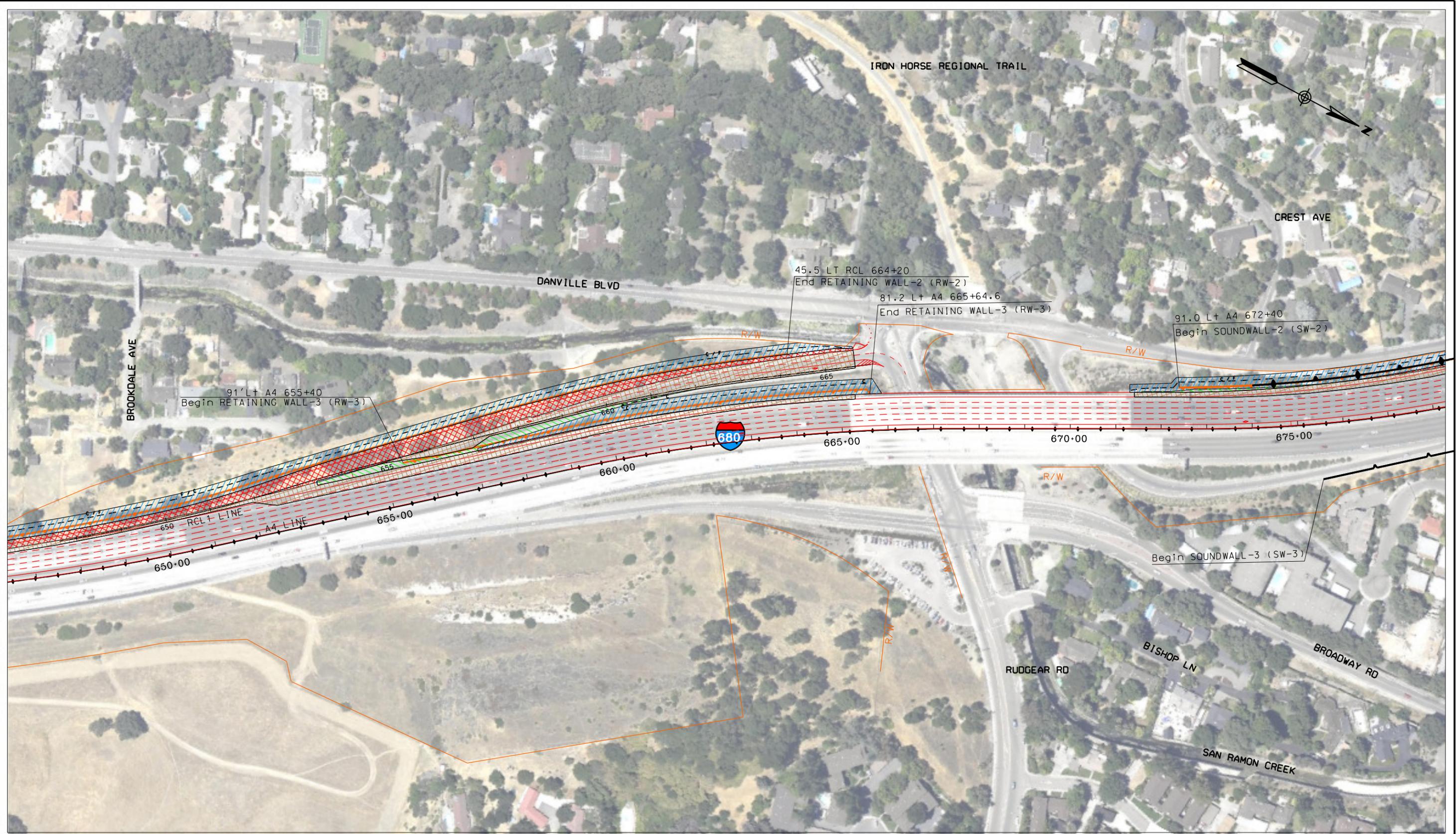
Appendix B Build Alternative Plan Drawings



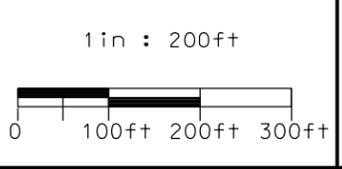
LEGEND			
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	PAVEMENT RESURFACING OR RECONSTRUCTION		NEW PLANTED AREA
	REPLANTED AREA		SOUNDWALL
			EXISTING SOUNDWALL
			REPLACEMENT IN KIND SOUNDWALL



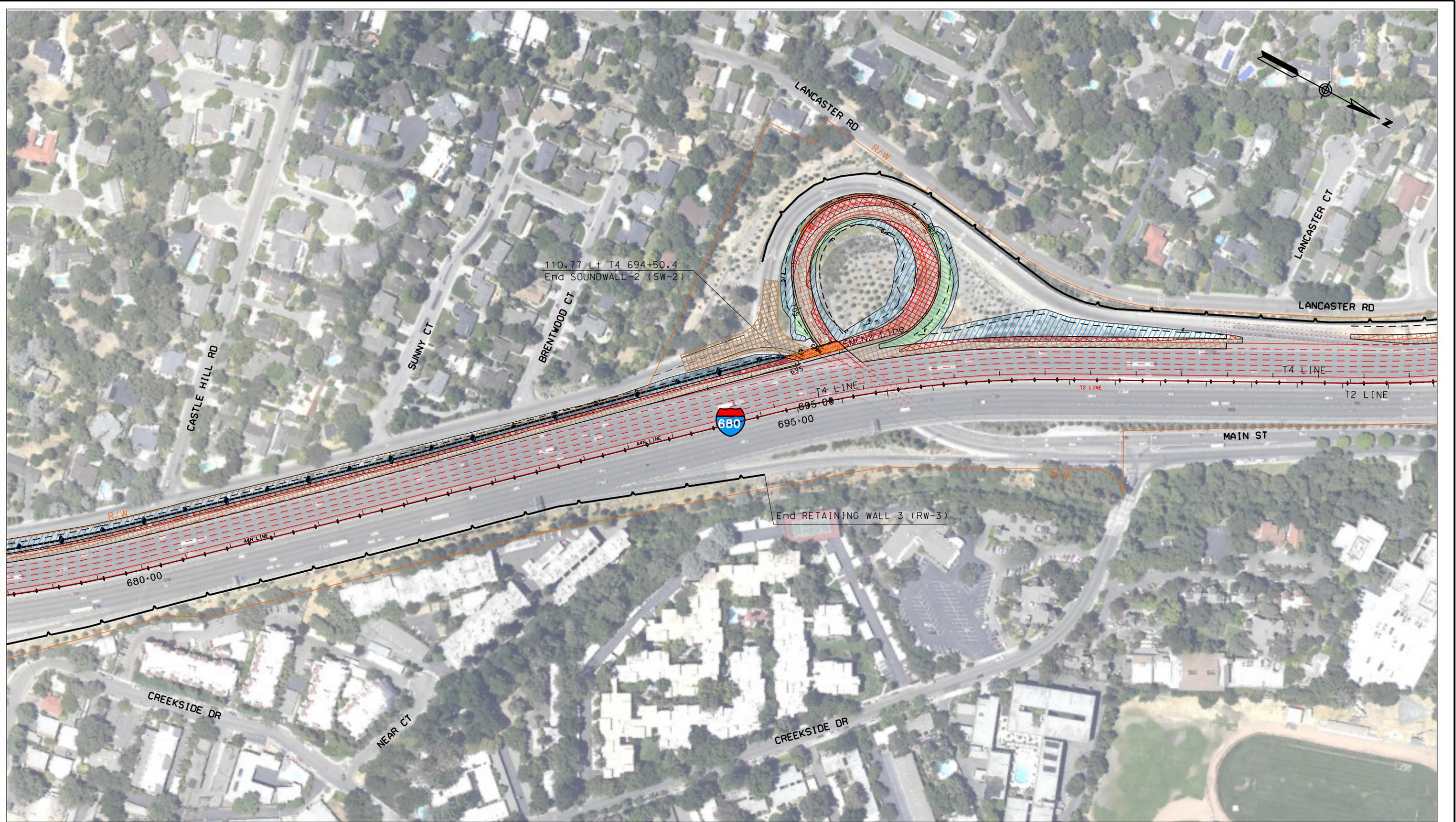
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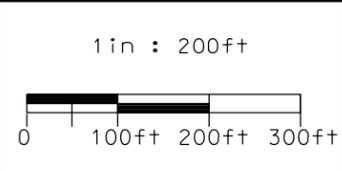
LEGEND			
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	PAVEMENT RESURFACING OR RECONSTRUCTION		NEW PLANTED AREA
	REPLANTED AREA		SOUNDWALL
			EXISTING SOUNDWALL
			REPLACEMENT IN KIND SOUNDWALL



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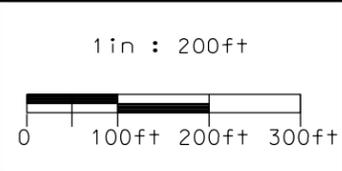
LEGEND	
	PAVEMENT WIDENING
	BRIDGE WIDENING
	NEW PLANTED AREA
	REPLANTED AREA
	REPLACEMENT IN KIND SOUNDWALL
	SOUNDWALL
	RETAINING WALL
	EXISTING SOUNDWALL
	PAVEMENT RESURFACING OR RECONSTRUCTION



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LEGEND			
	PAVEMENT WIDENING		RETAINING WALL
	BRIDGE WIDENING		SOUNDWALL
	PAVEMENT RESURFACING OR RECONSTRUCTION		EXISTING SOUNDWALL
	NEW PLANTED AREA		REPLACEMENT IN KIND SOUNDWALL
	REPLANTED AREA		



I-680 SB HOV GAP CLOSURE PROJECT

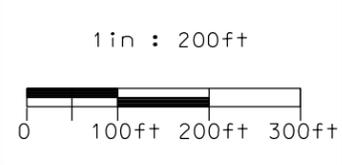
September 2013

Figure 4

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LEGEND			
	PAVEMENT WIDENING		RETAINING WALL
	BRIDGE WIDENING		SOUNDWALL
	NEW PLANTED AREA		EXISTING SOUNDWALL
	REPLANTED AREA		REPLACEMENT IN KIND SOUNDWALL
	PAVEMENT RESURFACING OR RECONSTRUCTION		

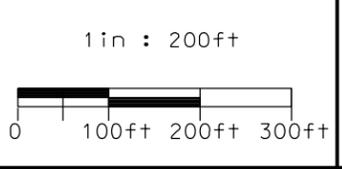


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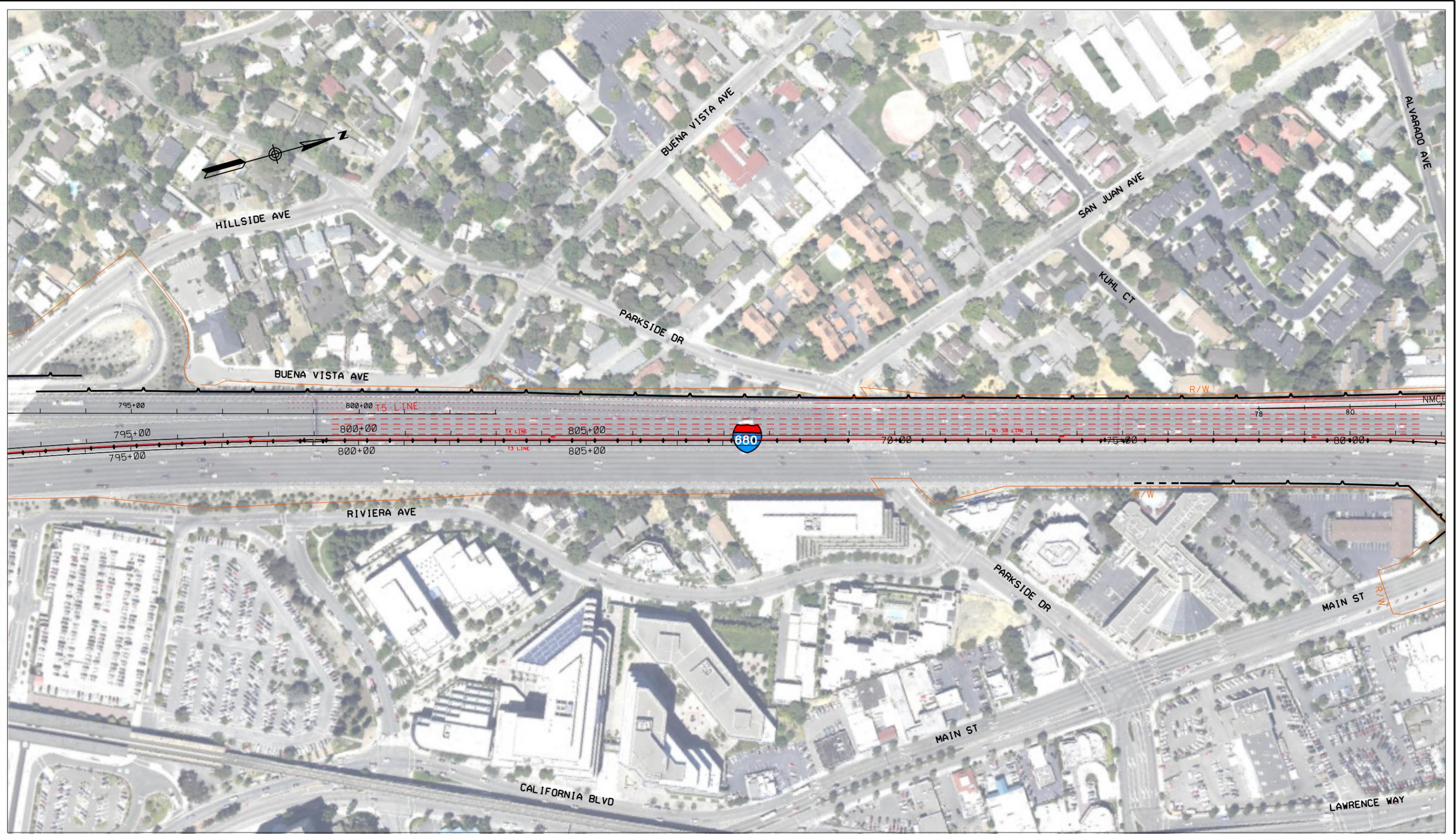


See Figure 6

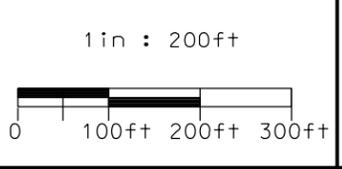
LEGEND	
	PAVEMENT WIDENING
	NEW PLANTED AREA
	PAVEMENT RESURFACING OR RECONSTRUCTION
	REPLANTED AREA
	RETAINING WALL
	SOUNDWALL
	EXISTING SOUNDWALL
	REPLACEMENT IN KIND SOUNDWALL



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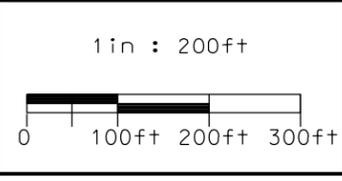
LEGEND			
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	PAVEMENT RESURFACING OR RECONSTRUCTION		NEW PLANTED AREA
	REPLANTED AREA		RETAINING WALL
	SOUNDWALL		EXISTING SOUNDWALL
	REPLACEMENT IN KIND SOUNDWALL		



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LEGEND			
	PAVEMENT WIDENING		RETAINING WALL
	BRIDGE WIDENING		SOUNDWALL
	PAVEMENT RESURFACING OR RECONSTRUCTION		EXISTING SOUNDWALL
	REPLANTED AREA		REPLACEMENT IN KIND SOUNDWALL
	NEW PLANTED AREA		

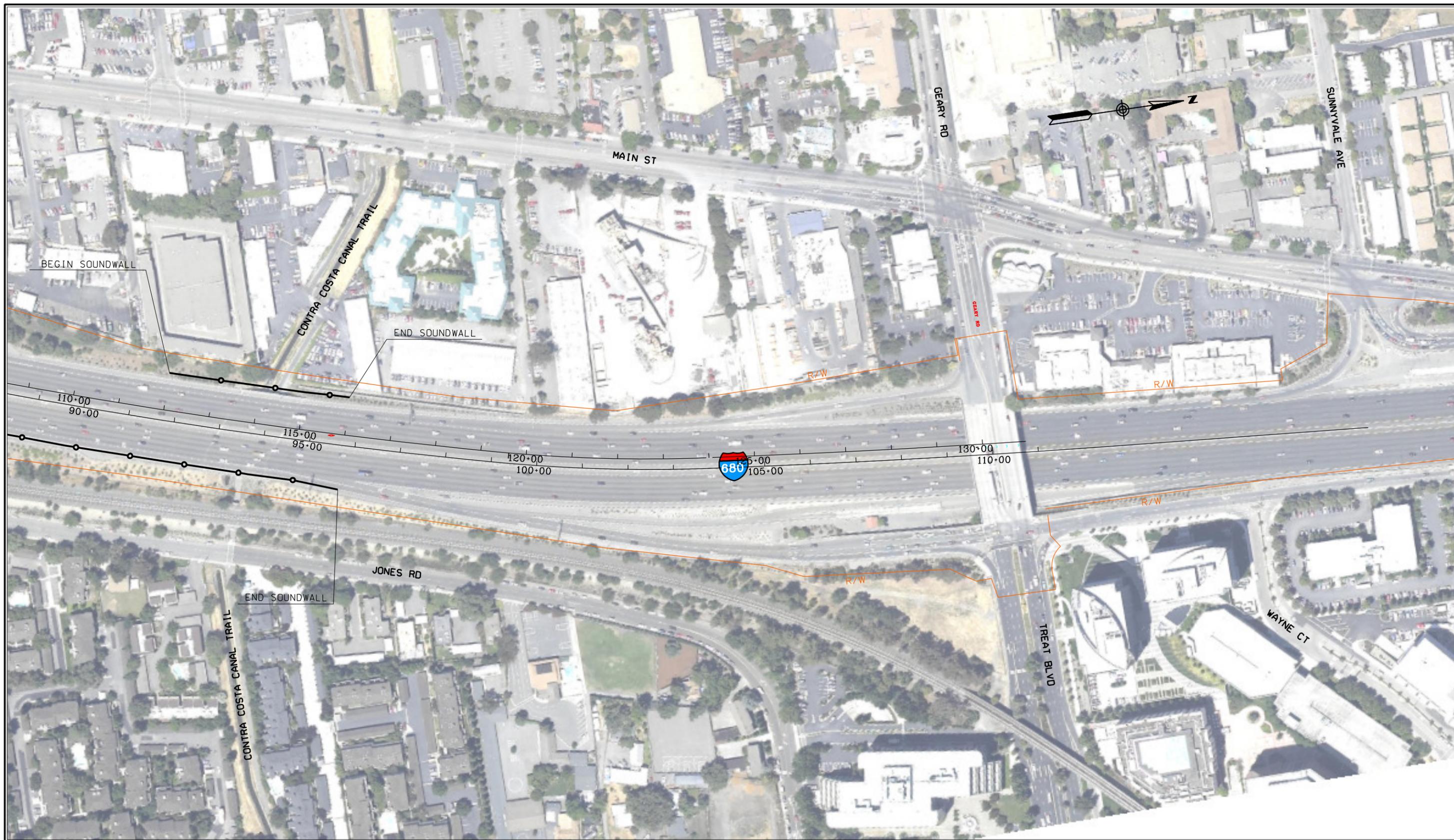


I-680 SB HOV GAP CLOSURE PROJECT

September 2013

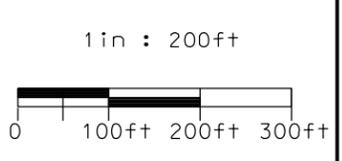
Figure 8

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LEGEND

- | | | |
|--|--|---|
|  PAVEMENT WIDENING |  BRIDGE WIDENING |  RETAINING WALL |
|  PAVEMENT RESURFACING OR RECONSTRUCTION |  NEW PLANTED AREA |  SOUNDWALL |
| |  REPLANTED AREA |  EXISTING SOUNDWALL |
| | |  REPLACEMENT IN KIND SOUNDWALL |



I-680 SB HOV GAP CLOSURE PROJECT

September 2013

Figure 9

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Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711
www.dot.ca.gov



*Flex your power!
Be energy efficient!*

March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

A blue ink signature of Malcolm Dougherty.

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"

Appendix D Glossary of Technical Terms

This appendix briefly explains the technical terms and names used in this IS/EA.

Alluvial Fans/Fluvial Deposits	A fan- or cone-shaped deposit of sediment crossed and built up by streams.
Best Management Practice	Any program, technology, process, operating method, measure or device that controls, prevents, removes, or reduces pollution.
Basin Plan	A specific plan for control of water quality within one of the nine hydrologic basins of the State under the regulation of a Regional Water Quality Control Board.
Beneficial Uses	Use of a natural water resource that enhances the social, economic, and environmental well-being of the user. Twenty-one (21) beneficial uses are defined for the waters of California and are protected against degradation. Beneficial uses range from municipal and domestic supply to fisheries and wildlife habitat.
Cumulative effects	Project effects that are related to other actions with individually insignificant but cumulatively significant impacts.
Decibel	A numerical expression of the relative loudness of a sound.
Design Exceptions	The method required by Caltrans to approve all nonstandard conditions.
Encroachment (floodplain)	An action within the limits of the 100-year floodplain.
Endangered	Plant or animal species that are in danger of extinction throughout all or a significant portion of its range.
Erosion	The wearing away of the land surface by running water, wind, ice, or other geological agents.
Essential Fish Habitat	Includes waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity.

<i>Federal Register</i>	Federal publication that provides official notice of Federal administrative hearings and issuance of proposed and final Federal administrative rules and regulations.
Floodplain (100-year)	The area subject to flooding by a flood or tide that has a 1 percent chance of being exceeded in any given year.
Habitat	The place or type of site where a plant or animal naturally or normally lives and grows.
Initial Study (IS)	Environmental review document prepared to comply with CEQA. Its purpose is to determine whether the project may have a significant effect on the environment and to identify measures that mitigate project impacts to a less than significant level.
Initial Site Assessment	A Department of Transportation term for an initial study to determine hazardous waste issues on a project.
Independent Utility	A requirement that highway projects be a reasonable expenditure even if no additional transportation improvements in the area are made. FHWA states that “as long as a project will serve a significant function by itself (i.e., it has independent utility), there is no requirement to include separate but related projects in the same analysis.
L_{eq}	A unit used for evaluation of sound impacts, L_{eq} is the measurement of the fluctuating sound level received by a receptor averaged over a time interval (usually 1-hour).
Lead Agency	Public agency that has primary responsibility for carrying out or approving a project subject to environmental review and for preparing the environmental document.
Level of Service (LOS)	A measurement of capacity of a roadway. It is a rating of traffic congestion and varies on a scale from LOS A to LOS F, where LOS A represents uncongested, free-flow conditions and LOS E represents very congested conditions. At LOS F, a roadway segment is considered over capacity and operates at stop-and-go conditions.

Liquefaction	The process by which water-saturated, unconsolidated sediments are transformed into a substance that acts like a liquid, often in an earthquake. By undermining the foundations and base courses of infrastructure, liquefaction, can cause serious damage.
Logical Termini	A requirement that highway projects have rational end points for a transportation improvement and rational end points for a review of environmental impacts.
Mitigation	Compensation for an impact by replacement or provision of substitute resources or environments. Mitigation can include avoiding an impact by not taking a certain action, minimizing impacts by limiting the degree of an action, or rectifying an impact by repairing or restoring the affected environment.
Negative Declaration	Issued upon approval of the environmental review process under CEQA. It states that upon completion of an initial study, there is no substantial evidence that the project may have a significant effect on the environment.
Nonattainment Area	Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.
Nonstandard Conditions	Any roadway condition that deviates from the accepted standard condition needs special approval from Caltrans.
National Pollutant Discharge Elimination System	A national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements under various sections of the Clean Water Act. The statewide Construction General Permit is a National Pollutant Discharge Elimination System general permit issued by the State Water Resources Control Board that applies to projects that disturb 1-acre or more of land. One condition of this permit is that the contractor must develop and implement a Storm Water Pollution Prevention Plan, which is similar to the Water Pollution Control Plan required by Caltrans' Standard Specification 7-1.01G.

Project Development Team	A multidisciplinary technical advisory group assembled to review and provide direction on project development.
Peak Hour	The period during which traffic volume is at its highest.
Person Miles Traveled	The sum of the passengers served for a specific roadway segment multiplied by the length of the segment. Person miles traveled represents the total distance traveled by all people using a particular roadway segment.
Project Study Report	A California Department of Transportation document establishing consensus among state and local decision makers in the viability and appropriateness of a project. The Project Study Report initiates the preliminary engineering and environmental review phase of project development.
Receptors	Term used in air quality and noise studies that refers to houses or businesses that could be affected by a project.
Regulatory agency	An agency that has jurisdiction by law.
Responsible agency	A public agency other than the Lead Agency that has responsibility for carrying out or approving a project under the California Environmental Quality Act.
Right-of-way	A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.
Riparian	Pertaining to the banks and other adjacent terrestrial (as opposed to aquatic) environs of freshwater bodies, watercourses, estuaries, and surface-emergent aquifers, whose transported freshwater provides soil moisture sufficient in excess of that available through local precipitation to potentially support the growth of vegetation.
Regional Transportation Plan	A plan prepared by the Metropolitan Transportation Commission, the regional agency responsible for transportation planning and funding.

Significance	The California Environmental Quality Act defines a “significant effect on the environment” as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant” (CEQA Guidelines Section 15382). CEQA requires that the lead agency identify each “significant effect on the environment” resulting from the project and avoid or mitigate it.
Special-status species	Plant or animal species that are either (1) federally listed, proposed for, or a candidate for listing as threatened or endangered; (2) bird species protected under the federal Migratory Bird Treaty Act; (3) protected under State endangered species laws and regulations, plant protection laws and regulations, Fish and Game codes, or species of special concern listings and policies; or (4) recognized by national, State, or local environmental organizations (e.g., California Native Plant Society).
State Transportation Improvement Program	The State Transportation Improvement Program, updated every 2 years, is the California Transportation Commission’s priorities for improvements on and off the State highway system.
Storm Water Pollution Prevention Plan	A Storm Water Pollution Prevention Plan is prepared to evaluate sources of discharges and activities that may affect stormwater runoff, and implement measures or practices to reduce or prevent such discharges.
Threatened	A species that is likely to become endangered in the foreseeable future in the absence of special protection.

Vehicle Miles Traveled	A measure of the extent of motor vehicle operation; the total number of vehicle miles traveling within a specific geographic area over a given period of time.
Waters of the United States	<p>As defined by the U.S. Army Corps of Engineers in 33 <i>Code of Federal Regulations</i> 328.3(a):</p> <ol style="list-style-type: none">1. All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;2. All interstate waters including interstate wetlands;3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce, including any such waters:<ol style="list-style-type: none">(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or(iii) Which are used or could be used for industrial purposes by industries in interstate commerce;4. All impoundment of waters otherwise defined as waters of the United States under this definition;5. Tributaries of waters identified in paragraphs 1-4;6. The territorial seas;7. Wetlands adjacent to waters (waters that are not wetlands themselves) identified in paragraphs 1-6.
Wetlands	When used in a formal context, such as in this IS/EA, wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances will support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 <i>Code of Federal Regulations</i> 328.3(b)].

Appendix E Minimization and/or Mitigation Summary

This appendix summarizes the minimization measures discussed in Chapter 2 and contains a completed draft of the Caltrans form “Summary of Required Permits and Environmental Commitments – PS&E Phase.” The form identifies the avoidance and minimization measures that must be incorporated into the plans, specifications, and estimates for the proposed project, along with the timing and the party responsible for each action.

E.1 Draft Form: Summary of Required Permits and Environmental Commitments – Plans, Specifications, and Estimate Phase

The form starts on the next page.

SUMMARY OF REQUIRED PERMITS AND ENVIRONMENTAL COMMITMENT -PS&E PHASE

TO: Yadollah (Hamid) Fathollahi
 ATTN.:

PROJECT MANAGER: Yadollah (Hamid) Fathollahi
 PROJECT ENGINEER: Sotero Angeles

DATE: 10/01/2013
CO. RTE. KP: CC-680-11.2/16.6
RU/EA: 3A5800
P.M. 11.2/16.6

DESIGN OFFICE

Below is a summary of the required permits, and environmental commitments that must be incorporated into the PS&E, for this project. Please contact cristin_hallissy@dot.ca.gov for further information.

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date
PERMITS AND AGREEMENTS	SWQCB: NPDES	1-12	N	CCTA	PS&E		
	SWQCB: General Construction Stormwater Permit	1-12	N	CCTA	PS&E		
	Endangered Species Act ¹ Informal Consultation	1-11	N	CCTA	Design/Const.		
	City of Walnut Creek Encroachment Permits	1-12	N	CCTA	Final Design		
ENVIRONMENTAL COMMITMENTS	Utilities/Emergency Services						
	Where feasible, relocations will be undertaken in advance of project construction. Caltrans will coordinate with the affected service providers in each instance to ensure that all utility work is performed in accordance with appropriate requirements and criteria.	2-5	N	Caltrans/ CCTA	Pre-const.		
	The contractor will notify emergency service providers of the proposed dates of construction of the overall project work and utility relocation work.	2-5	N	Contractor	Pre-const.		
	Caltrans and/or CCTA will coordinate with the Central Contra Costa Sanitary District to identify facilities or pipelines in the vicinity of the project and work with the districts to provide assurance that their facilities will not be impacted or will be relocated accordingly.	2-6	N	Caltrans/CCTA	Pre-const.		
	Traffic and Transportation/Pedestrian and Bicycle Facilities						
	A Traffic Management Plan will be developed as part of the project to address traffic impacts from staged construction, detours, and specific traffic handling concerns such as emergency access during project construction.	2-102	N	CCTA	Final Design		
	A temporary sidewalk will be constructed to maintain pedestrian access during the realignment of	2-102	N	CCTA	Const.		

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date	
ENVIRONMENTAL COMMITMENTS	South Main Street.							
	Visual/Aesthetics							
	All structural surfaces, which include retaining walls, soundwalls, slope paving, and bridge structures, will receive architectural treatments, including texture and/or color, shadow lines for caps, and other aesthetic enhancements as determined appropriate. The specifics of aesthetic enhancements by means of including texture and color will be developed with community involvement, such as an open house, during the design phase.	2-32	N	CCTA	Design/ Const.			
	Based on the community's input, details of treatments for all structures will be architecturally and visually compatible with the adjacent community and existing structural elements within the highway corridor.	2-32	N	CCTA	Design/ Const.			
	The community outreach efforts for developing aesthetic design details will include a broad range of interested parties, including affected residents, advocacy groups, and public agencies.	2-32	N	CCTA	Design/ Const.			
	Existing highway planting will be preserved to the greatest extent feasible, and new landscaping will be placed in all plantable areas.	2-32	N	CCTA	Design/ Const.			
	Existing vegetation outside of areas to be graded will be protected during construction.	2-32	N	CCTA	Design/ Const.			
	A minimum 30 percent of the new trees planted will be from 24-inch box container stock to provide immediate size in the new landscaping. The remaining trees will be 15-gallon size at installation.	2-32	N	CCTA	Design/ Const.			
	Highway planting that is removed by the project including trees, shrubs, and groundcover will be replaced. Final decisions on replacement planting, tree size, and ratios will be determined by the District Landscape Architect.	2-32	N	CCTA/ Landscape Architect	Design/ Const.			
	A water-conserving automated irrigation system will be installed, and a 3-year plant establishment period will be included in the	2-32	N	CCTA	Design/ Const.			

ENVIRONMENTAL COMMITMENTS

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date
	contract to assure ongoing success of the plantings.						
	Vines will be planted along new walls, including on both sides of the soundwalls wherever possible, to cover the masonry block surfaces with greenery and to deter graffiti.	2-33	N	CCTA	Design/ Const.		
	Landscaping work will be performed under a separate follow-up contract within 2 years of the roadway construction contract completion.	2-33	N	CCTA	Const./ Post-const.		
	Detention basins will be designed so that they appear to be a natural part of the environment, such as a streambed or riparian pool in an informal, curvilinear manner. Detention basins will be located at least 10 feet from free recovery zones to allow for the installation of landscaping. Basins will be designed so that chain-link perimeter fencing is not required.	2-33	N	CCTA	Design/ Const.		
	Basin slope grading will incorporate slope rounding and variable gradients, and it will be similar to the surrounding topography to de-emphasize the edge. If a wall or hardscape feature is required, it shall be worked into the overall design concept.	2-33	N	CCTA	Design/ Const.		
	The use of bioswales will be limited within corridor landscape areas. When required, they will be located in unobtrusive areas and designed to appear as natural features.	2-33	N	CCTA	Design/ Const.		
	Cut-off and shielded fixtures will be used for highway and roadway lighting.	2-33	N	CCTA	Design/ Const.		
Cultural Resources							
	Additional surveys will be required if the project changes to include areas not previously surveyed.	2-36	N	CCTA	Design/ Const.		
	If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner will be contacted. Pursuant to California PRC Section 5079.98, if the remains are thought to be Native	2-36	N	Contractor	Const.		

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date	
ENVIRONMENTAL COMMITMENTS	American, the coroner will notify the Native American Heritage Commission who will then notify the Most Likely Descendent. At this time, the person who discovered the remains will contact the District 4 Cultural Resources Studies Office so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of California PRC Section 5097.98 are to be followed as applicable.							
	Water Quality and Stormwater Runoff							
	Impacts to waters of the U.S. will be minimized. There will be no construction work in environmentally sensitive areas.	2-44	N	CCTA/ Contractor	Const.			
	A storm water pollution prevention plan (SWPPP) will be developed and implemented for the project, and a Notice of Intent will be filed with the State Water Resources Control Board's Storm Water Multiple Application and Report Tracking System, per the statewide Construction General Permit.	2-45	N	Contractor	Pre-const./ Const.			
	The project performed a risk assessment in accordance with the Construction General Permit and determined the project has a high erosion risk, and a high receiving water risk, resulting in a Risk Level 3 classification. Therefore, stormwater sampling is required at all discharge locations for this project.	2-45	N	Contractor	Const.			
	Temporary best management practices will be identified in the SWPPP, including measures of soil stabilization, sediment control, wind erosion control, tracking control, non-storm water management, and waste management/materials pollution control. The temporary best management practices will be incorporated into the contract documents and implemented to reduce pollutants in stormwater discharges throughout construction.	2-45	N	Contractor	Const.			
	Permanent design pollution prevention best management	2-45	N	CCTA/ Contractor	Design, Const.,			

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date	
ENVIRONMENTAL COMMITMENTS	practices will be developed and incorporated in the design documents and installed as part of the construction activities to reduce impacts to groundwater and surface water during project operations.				Operation			
	Permanent treatment best management practice facilities will be included in the design documents and installed as part of the construction activities to reduce impacts to surface water and groundwater during project operations.	2-45	N	CCTA/ Contractor	Design, Const., Operation			
	Erosion control best management practices will be implemented prior to, during, and after construction to prevent silt and sediment from entering surface waters.	2-104	N	CCTA/ Contractor	Design, Pre-const., Const., Operation			
	Geology/Soils/Seismicity/Topography							
	Any proposed engineering design will be carried out in accordance with Caltrans Seismic Design Criteria and the regulations detailed in the Alquist-Priolo Earthquake Fault Zoning Act.	2-48	N	CCTA	Design			
	Roadways and bridges will be designed and constructed at a minimum to the seismic design requirements for ground shaking specified in the Uniform Building Code for Seismic Zone 4.	2-48	N	CCTA	Design/ Const.			
	To satisfy the provisions of the 1998 California Building Code, the proposed facilities will be designed to withstand ground motions equating to approximately a 500-year return period (10 percent probability of exceedance in 50 years). Bridges will be designed in accordance with the latest Caltrans Seismic Design Criteria.	2-48	N	CCTA	Design			
	Site-specific exploratory borings and accompanying laboratory testing during final design of the project bridge structures will be required to delineate any potentially liquefiable materials. Potentially liquefiable deposits will be removed or engineered (i.e., dewatered or densified) to reduce their liquefaction potential, or the engineering design will incorporate	2-48	N	CCTA	Final Design			

ENVIRONMENTAL COMMITMENTS

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date
	pile foundations that extend beyond potentially liquefiable deposits.						
Hazardous Wastes/Materials							
	Testing for aerially deposited lead will be performed at the design phase prior to project construction. If aerially deposited lead is found, special handling of the contaminated soil will be required and will include implementing a health and safety plan.	2-50	N	CCTA/Caltrans	Design, pre-const.		
	If construction crews encounter soil or groundwater contamination, all activities involving contaminated soil or groundwater will comply with the various regulatory agencies' requirements.	2-50	N	CCTA/ Contractor	Pre-const.		
	Material from structures that is removed or modified by the project will be handled and disposed of in accordance with all local, State, and federal requirements.	2-50	N	CCTA/ Contractor	Const.		
Air Quality							
	Soil binder will be spread on any unpaved roads used for construction purposes and on all project construction parking areas.	2-105	N	Contractor	Const.		
	Trucks will be washed off as they leave the right-of-way as necessary to control fugitive dust emissions.	2-105	N	Contractor	Const.		
	Construction equipment and vehicles will be properly tuned and maintained. Low-sulfur fuel will be used in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.	2-105	N	Contractor	Const.		
	Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.	2-105	N	Contractor	Const.		
	Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.	2-106	N	Contractor	Const.		
	Prohibit construction activities involving extended idling of diesel equipment at sensitive land uses such as residents and schools.	2-106	N	Contractor	Const.		

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date	
ENVIRONMENTAL COMMITMENTS	Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.	2-106	N	Contractor	Const.			
	Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce respirable particulate matter and deposition of particulate during transportation.	2-106	N	Contractor	Const.			
	Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.	2-106	N	Contractor	Const.			
	To the extent feasible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.	2-106	N	Contractor	Const.			
	Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.	2-106	N	Contractor	Const.			
	Noise							
	If necessary, abate noise by installing soundwall at the edge of the shoulder of northbound I-680 just north of the North Main Street Interchange.	2-76	N	CCTA	Const.			
	Existing wall S633 will be replaced in kind with the same height and new width at the edge of the shoulder of southbound I-680, at the southern end of the project.	2-74	N	CCTA	Const.			
	Existing wall S681 will be replaced in kind with the same height and new width at the edge of the shoulder of southbound I-680 between South Main Street and Rudgear Road.	2-74	N	CCTA	Const.			
	Turn off idling equipment.	2-107	N	Contractor	Const.			
	Implement a construction noise monitoring program to limit the impacts.	2-107	N	Contractor	Const.			
	Plan noisier operations during times least sensitive to receptors.	2-107	N	Contractor	Const.			
	Keep noise levels relatively uniform and avoid impulsive noises.	2-107	N	Contractor	Const.			

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date	
ENVIRONMENTAL COMMITMENTS	Maintain good public relations with the community to minimize objections to the unavoidable construction impacts. Provide frequent activity updates of all construction activities and notify adjacent residents in advance of construction work.	2-107	N	Contractor	Const.			
	Install acoustic barriers around stationary construction noise sources.	2-107	N	Contractor	Const.			
	During the construction period, the contractors will be required to comply with local noise ordinances, including Title 4, Chapter 6, of the Walnut Creek Municipal Code.	2-108	N	Contractor	Const.			
	Natural Communities							
	Existing vegetation outside of areas to be graded will be protected during construction. All native vegetation that is removed will be replaced in-kind in the adjacent ROW, with the exception of retention basin areas that initially supported trees or shrubs. Retention basins will be replanted with herbaceous vegetation.	2-78	N	CCTA/ Contractor	Const.			
	Trees will only be removed if they are in the permanent or temporary disturbance footprint of the proposed project, or otherwise present a safety hazard, and will be replanted in kind.	2-78	N	CCTA/ Contractor	Const.			
	Wetlands							
	Temporary construction site best management practices, such as the isolation of work areas from flows, slope stabilization, and erosion control methods, will be used during project construction.	2-82	N	Caltrans/ Contractor	Const.			
	Animal Species							
	A Caltrans approved biologist will conduct a worker environmental awareness program training session for construction crews before construction activities begin. The worker environmental awareness program will include a brief review of the special-status species and other sensitive resources that can occur in the work area, including species life history and habitat	2-86	N	CCTA	Pre-const.			

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date
ENVIRONMENTAL COMMITMENTS	preferences, and their legal status. The program will also cover all avoidance and minimization measures, environmental permits, and proposed project plans, such as the project's Storm Water Pollution Prevention Plan, best management practices, erosion control and sediment plan, and any other required plans.						
	Environmentally sensitive area fencing will be installed in locations to ensure that the contractor does not disturb environmentally sensitive areas. This fencing will be identified on the final design plans.	2-86	N	CCTA	Final Design/ Const.		
	To prevent inadvertent entrapment of wildlife during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped wildlife. If at any time a trapped wildlife is discovered, the Caltrans-approved biologist will be contacted to determine the next steps.	2-86	N	Caltrans/ Contractor	Pre-const./ Const.		
	If construction activities are scheduled to occur during the breeding season for raptors and other migratory birds (generally between February 15 and August 31), a Caltrans-approved wildlife biologist will conduct surveys no more than 3 days prior to initiation of construction activities at any time between February 15 and August 31. If no active nests are detected, then no additional measures are required. If active nests are found in any areas that will be directly affected by construction activities, a no-disturbance 50 foot buffer, unless otherwise negotiated with the California Department of Fish and Wildlife or USFWS, will be established around the site to avoid disturbance or destruction of the	2-87	N	CCTA/ Contractor	Pre-const./ Const.		

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date
ENVIRONMENTAL COMMITMENTS	nest site until after the breeding season or after a Caltrans-approved wildlife biologist determines that the young have fledged.						
	Trees, shrubs, ground cover, grasses, bark, leaves, and roots with attached soil will be removed where permanent structures will be placed. Vegetation debris will be cleared away and removed from the site to prevent possibly attracting animals or causing hazardous or unsafe conditions.	2-87	N	CCTA/ Contractor	Pre-const./ Const.		
	Preconstruction surveys will be conducted by a Caltrans-approved biologist during the bat breeding season (typically May 1 through September 15) no more than three days before tree removal operations begin. If bats are observed roosting in the trees identified for removal, the biologist will work with the California Department of Fish and Wildlife to determine acceptable ways to minimize disturbance to the roosting bats. If an active maternity roost is identified within the construction area, the Caltrans-approved biologist will consult with the California Department of Fish and Wildlife biologists to determine appropriate measures to protect the maternity roost.	2-87	N	CCTA/ Contractor	Pre-const./ Const.		
	To prevent potential impacts to burrowing owls, potential burrows will be identified and mapped. Additionally, a Caltrans-approved biologist will conduct a preconstruction burrowing owl survey 3 days prior to any ground disturbance, including vegetation removal. If burrowing owls are identified during preconstruction surveys, the California Department of Fish and Wildlife must be contacted to determine appropriate measures and buffer distances.	2-87	N	CCTA/ Contractor	Pre-const./ Const.		
	A speed limit of 15 mph will be established and enforced within the construction area (excludes the interstate) to reduce dust and excessive soil disturbance, which may adversely affect habitat areas in the vicinity.	2-108	N	Contractor	Const.		

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date
ENVIRONMENTAL COMMITMENTS	Construction access, staging, storage, and parking areas within the project ROW will be located outside of any designated Environmentally Sensitive Areas or outside of the ROW in areas that have been environmentally cleared and permitted by the contractor.	2-108	N	Contractor	Const.		
	Caltrans will install standard erosion control measures such as, but not limited to, silt fencing.	2-108	N	Caltrans	Const.		
	Concrete wash areas and locations or stockpiles of debris or excavated material will be located so they do not drain directly into jurisdictional waterways.	2-108	N	Contractor	Const.		
	Access routes, storage areas, and contractor parking will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.	2-108	N	Contractor	Const.		
	Any borrow or fill materials used for the project will be certified, to the maximum extent practicable, to be nontoxic and weed free.	2-108	N	Contractor	Const.		
	All food and food-related trash items will be kept in sealed trash containers and removed from the site at the end of each day.	2-108	N	Contractor	Const.		
	All pets are prohibited within the project footprint during the construction period.	2-108	N	Contractor	Const.		
	All firearms, except for those carried by authorized security personnel, or local, state, or federal law enforcement officials, will be prohibited within the project area.	2-108	N	Contractor	Const.		
	All equipment will be maintained to prevent the leakage of vehicle fluids, such as gasoline, oils, or solvents into the work area. A Spill Response Plan will be developed to address potential spills of hazardous materials such as fuels, oils, and solvents. Additionally, any such materials will be stored in sealable containers in a designated location that is at least 50 feet from any aquatic habitats.	2-109	N	Contractor	Const.		
	Plastic mono-filament netting (erosion control matting) will not be	2-109	N	CCTA/ Contractor	Pre-const./ Const.		

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date	
ENVIRONMENTAL COMMITMENTS	used for erosion control or other purposes in environmentally sensitive areas to prevent wildlife from becoming entangled or trapped in the netting							
	Threatened and Endangered Species							
	Preconstruction surveys and periodic monitoring for Alameda whipsnake and California red-legged frog will be conducted.	2-98	N	CCTA/ Contractor	Pre-const./ Const.			
	Prior to construction, wildlife exclusionary fencing will be installed adjacent to the southbound side of I-680 at the northern limits of the work area from Rudgear Road south to the end of the biological study area.	2-99	N	CCTA	Pre-const./ Const.			
	If nesting white-tailed kites are found during preconstruction surveys, the USFWS and California Department of Fish and Wildlife will be notified regarding the status of the nest. Construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or the Caltrans approved biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius established by USFWS and/or California Department of Fish and Wildlife) delineated by highly visible temporary construction fencing or alteration of the construction schedule.	2-99	N	CCTA/ Contractor	Pre-const./ Const.			
	Invasive Species							
	Caltrans will comply with Executive Order 13112 on Invasive Species. The landscaping and erosion control included in the project will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. The contractor will be required to use equipment that is cleaned and inspected for plant material prior to	2-100	N	CCTA/ Contractor	Const.			

		Ref.	NNSP Y/N	Responsible Staff	Timing	Action Taken	Date
	arrival and use at the project site.						
	Implement revegetation and restoration measures required in the Storm Water Pollution Prevention Plan, which requires the use of certified weed-free native and nonnative mixes.	2-109	N	CCTA/ Contractor	Const.		

Appendix F U.S. Fish and Wildlife Service Species List

Unofficial Quick Endangered Species List, Sacramento Fish and Wildlife Office

Page 1 of 2

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the
WALNUT CREEK (465A)
U.S.G.S. 7 1/2 Minute Quad

Database last updated: September 18, 2011

Report Date: August 19, 2013

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Speyeria callippe callippe
callippe silverspot butterfly (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

http://www.fws.gov/sacramento/ES_Species/Lists/es_species-lists_quad-finder_quicklist.c... 8/19/2013

Thamnophis gigas
giant garter snake (T)

Birds

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Plants

Lasthenia conjugens
Contra Costa goldfields (E)

Oenothera deltooides ssp. howellii
Antioch Dunes evening-primrose (E)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the
LAS TRAMPAS RIDGE (465D)
U.S.G.S. 7 1/2 Minute Quad

Database last updated: September 18, 2011

Report Date: August 19, 2013

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Birds

http://www.fws.gov/sacramento/ES_Species/Lists/es_species-lists_quad-finder_quicklist.c... 8/19/2013

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

http://www.fws.gov/sacramento/ES_Species/Lists/es_species-lists_quad-finder_quicklist.c... 8/19/2013

Appendix G Agency Correspondence

Email correspondence between Joe Haublein of the National Oceanic Atmospheric Administration National Marine Fisheries Service and Azadeh Faghihi of Caltrans.



<Joe.Haublein@noaa.gov>

08/10/2011 03:19 PM

To: Azadeh Faghihi <azadeh_faghihi@dot.ca.gov>

cc: Christopher States <christopher_states@dot.ca.gov>

bcc:

Subject: Re: Rudgear Rd

History: This message has been forwarded.

Hi Azadeh,

I am not aware of any listed anadromous fish in Las Trampas Cr., and there are documented impassable barriers on Walnut Cr. downstream of the project site.

-Joe

----- Original Message -----

From: Azadeh Faghihi <azadeh_faghihi@dot.ca.gov>

Date: Wednesday, August 10, 2011 12:50 pm

Subject: Rudgear Rd

>

> Hi Joe,

>

> can you confirm the following?

> many thanks,

>

> The California Department of Transportation (Department) is

> proposing to

> close a gap in the I-680 High Occupancy Vehicle (HOV) lane system

> in Contra

> Costa County in Walnut Creek, CA. The Project would require

> construction in Las Trampas Creek to widen the I-680 Bridge over the

> creek. This letter

> respectfully requests information from the National Marine Fisheries

> Service on the presence or absence of anadromous fish species in the

> portion of Las Trampas Creek located within the project area.

>

> As shown on the figure attached to this letter, the project will

> occur on

> I-680 Southbound from Rudgear Road to 0.2 mile north of Geary Road.

> The

> project proposes to:

>

> . widen the existing roadway from Rudgear Road to about 500 feet

> north

> of South Main UC to add an HOV lane, and

> . to re-stripe from South Main Street to 0.4 mile north of North

> Main

> Street to add an HOV lane.

>

> The Project proposes to widen the Las Trampas Creek Bridge (No.

> 280162, Post Mile 13.72). Las Trampas Creek crosses under I-680

> between Newell

> Avenue and Olympic Boulevard, and is the only water body that is

> likely to

> be affected by construction. The 3-span bridge will be widened

> approximately 6.5 feet on the southbound (west) side, and will involve

> extending the existing pierwalls to accommodate the widened bridge

> superstructure. Construction will likely involve temporary
> diversion of
> in-stream flows during the non-rainy season to enable construction
> of the
> pierwall extensions. Temporary Construction Site Best Management
> Practices(BMPs) such as under-bridge netting, isolation of work
> areas from flows,
> slope stabilization and erosion control methods will be used during
> construction. These BMPs will prevent any construction debris,
> sediment or
> toxins from entering the streambed and affecting any fish
> downstream of the
> project construction area. Permanent impacts to the creeks will be
> mitigated both on-site and in additional locations to be determined.
>
> Las Trampas Creek is a tributary to Walnut Creek in the City of
> WalnutCreek. Neither of these streams is listed as providing
> critical habitat for
> steelhead or other listed anadromous salmonids. Three known
> impassablebarriers are known to occur in Las Trampas Creek or
> Walnut Creek downstream
> of the project area (www.calfish.org).
> · Barrier ID 28_723710 - Walnut Creek City Drop Structure is an
> impassable fish barrier just east of I-680 between Newell Avenue and
> Bothelo Drive. The barrier is listed as an unknown type and unknown
> purposeand is described as a 15-foot drop structure between Main
> Street and
> California Street Bridge. It is listed as a complete barrier to
> upstreamfish migration.
> · Barrier ID 28_723709 - Bancroft Road Drop Structure is listed as
> a
> 15-foot drop structure immediately downstream of Bancroft Road
> crossing. It
> is listed as an unknown type and purpose as well.
> · Barrier ID 28-713460 - Drop Structure is of unknown type and
> purpose.It is a 10-foot drop structure with no jump pool located
> just south of
> Willow Pass Road. The presence of these barriers indicates that
> anadromousfish are unlikely to be present in the project area.
>
> The Department would appreciate your confirmation of anadromous fish
> presence or absence in the project area in order to determine
> appropriate measures for compliance with existing regulations.
>
> Thanks,
>
> Azadeh Faghihi
> District Biologist
> Biological Sciences and Permits
> Caltrans District 4
> Desk: (510) 286-6032
> Cell: (510) 705-1697
>
>
>
>
>
>
>
>
>

From: [King, Gregory](#)
To: [Cardamone, Jennifer](#)
Subject: FW: FMS POAQC Project TIP ID CC-050028 (FMS ID: 826.00) update: Project is a not a POAQC
Date: Friday, December 07, 2012 1:12:26 PM

FYI.

Greg King
Environmental Manager

50 Fremont Street; Suite 1500
San Francisco, CA 94105
(415) 490-2505 Direct
(415) 203-1100 Cell
gregory.king@parsons.com

-----Original Message-----

From: Weber, Michael
Sent: Friday, December 07, 2012 12:28 PM
To: Kenyon, John
Cc: King, Gregory; Franchi, Conrad; Gharabegian, Areg
Subject: FW: FMS POAQC Project TIP ID CC-050028 (FMS ID: 826.00) update: Project is a not a POAQC

John,

See confirmation below, FYI.

Mike

-----Original Message-----

From: Hisham Noeimi [<mailto:hnoeimi@ccta.net>]
Sent: Friday, December 07, 2012 12:19 PM
To: Susan Miller; Weber, Michael
Subject: FW: FMS POAQC Project TIP ID CC-050028 (FMS ID: 826.00) update: Project is a not a POAQC

FYI

-----Original Message-----

From: fms@mtc.ca.gov [<mailto:fms@mtc.ca.gov>]
Sent: Friday, December 07, 2012 12:02 PM
To: Hisham Noeimi
Cc: fms@mtc.ca.gov
Subject: FMS POAQC Project TIP ID CC-050028 (FMS ID: 826.00) update: Project is a not a POAQC

Dear Project Sponsor

Based on the recent interagency consultation with the Air Quality Conformity Task force, Project TIP ID CC-050028 (FMS ID:826.00) does not fit the definition of a project of air quality concern as defined by 40 CFR 93.123(b)(1) or 40 CFR 93.128 and therefore is not subject to PM2.5 project level conformity requirement. Please save this email as documentation confirming the project has undergone and completed the interagency consultation requirement for PM2.5 project level conformity. Note project sponsors are required to undergo a proactive public involvement process which provides opportunity for public review as outlined by 40 CFR 93.105(e). For projects that are not of air quality concern, a comment period is only required for project level conformity determinations if such a comment period would have been required under NEPA. For more information, please see FHWA PM2.5 Project Level

Conformity Frequently Asked Questions (FAQ): http://www.fhwa.dot.gov/environment/air_quality/conformity/reference/faqs/pm25faqs.cfm

If you have any questions, please direct them to Brenda Dix at bdix@mtc.ca.gov or by phone at (510) 817-5827 or Stefanie Hom of MTC by email at shom@mtc.ca.gov or by phone at (510) 817-5756

DEPARTMENT OF TRANSPORTATION

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July 3, 2013

Carol Roland-Nawi, Ph.D
 State Historic Preservation Officer
 Office of Historic Preservation
 1725 23rd Street, Suite 100
 Sacramento, CA 95816

4-CC-680
 PM 11.2-16.6
 EA/E-FIS 3A580/04000000952
 SB HOV Gap Closure

Attention: Susan Stratton

Subject: Determination of Eligibility and Notification of No Historic Properties Affected for the CC-680 SB HOV Gap Closure Project, Contra Costa County

Dear Ms. Roland-Nawi:

The California Department of Transportation, (Caltrans) as assigned by the Federal Highway Administration (FHWA), is initiating consultation with the State Historic Preservation Officer (SHPO) regarding the proposed improvements on Interstate 680 in Contra Costa County. This consultation is being undertaken in accordance with the January 1, 2004 *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation (Section 106 PA)*.

Caltrans is initiating consultation as part of its NEPA assignment of federal responsibilities by the Federal Highway Administration (FHWA), effective October 1, 2012 and pursuant to 23 USC 326 and 327.

Enclosed you will find a Historic Property Survey Report (HPSR), Archaeological Survey Report (ASR), and Historic Resources Evaluation Report (HRER) for the proposed undertaking. Under the Section 106 PA, Caltrans is responsible for ensuring the appropriateness of the Area of Potential Effects (APE) [Stipulation VIII.A] and the adequacy of historic property identification efforts [Stipulation VIII.B]. We are consulting with you at the present time under Stipulation VIII.C.5 of the Section 106 PA, which requires that we seek your concurrence with Caltrans's determinations of eligibility for historic properties.

The project proposes roadway improvements along portions of Interstate 680 (I-680) in the Contra Costa County, California. A full project scope description and depiction of the APE can be found on page 1 and Appendix A of the HPSR.

Consultation and identification efforts for the proposed undertaking (summarized on pages 2

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Carol Roland-Nawi, Ph.D
7/3/2013
Page 2

– 4 in the enclosed HPSR) resulted in the identification of eleven properties requiring evaluation within the APE as follows:

- 10 Los Ranchitos (APN 187080007), vicinity of Alamo;
- 20 Los Ranchitos (APN 187080006), vicinity of Alamo;
- 30 Los Ranchitos (APN 187080005), vicinity of Alamo;
- 40 Los Ranchitos (APN 187080012), vicinity of Alamo;
- 2212 Danville (rear buildings – APN187070009), vicinity of Alamo;
- 1516 Castle Hill Road (APN 184-402-037), Walnut Creek;
- 1985 South Main Street (APN 184-392-035), Walnut Creek;
- 1977 South Main Street (APN 184-402-033), Walnut Creek;
- 1517 Brentwood Court (APN 1844391001); Walnut Creek;
- 1524 Brentwood Court (APN 184392011), Walnut Creek; and,
- 1825 South Main Street (APN 184-392-034), Walnut Creek.

Pursuant to Stipulation VIII.C.5 of the Section 106 PA, Caltrans, as assigned by FHWA, is requesting your concurrence that none of these properties are eligible for the NRHP.

We look forward to receiving your response within 30 days of receipt of this submittal in accordance with Stipulation VIII.C.5.a of the Section 106 PA. This letter also serves as notification that Caltrans' finding for the undertaking, pursuant to Stipulation IX.A.2 of the Section 106 PA, is No Historic Properties Affected due to the absence of any identified historic properties within the APE. The Caltrans Division of Environmental Analysis is being provided with a concurrent copy of this documentation.

If you need any additional information, please do not hesitate to contact Caltrans District 4 Archaeologist Lindsay Hartman (phone: (510) 286-5416; e-mail Lindsay.Hartman@dot.ca.gov) or Caltrans District 4 Architectural Historian Douglas Bright (phone: (510) 286-5350; e-mail: Douglas_Bright@dot.ca.gov). Thank you for your assistance with this undertaking.

Sincerely,


Elizabeth McKee
Chief, Office of Cultural Resource Studies
California Department of Transportation
District 4

HPSR, ASR, HRER Enclosed
c: Todd Jaffke, HRC

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STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY

EDMUND G. BROWN, JR., Governor

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

1725 23rd Street, Suite 100
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(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov



August 7, 2013

Reply To: FHWA_2013_0708_001

Elizabeth McKee
Chief, Office of Cultural Resource Studies
Caltrans District 4
PO Box 23660
Oakland, CA 94623-0660

Re: Determination of Eligibility for the Proposed CC-680 SB HOV Gap Closure Project, Contra Costa County, CA

Dear Ms. McKee:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA)*.

Caltrans has determined that the following properties are not eligible for the National Register of Historic Places:

- 10 Los Ranchitos
- 20 Los Ranchitos
- 30 Los Ranchitos
- 40 Los Ranchitos
- 2212 Danville
- 1516 Castle Hill Road
- 1985 South Main Street
- 1977 South Main Street
- 1517 Brentwood Court
- 1524 Brentwood Court
- 1825 South Main Street

Based on review of the submitted documentation, I concur with your determination.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 or email at natalie.lindquist@parks.ca.gov.

Sincerely,

A handwritten signature in black ink that reads "Carol Roland-Nawi, Ph.D.".

Carol Roland-Nawi, Ph.D.
State Historic Preservation Officer

DEPARTMENT OF TRANSPORTATION

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August 9, 2013

Ms. Jane Hicks
Chief of Regulatory Branch
U.S. Army Corps of Engineers
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

04-CC-SB680-PM 11.2/16.6
EA 04-3A5800

Attention: Paula Gill

Dear Ms. Hicks:

Caltrans respectfully requests a Preliminary Jurisdictional Determination from the wetland delineation presented in the enclosed document. The report includes maps delineating the potential jurisdictional waters located within the I-680 SB HOV Lane Gap Closure Project from PM 11.2 to PM 16.6 in Contra Costa County. No jurisdictional wetlands were mapped in the study area.

The project proposes to close the existing gap in the southbound High-Occupancy Vehicle (HOV) lane system by adding a median HOV lane on southbound Interstate 680 from approximately 0.6 mile north of the Livorna Road interchange in Alamo, north to approximately 0.2 mile north of the Geary Road interchange in Walnut Creek, a distance of 5.4 miles. Project construction will be within the existing Caltrans right-of-way (ROW).

To accommodate the new southbound HOV lane, the proposed improvements would widen southbound I-680 from 0.6 miles north of Livorna Road to 0.4 miles north of South Main Street, a distance of 1.7 miles, and restripe the existing southbound mainline from north of South Main Street to 0.4 miles north of North Main Street, a distance of 3.7 miles. The project would also require widening the bridge at South Main Street (PM 13.08) an additional 9 feet. The retaining/sound walls located north of Livorna Road and located between Rudgear Road and South Main Street would be relocated; new retaining walls would be placed adjacent to the Rudgear Road on-ramp; and a new soundwall is proposed at the south end of the project. The existing median barrier structure separating the I-680 northbound and southbound lanes between the Rudgear Road Undercrossing (PM 12.6) to 0.4 mile north of the North Main Street Overcrossing (PM 16.0) will be upgraded to meet current standards. Ramp metering systems, which may include HOV bypass lanes, will be installed at southbound on-ramp locations, but will not be made operational as part of this project. The existing storm water retention and drainage systems will be modified as

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Ms. Jane Hicks
August 9, 2013

necessary.

Thank you for your time and consideration in this matter. If you have any question please contact Sandee Hufana, Biologist, at (510) 286-5637.

Sincerely,

A handwritten signature in blue ink, appearing to read "C. States", written over the printed name.

CHRISTOPHER STATES
Branch Chief
Office of Biological Sciences and Permits

Enclosure

Cc: Cameron Johnson- USACOE
Paula Gill- USACOE

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DEPARTMENT OF TRANSPORTATION

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August 23, 2013

Jan Knight
Acting Division Chief
U.S. Fish and Wildlife Service
Endangered Species Division—Sacramento Valley Branch
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-3901

ATTN: Jerry Roe

Dear Mr. Roe:

The California Department of Transportation (Caltrans) is initiating informal consultation for the Contra Costa County, Interstate 680, Southbound HOV Gap Closure Project (Project) (Caltrans EA 3A5800) under the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). The proposed Project is receiving federal funding through the Federal Highway Administration (FHWA), and Caltrans has assumed FHWA's responsibilities under the Act for this informal consultation in accordance with 23 U.S.C. 327, as described in the *Memorandum of Understanding between the Federal Highway Administration and the California Department of Transportation Concerning the State of California's Participation in the Project Delivery Program Pursuant to 23 U.S.C. 327* effective October 1, 2012 and codified in 23 U.S.C. 327(a)(2)(A).

The purpose of this letter is to inform the U.S. Fish and Wildlife Service (USFWS) of the Project and the proposed avoidance and minimization measures, and to request a letter of concurrence agreeing that this proposed Project "may affect, but is not likely to adversely affect" any listed species or alter any designated critical habitat pursuant to the Act. This letter provides a description of the proposed action, avoidance measures, environmental setting, results of the habitat assessment, potential project effects and support for the "not likely to adversely affect" determination. The referenced appendices, including figures, are provided at the end of this letter.

Threatened and Endangered Species

The following threatened or endangered species may be affected by the proposed action:

- California red-legged frog (*Rana aurora draytonii*) – Threatened
- Alameda whipsnake (*Masticophis lateralis euryxanthus*) - Threatened

Description of the Proposed Action

This Project proposes to improve traffic operations and relieve congestion by closing the existing gap in the southbound High Occupancy Vehicle (HOV) lane system by adding a median HOV lane on southbound I-680 in central Contra Costa County between post miles (PM) 11.2 and 16.6. Appendices

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include photographs of the Project location (Appendix A) and Project plans (Appendix B). The Project is located primarily within the city of Walnut Creek with a portion in Alamo (Figure 1).

The purpose of the Project is to reduce peak-period congestion and delay and to encourage the use of high-occupant vehicles and transit service.

The proposed Project will construct an HOV lane in the southbound direction on I-680 from approximately 0.6 miles north of Livorna Road to 0.2 miles north of Geary Road (Figure 1), a total of 5.4 miles. Southbound I-680 will be widened from 0.6 miles north of Livorna Road to 0.4 miles north of South Main Street. The existing southbound mainline freeway from north of South Main Street to 0.4 miles north of North Main Street will be restriped. The bridge structure over South Main Street at PM 13.08 will be widened by approximately 9 feet. The inside shoulder will be reduced to 1 foot at three pinch point locations. In addition, the outside shoulder will be reduced to 1 foot at the location of the BART overcrossing column. The Project will provide a standard 12 foot wide outside lane and a 10 foot outside shoulder in all other locations.

The existing retaining/sound walls located north of Livorna Road, between Rudgear Road and South Main Street, will be relocated to the newly expanded highway segment. New retaining walls will be constructed at the southern end of the Project, beginning at the southbound on-ramp from Rudgear Road south for a distance of approximately 3,464 feet, with an anticipated average wall height of between 10 and 16 feet. A new retaining wall will face the southbound on-ramp at Rudgear Road, and will be positioned between the ramp and the I-680 mainline. The wall will be approximately 1,044 feet in length, with an average height of 13.3 feet. In addition to the new walls, the existing combination sound/retaining wall located along Danville Boulevard will be replaced. The new wall will be located approximately 20 feet closer to Danville Boulevard than is the existing wall.

No right-of-way acquisitions are required; however, temporary construction easements will be required for the Project (access into private properties is needed to construct the walls). Utilities will be relocated as needed, which will require excavating a trench of up to 30 inches in depth. Ramp metering system infrastructure (conduit, pull-boxes, limit lines, metering poles, signal heads, and controller boxes) will be installed at the Geary Road, North Main Street, Ygnacio Valley Road, Olympic Boulevard, South Main Street, and Rudgear Road SB on-ramps, but will not be made operational as part of this Project.

Study Area Definitions

For this document, the action area is defined as the area within the limits of work that will be directly affected by the Project. There are no anticipated indirect effects associated with the proposed action. This area is shown on the Project plans (Appendix B). The biological study area (BSA) is the area studied to determine the potential effects to USFWS protected species, California red-legged frog and Alameda whipsnake. The BSA consists of a California Natural Diversity Database (CNDDDB) records search of special-status species within a 5-mile radius of the action area, a USFWS species quadrangle search for Las Trampas Ridge and Walnut Creek U.S. Geological Survey (USGS) 7.5' quadrangles, and a review of the soils map from the U.S. Department of Agriculture Web Soil Survey.

Summary of Avoidance and Minimization Measures

The proposed Project is not likely to adversely affect or result in the take (harm or harassment) of California red-legged frog or Alameda whipsnake with the implementation of the following avoidance and minimization measures:

- Before construction, Caltrans standard best management practices (BMPs) will be implemented,

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including but not limited to high visibility silt fencing to ensure the contractor is deterred from entering environmentally sensitive areas [ESA] [Appendix E].

- The ESA fence can be made of high visibility silt fence or ERTEC E-Fence or an equivalent product with a minimum 3.5-inch overlap between panels. Fence panels will be attached to wooden fence posts and buried to a minimum of 6 inches below grade. Plastic mono-filament netting (erosion control matting) will not be used for erosion control or other purposes in the designated Project limits to prevent endangered species from becoming entangled or trapped in the netting.
- A USFWS-approved biologist will conduct preconstruction training for contractors on the identification of listed species and their protected status.
- Preconstruction clearance and periodic monitoring will be conducted prior to ground disturbance activities.
- Construction access, staging, storage, and parking areas within the Project right-of-way (ROW) shall be located outside of any designated ESA or outside of the ROW in areas that have been environmentally cleared and permitted by the contractor.

Environmental Setting

Project Area

I-680 is a major north to south commuter route in the East San Francisco Bay Area. Running from the I-280/US 101 interchange in San Jose to its intersection with I-80 in Cordelia, I-680 serves the eastern cities of the San Francisco Bay Area.

The Project area (Figure 1) is located in Contra Costa County, California and is situated in the valley between the Oakland Hills-Berkeley Hills on the west and Mount Diablo on the east. The region surrounding the BSA consists primarily of urban development, with a few small areas of undeveloped land, some of which contain natural habitats such as oak woodland, annual grassland or riparian woodland. The majority of the natural habitat areas within 1 mile of the BSA occur within the Acalanes Ridge Open Space Area and the Sugarloaf Open Space Area. Both of these open space areas are adjacent to the BSA.

Other offsite natural areas with grassland and woodland habitats include the undeveloped land southwest of Castle Crest Road, the area south of the Seven Hills School along North San Carlos Drive, and a few small areas in the vicinity of the Care Center of Rossmoor along Rossmoor Parkway; however, all of these areas are small and isolated from other offsite areas of natural habitat and from the BSA by residential and commercial development.

The BSA consists primarily of developed and ornamental tree habitats. The BSA supports some undeveloped habitats adjacent to I-680, including Coastal Oak Woodland, Valley Foothill Riparian, Annual Grassland, Ruderal, and Coastal Scrub. Much of the undeveloped land in the Project area is composed of ornamental plantings associated with the freeway on-ramps, road shoulders, and the surrounding residential areas.

Climatic and physical conditions of the region reflect on-going human-induced disturbances. As a result, many areas support a mix of native and non-native shrub, grass and herbaceous species that do not represent intact native landscapes. Construction and on-going maintenance of I-680 have resulted in removal of native vegetation and soils, alteration of natural drainage channels and an introduction of invasive ruderal vegetation.

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Ruderal/annual grassland communities have been physically modified by human activity by grading and landscaping. This altered community is generally considered to have limited biological value due to the lack of intact native species. Altered communities may provide resources including cover, forage and water. However, most altered communities are located in areas of high human activity and use by wildlife is limited to those species tolerant of humans. Dominant plant species occurring in these communities include rigpgut brome (*Bromus diandrus*), yellow starthistle (*Centaurea solstitialis*), soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perennis*), and black mustard (*Brassica nigra*).

The only potential wildlife corridors passing through the BSA are San Ramon Creek, Tice Creek, Las Trampas Creek, and the Contra Costa Canal. The portion of San Ramon Creek that crosses both the BSA and the Contra Costa Canal is a vertically-sided and concrete lined channel with no vegetation. The creek at these locations is fenced and has limited access. The segment of San Ramon Creek located southwest of I-680, though concrete lined, has a more natural profile with some vegetation present. It parallels the BSA, but is separated from it by residential development, though it does pass within 100 feet of the hill on the west side of I-680 across from the Sugarloaf Open Space Area. Tice Creek is a vertically sided concrete lined channel west of I-680, but passes through a culvert under I-680 and continues underground until it feeds into Las Trampas Creek approximately 0.25 miles east of I-680. Only Las Trampas Creek contains riparian vegetation, and is therefore the only one of these four linear features that is likely to provide a suitable wildlife movement corridor through the BSA.

All federally listed species known to occur within the Las Trampas Ridge and Walnut Creek U.S. Geological Survey (USGS) 7.5-minute quadrangles were evaluated at the outset of this Project for their potential to occur within the BSA. The evaluation included review of the CNDDDB and USFWS species lists (Appendix C). The potential for occurrence was eliminated for federally listed species other than California red-legged frog and Alameda whipsnake because of the absence of suitable habitat within the BSA (Appendix D; CDFW 2013). For California red-legged frog, the presence of suitable dispersal habitat within the action area and the 12 occurrence records within a 5 mile radius of the action area indicates that California red-legged frog may occur within the BSA (Figure 2). For the Alameda whipsnake, the presence of suitable dispersal habitat within the action area and the 80 occurrence records within a 5 mile radius of the action area indicates that Alameda whipsnake may also occur within the BSA (Figure 2). It was determined that the Project has the potential to affect California red-legged frog and Alameda whipsnake, but would not affect other federally listed species.

While natural vegetation that could support California red-legged frog and Alameda whipsnake occurs within the BSA, site conditions within the action area (Appendix A and Appendix B) consist of paved roadways, paved shoulders, gravel shoulders, and bare ground. The shoulders generally lack vegetation due to the compacted soils and gravel. Ruderal and ornamental vegetation occur on the shoulders in some locations. All work will be done within the existing paved roadway of southbound I-680 and will not affect quality habitat.

California Red-Legged Frog

The California red-legged frog, federally listed as threatened (USFWS 1996), is distributed throughout 26 counties in California, but is most abundant in the San Francisco Bay Area. California red-legged frogs inhabit predominantly permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms (Jennings and Hayes 1994; Bulger et al. 2003; Stebbins 2003).

California red-legged frogs breed in wetlands, lakes, ponds, and other still or slow-moving sources of water. During summer months, California red-legged frogs may take refuge in cool, moist areas such as rodent burrows and soil crevices. Although many California red-legged frogs appear to remain close to aquatic

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habitats year-round, Fellers and Kleeman (2007) found that nearly half of all females in some areas disperse into other locations during the non-breeding season. Dispersal distances from breeding habitat are generally less than 0.5 miles (Fellers and Kleeman 2007), but some individuals have been observed to move more than 2 miles through surrounding uplands (Bulger et al. 2003). Dispersal typically occurs along riparian corridors, but frogs moving to non-breeding habitat areas may traverse a wide variety of habitat types (Fellers and Kleeman 2007; Bulger et al. 2003).

Adult California red-legged frogs typically breed and deposit their egg masses between November and April in standing or slow-moving water at least 2.5 feet deep with emergent vegetation (Hayes and Jennings 1988). The eggs typically hatch within two weeks and the larvae reside solely in the pond during metamorphosis for approximately six months. As sub-adults they reside in the pond or pond vicinity with adult California red-legged frogs until there is either pressure from predation, adults, or the pond dries out; this would occur during the end of the metamorphic cycle.

California red-legged frog terrestrial activity has generally been categorized in two ways: 1) migratory movements between aquatic sites most often associated with breeding; and 2) non-migratory movements associated with precipitation events (Bulger et al. 2003). California red-legged frogs are often found in summer months in foraging habitat that would not be suitable for breeding; these individuals presumably move seasonally between summer foraging habitat and winter breeding habitat. It has been documented that California red-legged frogs most frequently utilize habitat in close proximity to perennial aquatic habitat. In one study cited by the USFWS (2006), the median distance California red-legged frogs (those not migrating or dispersing) were found from water in the dry season was 16 feet and this extended to 50 – 80 feet in the wet season (Bulger et al. 2003). This study also found that 90% of these California red-legged frogs remained within 200 feet of aquatic habitat. Roads have been identified as an important landscape component hindering amphibian movement (USFWS 2002).

Survey Results

A California red-legged frog habitat assessment was conducted on December 2, 2011 and January 17, 2012. In addition, a review of the CNDDDB identified 12 records within a 5 mile radius (Figure 2; CDFW 2013). None of these records occur within 1 mile of the BSA. The closest occurrence was recorded in 1994 to be 1.64 miles east. The next two closest of these records occur just over 2 miles from the BSA and are associated with breeding sites. All 12 of these records are physically separated from the BSA by urban development. Some of these records have been documented in a tributary of San Ramon Creek located over 2.5 miles east and upstream from the creek crossing at I-680 (CDFW 2013). Most of this tributary's length abuts residential areas of Alamo, east and west of I-680. The San Ramon Creek segment, which is located west of the I-680 breeding locations, lies 6.0 miles upstream of I-680 in Las Trampas Creek in an undeveloped area. The creek passes through residential areas and channelized segments before reaching the BSA, so it does not provide suitable breeding habitat for the California red-legged frog. No California red-legged frog records were found for Las Trampas Creek (east of I-680), which flows through approximately 0.5 miles of downtown Walnut Creek's commercial development area and then into Walnut Creek. Additionally, no California red-legged frog records were found for the area from Walnut Creek along its length to Suisun Bay, which is located over 10.0 miles north of the BSA (Swaim Biological Inc. 2012).

While the BSA is surrounded by urban development, the three creeks and the Contra Costa Canal that cross the BSA could potentially act as travel corridors for the California red-legged frog. Although these waterways do not provide breeding habitat for California red-legged frogs in the vicinity of the BSA, they provide a limited connection that could potentially allow California red-legged frogs to access the BSA or adjacent land from offsite areas where they are known to occur.

The Contra Costa Canal is the northernmost aquatic habitat in the Project area, and it flows east under the BSA, approximately 0.3 miles south of the northern Project limit of Geary/Treat Road. The canal is concrete lined and

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serves as a flood control conveyance. No vegetation is present in the channel where it passes under I-680; therefore it provides no habitat for the California red-legged frog (Swaim Biological Inc. 2012).

Tice Creek crosses I-680 through an underground culvert and is contained within a vertical-sided concrete channel on the west side of the BSA. This condition makes it very unlikely that any California red-legged frogs would occur in this creek; if any California red-legged frogs did occur in Tice Creek, no exit from the creek exists anywhere near the BSA due to the high concrete walls of the channel (Swaim Biological Inc. 2012).

San Ramon Creek passes under the BSA in a vertically sided concrete channel at the Rudgear Road interchange. No pools or vegetation are present that would provide habitat for the California red-legged frog, and the vertical concrete walls of the channel act as a barrier to the BSA. The segment of the San Ramon Creek that parallels the BSA in the southern portion of the project area between Rudgear and Livorna flows in a more natural — but concrete-lined — channel. This segment is seasonal, and aquatic vegetation is poorly established due to the concrete lining of the channel. It is also subject to heavy winter flood flows along its length, and so does not provide slow moving or pond type habitat that would be available during the California red-legged frog breeding season. During the summer, the channel dries out since it only receives input only from irrigation (Swaim Biological Inc. 2012).

Las Trampas Creek flows east under the Interstate in Walnut Creek between Olympic Boulevard and South Main Street. Las Trampas Creek is a perennial tributary to Walnut Creek. Riparian vegetation is well developed on the banks of Las Trampas Creek in the Project vicinity, but there is relatively little adjacent upland habitat with residential and commercial development existing on both sides of the creek.

Within the BSA, three bridge structures cross Las Trampas Creek. One structure supports the north and south bound lanes of I-680, another supports the northbound off-ramp to Olympic Boulevard, and a third supports the Olympic Boulevard on-ramp to south bound I-680. The slab-type columns support bridge structures. During the field survey, the eastern portion of one of the columns was observed to be within an area of the creek channel that contained flowing water. The remaining columns were located out of the water and were high enough on the bank that they would contact water only during a high winter storm flow event. The creek banks in the area immediately under I-680 and the spaces between the slab supports are nearly devoid of vegetation (Swaim Biological Inc. 2012).

During the assessment site visit, no individual California red-legged frogs and no aquatic habitat of any kind were observed within the BSA outside of the creek crossings described above. Since no aquatic habitat is present in the work area, implementation of the focused survey portion of the California red-legged frog guidelines was not required.

While it is possible that the California red-legged frog could move into portions of the BSA near Las Trampas Creek and San Ramon Creek, they are unlikely to move through these segments because no suitable habitat exists and exit points along these segments are scarce or non-existent. Additionally, because aquatic habitat does not exist within the BSA, the California red-legged frog would not be attracted into the work area. Although presence of California red-legged frogs in the vicinity cannot be entirely ruled out, the lack of aquatic habitat, the extent of urban development and human activity surrounding the BSA, and the isolation of the BSA from areas of suitable habitat where the California red-legged frog is known to occur, make it very unlikely that this species would occur there.

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Critical Habitat

On March 17, 2010, the designated critical habitat for California red-legged frog was revised (USFWS 2010). The Project site and the BSA are outside all designated critical habitat for the California red-legged frog. Consequently, the proposed Project will not result in adverse modification of California red-legged frog critical habitat.

Project Effects

The Project is not likely to impact California red-legged frog habitat because California red-legged frogs are not expected to occur in the reaches of the creeks within the BSA. The large distance between documented and potential breeding habitat in Las Trampas Creek as well as the extensive amount of residential and commercial development through which the creek passes before reaching I-680 reduces the potential for encountering even a random dispersal of California red-legged frogs. However, there are records of this species in the vicinity, so a very low possibility remains for California red-legged frog to move through the BSA. With these site factors, and the application of the avoidance and minimization measure detailed earlier, Caltrans concludes that California red-legged frogs are highly unlikely to be encountered during the course of Project construction.

Alameda whipsnake

The Alameda whipsnake is federally listed as threatened. This species is typically found in chaparral, Diablan sage scrub, northern coyote brush scrub, and riparian scrub; the species also persists within the mosaic of adjacent habitats in Alameda and Contra Costa Counties, including oak woodland, grassland (grazed and ungrazed), riparian, and mixed evergreen forest. Habitat use is typically concentrated in core areas of open or partially open canopy scrub on east, south to southwest facing slopes, or in nearby grassland habitats within 500 feet of scrub with similar aspects. Core areas typically feature abundant rock outcrops, which provide cover and are associated with high densities of lizards, a major prey item (Swaim 1994; Stebbins 2003).

Courtship and mating of Alameda whipsnakes occur in spring, from late March through mid-June. During this time, males move around throughout their home ranges, while females appear to remain at or near their hibernaculum, where mating occurs. Radio-telemetry data indicate that Alameda whipsnakes remain in grasslands for periods ranging from a few hours to several weeks at a time. Grassland habitats are used by male whipsnakes most extensively during the mating season. Female whipsnakes use grassland areas most extensively after mating, possibly in their search for suitable egg-laying sites (USFWS 2005).

Studies of Alameda whipsnakes equipped with radio-telemetry transmitters have shown that they will also utilize grassland and oak woodland/savanna habitats adjacent to chaparral and scrub communities (Swaim 1994). Swaim Biological (1994, 2000, 2002, and 2003) found that although most of the tracked Alameda whipsnakes were within 100 feet of scrub habitat, many verified and measurable observations of free-ranging Alameda whipsnakes have been made beyond 500 feet of scrub and up to 4.0 miles from scrub habitat. The results of these radio-telemetry studies are biased toward the movement patterns of large Alameda whipsnakes since radio-telemetry transmitters can only be put on larger Alameda whipsnakes (Swaim Biological 2012).

Survey Results

A habitat assessment was conducted for Alameda whipsnakes in the BSA on December 2, 2011 and January 17, 2012. No Alameda whipsnakes were observed in the BSA during the habitat assessments.

The results of this assessment indicate that suitable habitat for Alameda whipsnakes, such as coastal scrub or grassland habitat, is not present within the BSA boundaries. The survey did, however, document that potentially suitable core habitat does occur just outside of the BSA; this potential habitat is discussed further below. The BSA is located outside of designated critical habitat for Alameda whipsnakes. The closest critical habitat is 0.67 miles

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south of the BSA. Critical habitat is also located east and west of the BSA. There are 80 CNDDDB records of this species within a 5-mile radius of the BSA; however, the specific location of many of these records is suppressed by the CDFW. The study conducted for the Project by Swaim Biological Inc. (2012) included more specific locations of the CNDDDB Alameda whipsnake records as well as records from the University of California Berkeley Museum of Vertebrate Zoology (2012) database, which are discussed below. According to the Swaim report, all the records are separated from the BSA by urban development.

Five of the 80 CNDDDB records of Alameda whipsnakes described above occur within 1 mile of the BSA; all five of these records are located west of the BSA in the Alamo Hills; two date from the 1970s and the other three date from 1990, 2006 and 2008. All of these records are physically separated from the BSA by urban development. The remainder of the CNDDDB records of Alameda whipsnakes identified within a 5-mile radius of the BSA are located east, northwest, and south of the BSA (Swaim Biological Inc. 2012).

The biological site assessment for potential Alameda whipsnake habitat identified only one potential core habitat area. This potential core habitat is outside the BSA, on private property adjacent to Sugarloaf Open Space near the Rudgear Road interchange. It should be noted that extensive urban development and associated roads isolate the Sugarloaf Open Space Area and the adjacent undeveloped lands from known populations of Alameda whipsnakes. This area supports patches of scrub habitat. The largest patch is approximately one acre in size and has a south-facing aspect. The largest patch of scrub in this area is located approximately 500 feet east of the northbound side of the BSA. Based on evidence provided by historical photographs, scrub cover in this area increased after being isolated from other suitable scrub habitat to the east, which is likely due to the exclusion of grazing; therefore, the presence of high quality habitat does not necessarily mean that Alameda whipsnakes are present in this area. In addition, this potential core habitat is outside the BSA and is isolated from the I-680 southbound construction area by I-680, which includes eight lanes of freeway with an approximately 3-foot-high concrete dividing wall between the northbound and southbound lanes. On a larger scale, the BSA is also isolated by urban development from areas where Alameda whipsnakes are known to occur (Swaim Biological 2012).

Other upland habitats within and in the vicinity of the BSA are not core habitat types that would support a breeding resident population of Alameda whipsnakes. There are two non-native grassland habitats located within the construction work area in the BSA, but neither provides core habitat for Alameda whipsnakes. Alameda whipsnakes could potentially disperse into these areas from western scrub habitats. These two areas are also within an ESA. Rock outcrops are present on some of the slopes of the non-native grassland knoll in the southernmost portion of the BSA. Although these grassland areas are isolated from other habitats to the west by residential development, Alameda whipsnakes could potentially disperse into these spaces; however, this would require Alameda whipsnakes to move through residential areas, greatly reducing the likelihood of a dispersal.

Acalanes Ridge Open Space and the Sugarloaf Open Space and its adjacent undeveloped habitats consist primarily of non-native grassland and scattered trees. Each area supports less than an acre of scrub and does not provide core habitat. Although Alameda whipsnakes could potentially disperse into these areas, these spaces are isolated by roads and residential development from other open space scrub habitats to the west. In addition, neither of these two areas are located adjacent to the proposed construction areas (Swaim Biological Inc. 2012).

Alameda whipsnakes are not likely to be present in the BSA due to its isolation, and the separation of the undeveloped land adjacent to the BSA from areas where Alameda whipsnakes are known to occur. Additionally, the lack of suitable habitat for Alameda whipsnakes and their prey species will not attract Alameda whipsnakes into the BSA. Although small areas of undeveloped land lie adjacent to the BSA on the west side, none of these areas contain the core habitat required to support a resident population of Alameda whipsnakes (Swaim Biological Inc. 2012).

Critical Habitat

The Project site and the BSA are outside all designated critical habitat for the Alameda whipsnake. Consequently, the proposed Project will not result in adverse modification of Alameda whipsnake critical

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habitat.

Project Effects

The BSA does not support any core type habitat for Alameda whipsnakes, but potentially provides areas that Alameda whipsnakes could utilize. Because Alameda whipsnakes are not expected to be present in the BSA, the Project is unlikely to have any impact on the species. With these site factors, and the application of the avoidance and minimization measure detailed earlier, Caltrans concludes that Alameda whipsnakes are highly unlikely to be encountered during the course of Project construction.

Conclusion

The Project design team has taken every possible opportunity to incorporate reasonable and prudent measures to minimize and avoid effects to this species and its habitat. The Project has been designed to affect only the minimal area of disturbance necessary, with all work taking place on paved or disturbed areas, minimizing the potential action area. The construction avoidance measures listed in the beginning of this letter will restrict construction to the roadway and adjacent areas, and include a number of other measures to avoid take. The proposed Project will not result in adverse effects to federally listed plant and wildlife species or designated critical habitat.

As a result of site conditions and the implementation of reasonable and prudent measures for avoidance, the potential for effects is considered discountable because the California red-legged frog and the Alameda whipsnake are extremely unlikely to occur. Caltrans concludes that the appropriate finding for this Project for the California red-legged frog and the Alameda whipsnake is “may affect, not likely to adversely affect.”

Caltrans respectfully requests your prompt concurrence with this determination and delivery of the “not likely to adversely affect” by September 30, 2013. If you have any questions regarding this request, please contact Christopher States at (510) 286-7185.

Sincerely,



CHRISTOPHER T. STATES
Branch Chief, Biological Science and Permits

Enclosures/Attachments:

Figure 1 – Project Location
Figure 2 – CNDDDB Occurrence Map

Appendix A - Site Photographs
Appendix B - Project Plans
Appendix C - USFWS Species List
Appendix D - CNDDDB Species Table
Appendix E – Caltrans Best Management Practices

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References

- Bulger, J. B., N. J. Scott, Jr., and R. B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. *Biological Conservation* 110:85-95.
- California Department of Fish and Wildlife (CDFW). 2013. Results for Las Trampas Ridge and Walnut Creek quadrangles California Natural Diversity Database (CNDDDB). Electronic database. Last updated August 6, 2013. Sacramento, California.
- Fellers, G. and P. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. *Journal of Herpetology* 41:276-286.
- Hayes, M.P., and M.R. Jennings. 1988. "Habitat Correlates of Distribution of the California Red-legged Frog (*Rana aurora draytonii*) and the Foothill Yellow-legged Frog (*Rana boylei*): Implications for Management." In: R. Sarzo, K.E. Severson, and D.R. Patton (technical coordinators). *Proceedings of the Symposium on the Management of Amphibians, Reptiles, and Small Mammals in North America*. United States Department of Agriculture, Forest Service, Rocky Mountain Range and Experiment Station, Fort Collins, Colorado. General Technical Report (RM-166). pp. 144–158.
- Jennings, M.R. and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. Prepared for California Department of Fish and Game, Rancho Cordova, California. Contract #8023.
- Stebbins, 2003. Stebbins, Robert C. A Field Guide to Western Reptiles and Amphibians, Third Edition, Revised. Houghton Mifflin Company, 2003.
- Swaim Biological. 2000. Results of a live-trapping survey for the Alameda whipsnake (*Masticophis lateralis euryxanthus*) at the Schaefer Ranch in Dublin, Alameda County, California. Prepared for LSA Associates, Inc. January 18, 2000.
- Swaim Biological. 2002. Alameda whipsnake habitat assessment for the Equilon Pipeline Marsh Creek Replacement Project, Contra Costa County, California. Prepared for Essex Environmental, Inc. September 30, 2002.
- Swaim Biological. 2003. Status of the Alameda whipsnake (*Masticophis lateralis euryxanthus*) at the proposed Franklin Canyon Project Site in Hercules, Contra Costa County, California. Prepared for Sycamore Associates, LLC. 26 pp.

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- Swaim Biological. 2012. Draft Site Assessment for California Tiger Salamander, California Red-legged Frog, and the Alameda Whipsnake at the CB HOV Gap Closure Project, Contra Costa County, CA. Prepared for Cardno ENTRIX January 27, 2012.
- Swaim, K.E. 1994. Aspects of the ecology of the Alameda whipsnake (*Masticophis lateralis euryxanthus*) Master's Thesis, California State University, Hayward, CA. 140 pp.
- U.S. Fish and Wildlife Service (USFWS). 1996. Endangered and Threatened Wildlife and Plants; Final Determination of Threatened Status for the California Red-legged Frog, Proposed Rule, Federal Register 61:25813-25833.
- U.S. Fish and Wildlife Service (USFWS). 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon.
- U.S. Fish and Wildlife Service (USFWS). 2005. Species Account – Alameda Whipsnake (*Masticophis lateralis euryxanthus*). U.S. Fish and Wildlife Service, Sacramento, California. March 21, 2005.
- U.S. Fish and Wildlife Service (USFWS). 2010. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the California Red-Legged Frog, Final Rule, Federal Register. 75:12815-12864.
- U.S. Fish and Wildlife Service (USFWS). 2012. Federal endangered and threatened species that occur in or may be affected by Projects in the counties and/or USGS 7 1/2 minute quads you requested: species lists for Las Trampas Creek and Walnut Creek 7.5 minute quadrangles. U.S. Fish and Wildlife Service Sacramento District, Endangered Species database. November 28, 2012. Available at: http://www.fws.gov/sacramento/es_species/Lists/es_species_lists.cfm
- University of California Berkeley Museum of Vertebrate Zoology database. 2012. <http://arctos.database.museum/SpecimenSearch.cfm>. Accessed 2012.

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Appendix H Maps of Noise Receivers and Barrier Locations

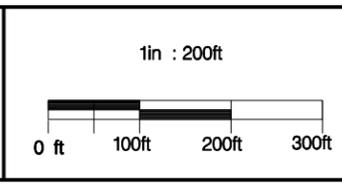


LEGEND ⊕RXX - RECEIVER SITE ⊕LT - LONGTERM MEASUREMENT ⊕ST - SHORTTERM MEASUREMENT ⊕CAL - CALIBRATION SITE	SFR OR S - SINGLE FAMILY RESIDENCE MFR OR M - MULTI-FAMILY RESIDENCE COMM - COMMERCIAL b - BENEFITED RESIDENCE  - RETAINING WALL	 - EXISTING PROPERTY WALL  - SOUNDWALL  - EXISTING SOUNDWALL  - REPLACEMENT IN KIND SOUNDWALL	1in : 200ft 		CCTA I-680 HOV GAP CLOSURE PROJECT NOISE RECEIVER & BARRIER LOCATIONS SEPTEMBER 7, 2012 FIGURE 1
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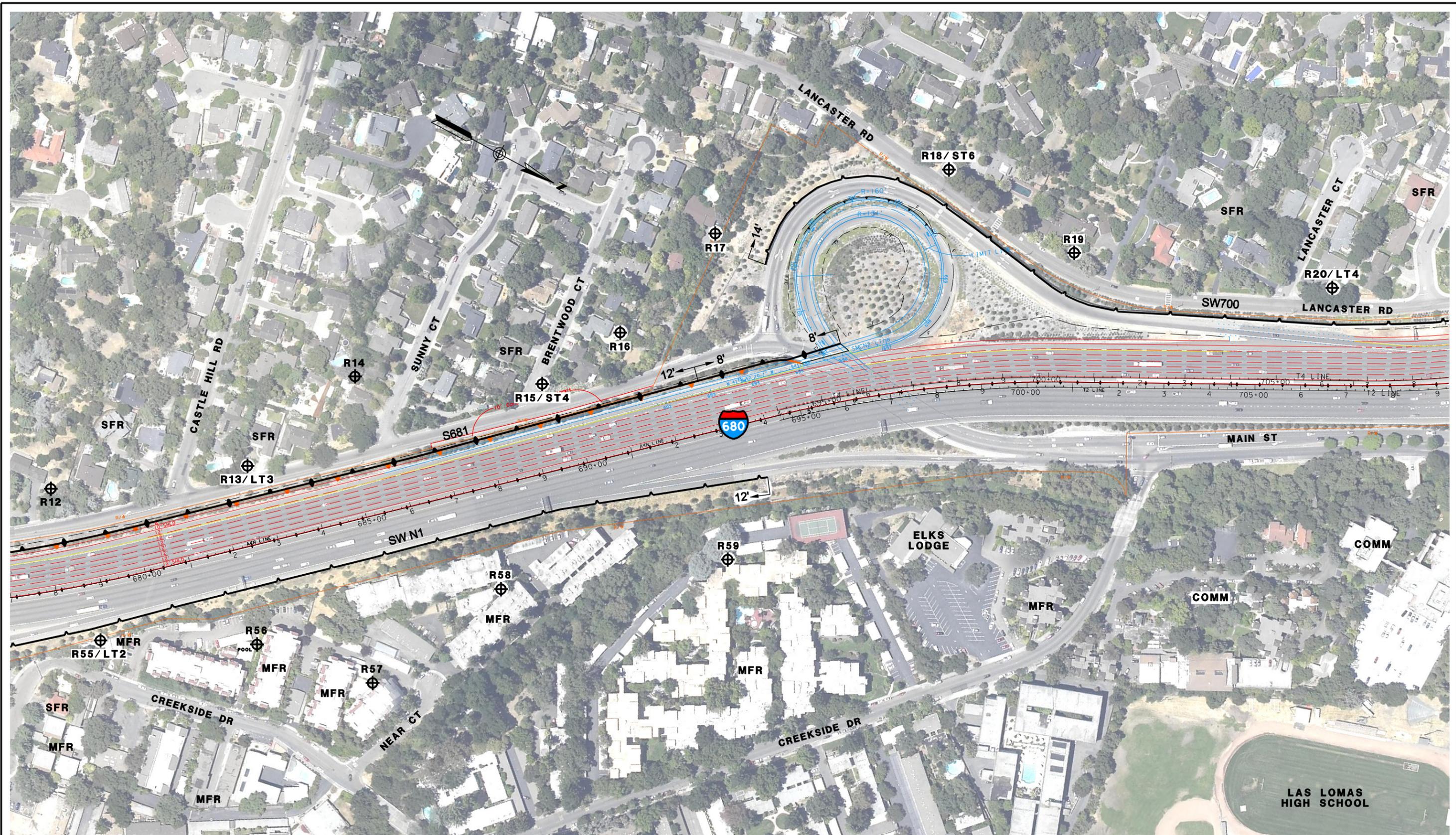
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⊕LT	- LONGTERM MEASUREMENT	—○—	- SOUNDWALL
⊕ST	- SHORTTERM MEASUREMENT	—▲—	- EXISTING SOUNDWALL
⊕CAL	- CALIBRATION SITE	—◆—	- REPLACEMENT IN KIND SOUNDWALL
SFR OR S	- SINGLE FAMILY RESIDENCE		
MFR OR M	- MULTI-FAMILY RESIDENCE		
COMM	- COMMERCIAL		
b	- BENEFITED RESIDENCE		
—▲—	- RETAINING WALL		



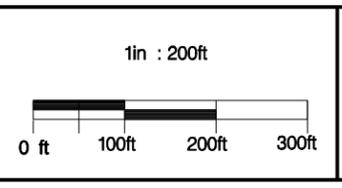
**CCTA I-680 HOV GAP CLOSURE PROJECT
NOISE RECEIVER & BARRIER LOCATIONS**

SEPTEMBER 7, 2012 FIGURE 2

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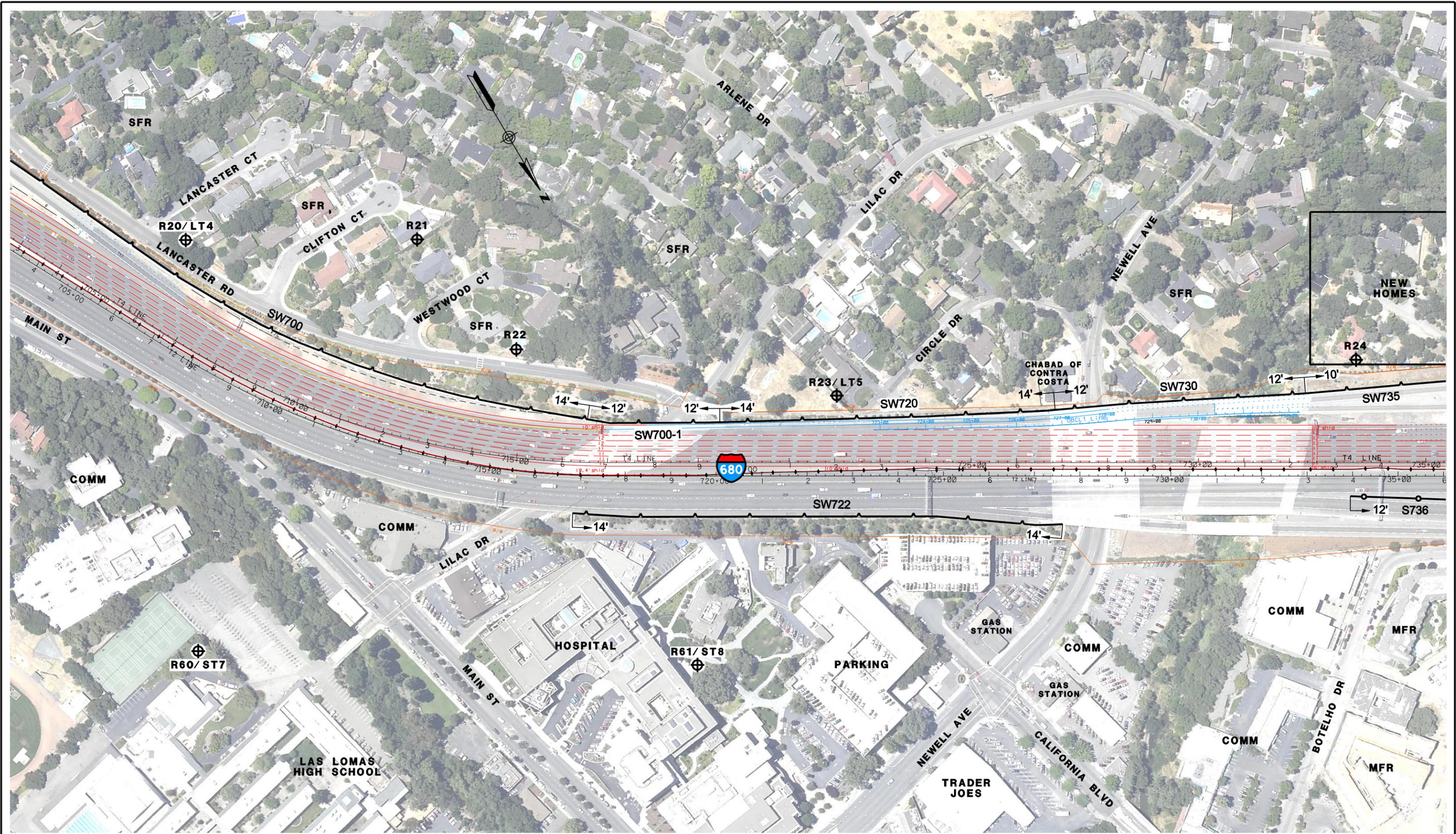
LEGEND	
⊕RXX	- RECEIVER SITE
⊕LT	- LONGTERM MEASUREMENT
⊕ST	- SHORTTERM MEASUREMENT
⊕CAL	- CALIBRATION SITE
SFR OR S	- SINGLE FAMILY RESIDENCE
MFR OR M	- MULTI-FAMILY RESIDENCE
COMM	- COMMERCIAL
b	- BENEFITED RESIDENCE
—▲—▲—▲—	- RETAINING WALL
— — — —	- EXISTING PROPERTY WALL
—○—○—○—	- SOUNDWALL
—▲—▲—▲—	- EXISTING SOUNDWALL
—●—●—●—	- REPLACEMENT IN KIND SOUNDWALL



**CCTA I-680 HOV GAP CLOSURE PROJECT
NOISE RECEIVER & BARRIER LOCATIONS**

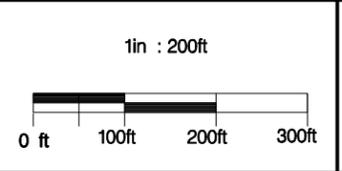
SEPTEMBER 7, 2012 FIGURE 3

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LEGEND	
⊕RXX	- RECEIVER SITE
⊕LT	- LONGTERM MEASUREMENT
⊕ST	- SHORTTERM MEASUREMENT
⊕CAL	- CALIBRATION SITE
SFR OR S	- SINGLE FAMILY RESIDENCE
MFR OR M	- MULTI-FAMILY RESIDENCE
COMM	- COMMERCIAL
b	- BENEFITED RESIDENCE
	- RETAINING WALL

	- EXISTING PROPERTY WALL
	- SOUNDWALL
	- EXISTING SOUNDWALL
	- REPLACEMENT IN KIND SOUNDWALL



**CCTA I-680 HOV GAP CLOSURE PROJECT
NOISE RECEIVER & BARRIER LOCATIONS**

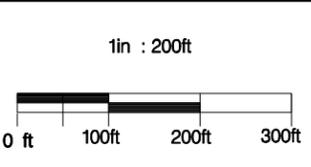
SEPTEMBER 7, 2012 FIGURE 4

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LEGEND	
⊕RXX	- RECEIVER SITE
⊕LT	- LONGTERM MEASUREMENT
⊕ST	- SHORTTERM MEASUREMENT
⊕CAL	- CALIBRATION SITE
SFR OR S	- SINGLE FAMILY RESIDENCE
MFR OR M	- MULTI-FAMILY RESIDENCE
COMM	- COMMERCIAL
b	- BENEFITED RESIDENCE
	- RETAINING WALL

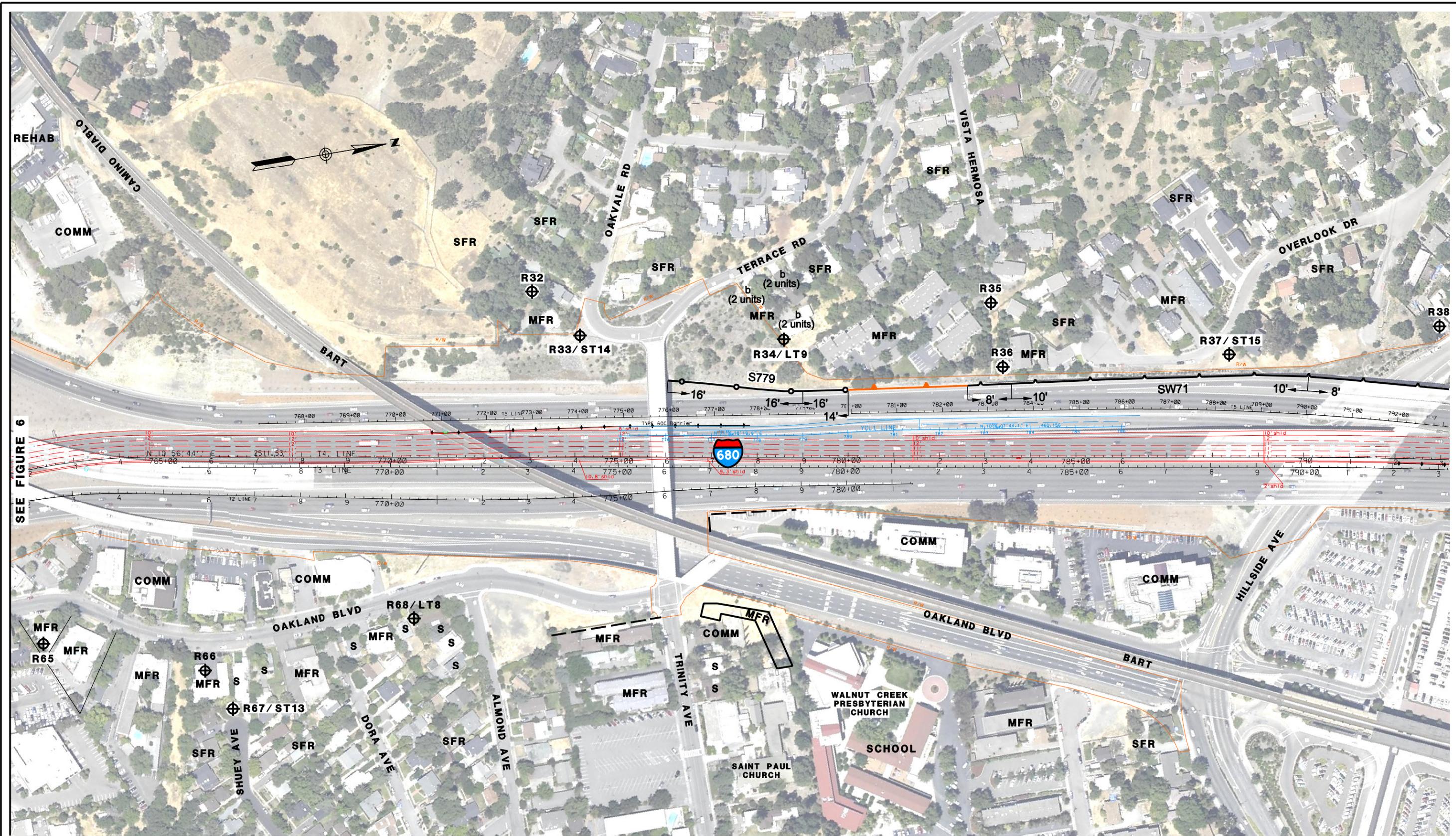
	- EXISTING PROPERTY WALL
	- SOUNDWALL
	- EXISTING SOUNDWALL
	- REPLACEMENT IN KIND SOUNDWALL



**CCTA I-680 HOV GAP CLOSURE PROJECT
NOISE RECEIVER & BARRIER LOCATIONS**

SEPTEMBER 7, 2012 FIGURE 5

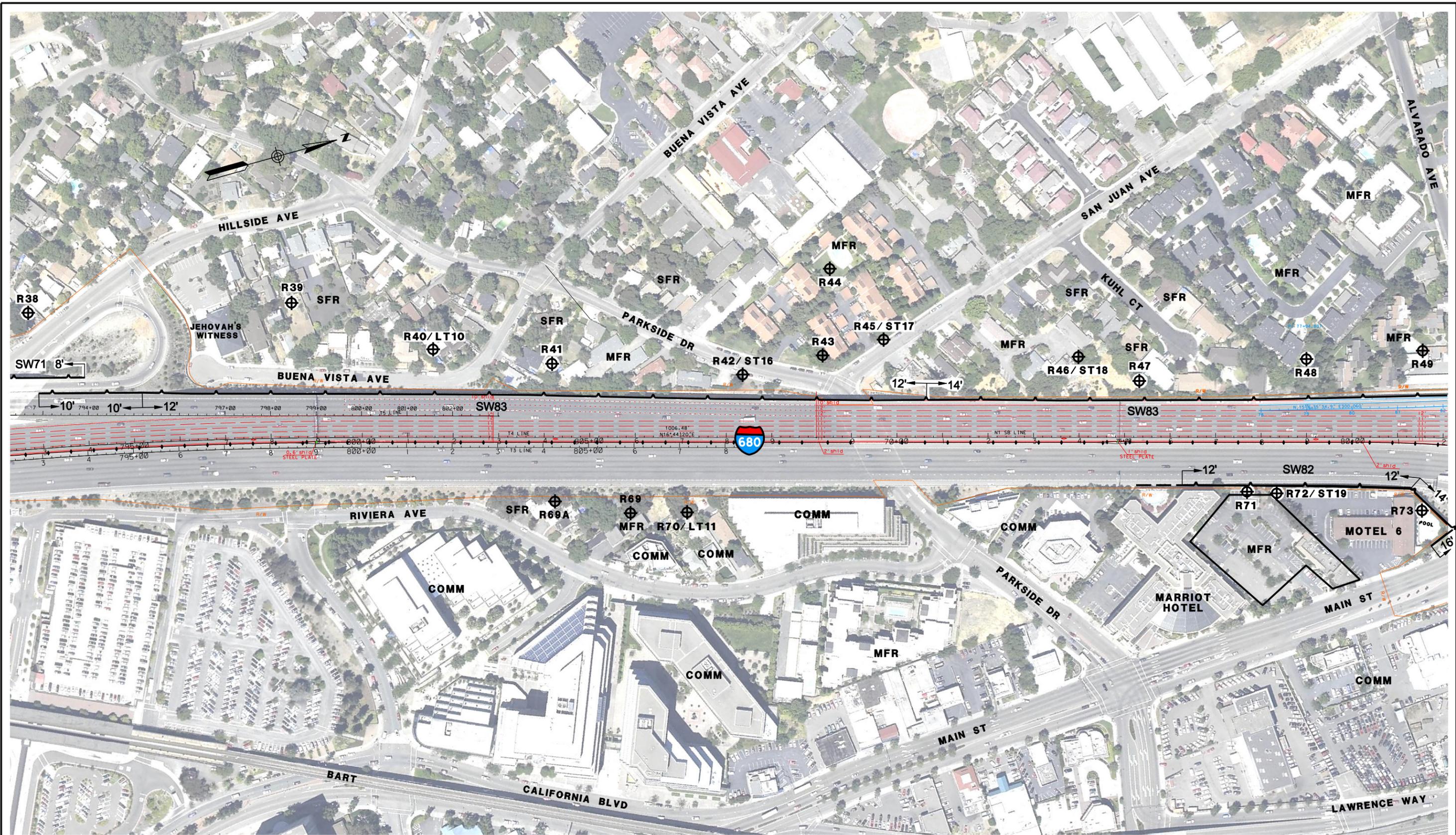
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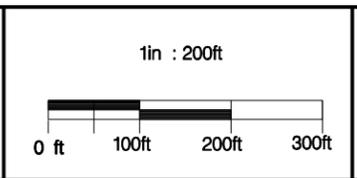
SEE FIGURE 6

<p>LEGEND</p> <ul style="list-style-type: none"> ⊕RXX - RECEIVER SITE ⊕LT - LONGTERM MEASUREMENT ⊕ST - SHORTTERM MEASUREMENT ⊕CAL - CALIBRATION SITE 	<ul style="list-style-type: none"> SFR OR S - SINGLE FAMILY RESIDENCE MFR OR M - MULTI-FAMILY RESIDENCE COMM - COMMERCIAL b - BENEFITED RESIDENCE —▲— RETAINING WALL 	<ul style="list-style-type: none"> - - - - - EXISTING PROPERTY WALL ○—○—○— SOUNDWALL —▲— EXISTING SOUNDWALL —●— REPLACEMENT IN KIND SOUNDWALL 	<p>1in : 200ft</p>		<p align="center">CCTA I-680 HOV GAP CLOSURE PROJECT NOISE RECEIVER & BARRIER LOCATIONS</p> <p align="center">SEPTEMBER 7, 2012 FIGURE 6</p>
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- LEGEND**
- ⊕RXX - RECEIVER SITE
 - ⊕LT - LONGTERM MEASUREMENT
 - ⊕ST - SHORTTERM MEASUREMENT
 - ⊕CAL - CALIBRATION SITE
 - SFR OR S - SINGLE FAMILY RESIDENCE
 - MFR OR M - MULTI-FAMILY RESIDENCE
 - COMM - COMMERCIAL
 - b - BENEFITED RESIDENCE
 - — — — — EXISTING PROPERTY WALL
 - — — — — EXISTING SOUNDWALL
 - — — — — REPLACEMENT IN KIND SOUNDWALL
 - — — — — RETAINING WALL

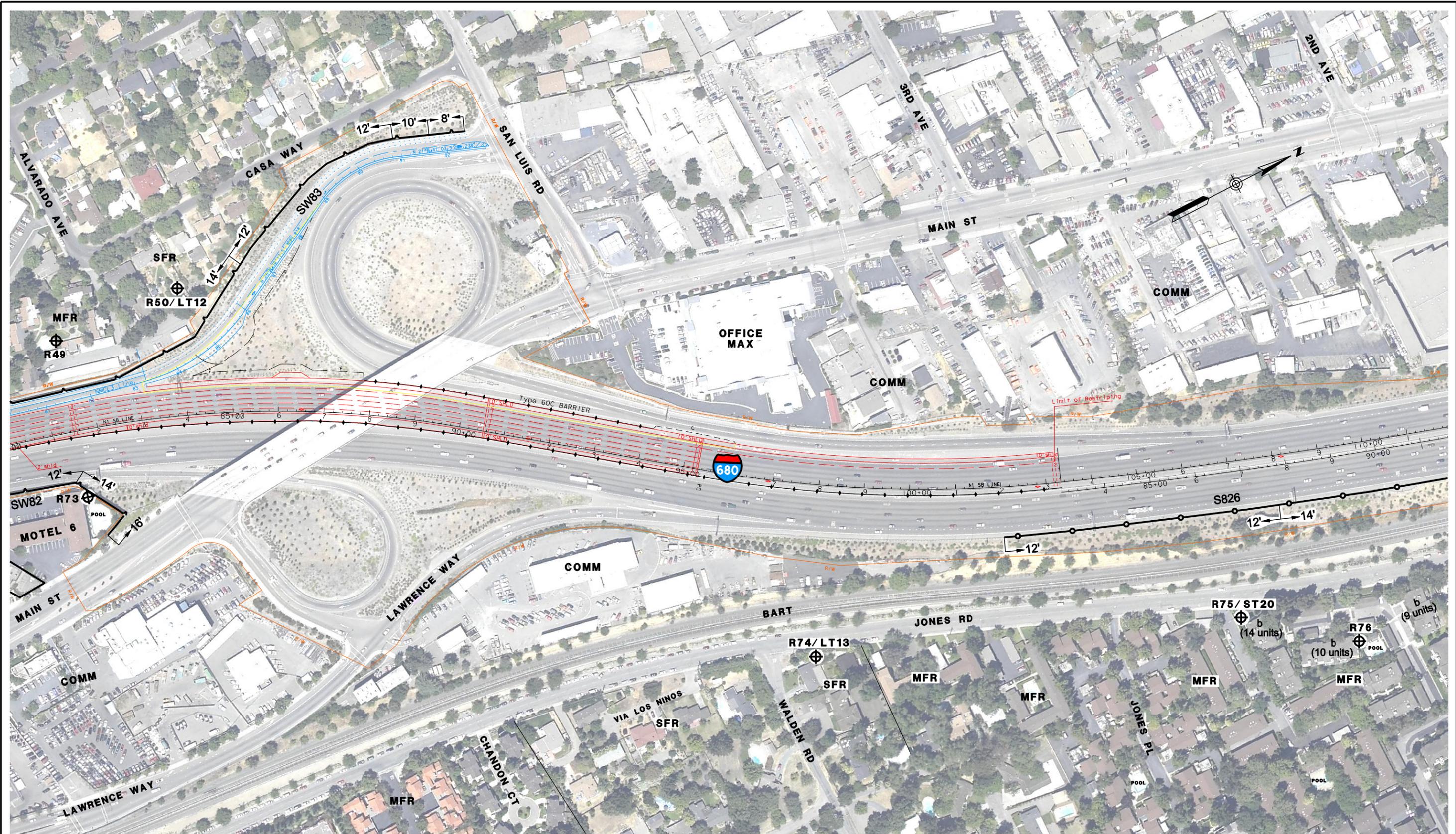


**CCTA I-680 HOV GAP CLOSURE PROJECT
NOISE RECEIVER & BARRIER LOCATIONS**

SEPTEMBER 7, 2012

FIGURE 7

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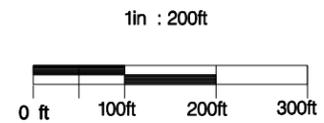


LEGEND

- ⊕RXX - RECEIVER SITE
- ⊕LT - LONGTERM MEASUREMENT
- ⊕ST - SHORTTERM MEASUREMENT
- ⊕CAL - CALIBRATION SITE

- SFR OR S - SINGLE FAMILY RESIDENCE
- MFR OR M - MULTI-FAMILY RESIDENCE
- COMM - COMMERCIAL
- b - BENEFITED RESIDENCE
- (orange line) — RETAINING WALL

- (dashed line) --- EXISTING PROPERTY WALL
- (line with circle) — SOUNDWALL
- (line with triangle) — EXISTING SOUNDWALL
- (line with diamond) — REPLACEMENT IN KIND SOUNDWALL

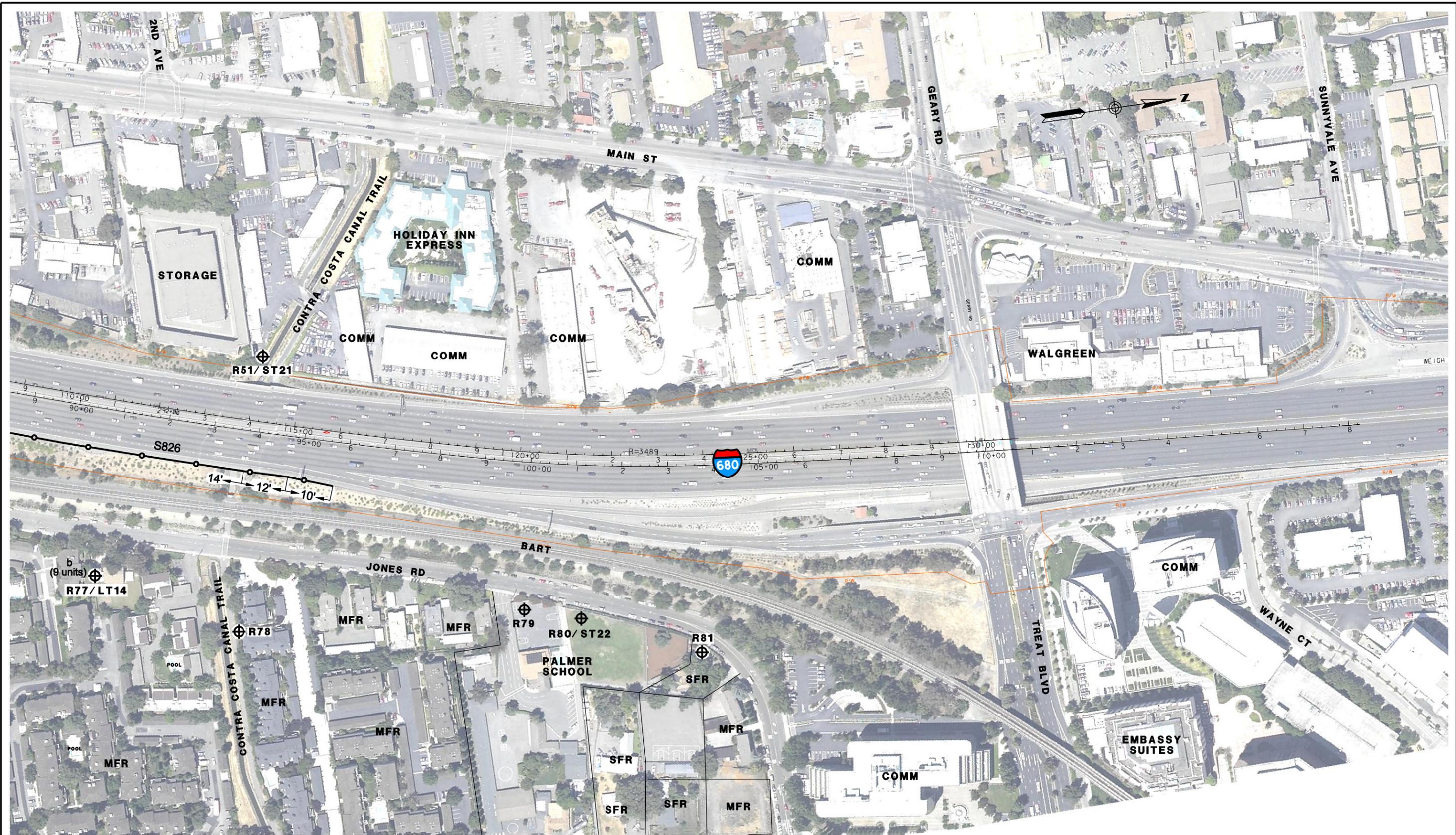


**CCTA I-680 HOV GAP CLOSURE PROJECT
NOISE RECEIVER & BARRIER LOCATIONS**

SEPTEMBER 7, 2012

FIGURE 8

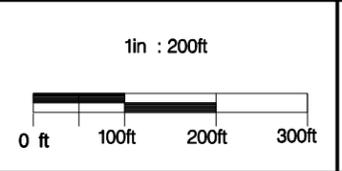
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LEGEND
 ⊕RXX - RECEIVER SITE
 ⊕LT - LONGTERM MEASUREMENT
 ⊕ST - SHORTTERM MEASUREMENT
 ⊕CAL - CALIBRATION SITE

SFR OR S - SINGLE FAMILY RESIDENCE
 MFR OR M - MULTI-FAMILY RESIDENCE
 COMM - COMMERCIAL
 b - BENEFITED RESIDENCE
 ———— - RETAINING WALL

— — — — — EXISTING PROPERTY WALL
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 — — — — — REPLACEMENT IN KIND SOUNDWALL



**CCTA I-680 HOV GAP CLOSURE PROJECT
 NOISE RECEIVER & BARRIER LOCATIONS**

JANUARY 16, 2013

FIGURE 9

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Appendix I List of Acronyms

BART	Bay Area Rapid Transit
Caltrans	California Department of Transportation
CCTA	Contra Costa Transportation Authority
CEQA	California Environmental Quality Act
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
HOV	High-Occupancy Vehicle
I-80	Interstate 80
I-280	Interstate 280
I-680	Interstate 680
IS/EA	Initial Study/Environmental Assessment
LOS	Level of Service
mph	miles per hour
NEPA	National Environmental Policy Act
PG&E	Pacific Gas & Electric
PRC	Public Resources Code
ROW	right-of-Way
SR	State Route
U.S.	United States
USFWS	U.S. Fish and Wildlife Service

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List of Technical Studies

Many technical studies were used to analyze the impacts of the proposed project and the No Build Alternative, and they are summarized in the IS/EA. These studies include:

- Air Quality Conformity Analysis, August 2013
- Archaeological Survey Report, May 2013
- Historic Property Survey Report, May 2013
- Historic Resources Evaluation Report, May 2013
- Hydromodification Report, December 2012
- Geotechnical Report, July 2013
- Location Hydraulics Study Report, October 2012
- Natural Environment Study, September 2013
- No Effects Determination, May 2012
- Noise Abatement Decision Report, July 2013
- Noise Study Report, January 2013
- Project Study Report, May 2009
- Storm Water Data Report, March 2013
- Traffic Operations Analysis Report, June 2013
- Visual Impact Assessment, December 2012
- Water Quality Study, January 2013
- Wetland Delineation Report, June 2013
- Utilities Report, March 2013

Technical studies are available for viewing, along with copies of the IS/EA at:

Caltrans
District 4 Oakland Office
111 Grand Avenue
Oakland, CA 94612
Attn: Cristin Hallissy
510-622-8717

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