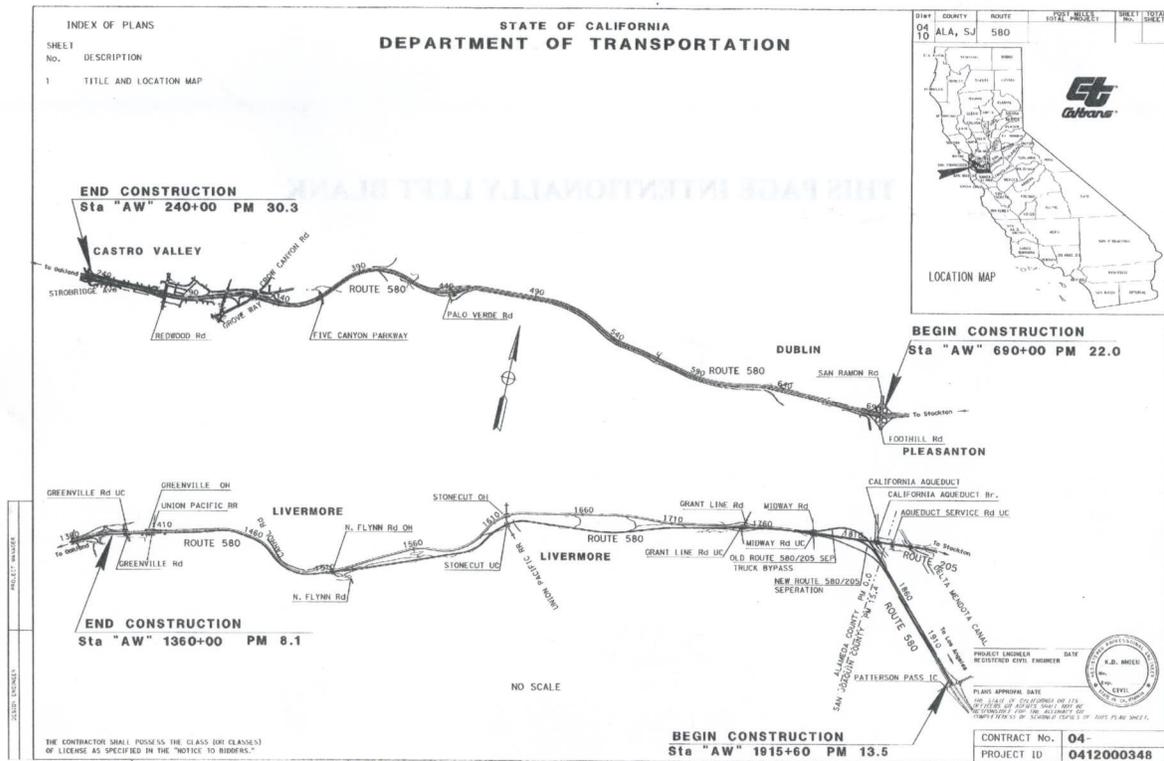


Freeway Performance Initiative Interstate 580 in Alameda and San Joaquin Counties

Alameda and San Joaquin Counties, California
District 4 -ALA 580 (PM 0.0/8.1, 22.0/30.3)
District 10 -SJ-580 (PM 13.5/15.4)
EA 4G190/Project ID 0412000348
SCH # 2014012002

Initial Study with Mitigated Negative Declaration



Prepared by the
State of California Department of Transportation



July 2014

To obtain a copy in Braille, in large print, on computer disk, or on audiocassette, please contact: Caltrans, Attn: Sheryl M. Garcia at the address above, call at 510-286-5594, or use the California Relay Service TTY number, 711.

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Investigation and implementation of computerized and traffic operations system along Interstate 580 in Alameda and San Joaquin Counties

INITIAL STUDY WITH SIGNIFICANT NEGATIVE DECLARATION

Submitted Pursuant to (State) Decision No. 1518900001-0001-0001-0001

THE STATE OF CALIFORNIA

Department of Transportation



Sheryl M. Garcia
Project Director
Division 7
California Department of Transportation
1150 Lake Avenue



Sheryl M. Garcia
Project Director

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

This project proposes the installation and implementation of a ramp metering system and traffic operations system (TOS) along Interstate 580 (I-580), in Alameda and San Joaquin Counties. The project limits are from the Patterson Pass Interchange in unincorporated San Joaquin County (PM 13.5) to Greenville Road in the City of Livermore, Alameda County (PM 8.1) and from San Ramon Road in the City of Dublin, Alameda County (PM 22.0) to Strobridge Avenue in Castro Valley, an unincorporated area in Alameda County (PM 30.3). The project includes metering twelve existing on-ramps, two of which will be widened to provide for a High Occupancy Vehicle (HOV) preferential lane or Mixed Flow (MF) lane. A total of 59 TOS elements [36 Traffic Monitoring Stations (TMS), 21 Closed Circuit Television Cameras (CCTV), and 2 Changeable Message Signs (CMS)] will be installed.

Determination

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

The proposed project would have no effect on Aesthetics, Air Quality, Agriculture or Forest Resources, Hazards and Hazardous Waste Materials, Mineral Resources, Land Use, Noise Population and Housing, Public Services, Recreation, Transportation/Traffic, or Utilities and Service Systems.

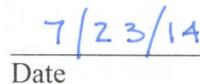
In addition, the proposed project would have a less than significant effect on Cultural Resources, Paleontology, Geology and Soils, and Hydrology and Water Quality.

The proposed project would have no significant adverse effects on biological resources because the following mitigation measures would reduce potential effects to insignificance:

- Water quality protection measures will be implemented to protect all waters of the US from indirect effects
- Pre-construction surveys of biological resources will be completed
- Species monitoring will be conducted during construction
- Construction windows will be implemented
- General avoidance, minimization, and/or mitigation measures will be implemented



Melanie Brent
Deputy District Director
District 4
California Department of Transportation



Date

Mitigated Negative Declaration

Project: Interchange 580 in Alameda and San Joaquin Counties

Project Description

This project proposes the construction and implementation of a ramp widening system and traffic operations system (OS) along Interstate 580 (I-580) in Alameda and San Joaquin Counties. The project limits are from the Panama Road interchange in Alameda County (RM 11) to the County Road in the City of Dublin, Alameda County (RM 22B) to 200th Avenue in Contra Costa County, an unincorporated area in Alameda County (RM 10). The project includes widening existing on-ramp, two of which will be widened to provide for a High Occupancy Vehicle (HOV) preferential lane or Mixed Flow Lane (MFL) lane. A total of 30 TOS elements (20 Traffic Monitoring Stations (TMS), 20 Closed Circuit Television Cameras (CCTV), and 20 Channelized Message Signs (CMS)) will be installed.

Interpretation

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

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The proposed project would not have a significant effect on the environment for Cultural Resources, Hazards and Hazardous Waste Materials, Mineral Resources, Land Use, Noise, Population and Housing, Public Services, Recreation, Transportation, Utilities, and Visual Quality.

In addition, the proposed project would have a less than significant effect on Cultural Resources, Paleontology, Geology and Soils, and Hydrology and Water Quality.

The proposed project would have no significant adverse effects on biological resources because the following mitigation measures would reduce potential effects to insignificant:

- Water quality protection measures will be implemented to protect all waters of the US from indirect effects.
- Pre-construction surveys of biological resources will be completed.
- Species monitoring will be conducted during construction.
- Construction windows will be implemented.
- General avoidance, minimization, and/or mitigation measures will be implemented.

7/23/14
Date


Melissa Breen
Deputy District Director
District 4
California Department of Transportation

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Chapter 1 – PROPOSED PROJECT

This project proposes the installation and implementation of a ramp metering system and traffic operations system (TOS) along Interstate 580 (I-580), in Alameda and San Joaquin Counties. The project limits are from the Patterson Pass Interchange in unincorporated San Joaquin County (Post Mile (PM) 13.5) to Greenville Road in the City of Livermore, Alameda County (PM 8.1) and from San Ramon Road in the City of Dublin, Alameda County (PM 22.0) to Strobridge Avenue in Castro Valley, an unincorporated area in Alameda County (PM 30.3). The project includes metering twelve existing on-ramps, two of which will be widened to provide for a High Occupancy Vehicle (HOV) preferential lane or Mixed Flow (MF) lane. A total of 59 TOS elements [36 Traffic Monitoring Stations (TMS), 21 Closed Circuit Television Cameras (CCTV), and 2 Changeable Message Signs (CMS)] will be installed (See Figure 1).

All design installation features proposed in this project are standardized as per Caltrans Highway Design Manual and the 2000 Ramp Meter Design Guidelines (RMDG).

Project Elements

Ramp Metering and Widening

I-580/I-205 Connector (New) PM 0.6

I-580 westbound (WB) new connector on-ramp: Project proposes to install new ramp metering equipment.

I-580/I-205 Connector (Old) PM 1.0

I-580 WB old connector on-ramp: Project proposes to install new ramp metering equipment. In addition, the two existing mixed-flow lanes will be converted to one HOV lane and one mixed-flow lane.

Grant Line Road PM 1.4

Grant Line Road eastbound (EB) on-ramp: Project proposes to install new ramp metering equipment.

Grant Line Road PM 1.4

Grant Line Road WB on-ramp: Project proposes to install new ramp metering equipment. In addition, the on-ramp will be widened by cutting the hill to provide one HOV lane and one mixed-flow lane.

North Flynn Road PM 5.8

North Flynn Road EB on-ramp: Project proposes to install new ramp metering equipment.

North Flynn Road PM 6.1

North Flynn Road WB on-ramp: Project proposes to install new ramp metering equipment.

Northbound (NB) Crow Canyon Road/Grove Way PM 28.27

NB Crow Canyon Road/Grove Way EB on-ramp: Project proposes to install new ramp metering equipment. In addition, the project will grind and overlay the existing one-lane on-ramp.

Southbound (SB) Crow Canyon Road/Grove Way PM 28.55

SB Crow Canyon Road/Grove Way EB on-ramp: Project proposes to install new ramp metering equipment. In addition, the project will grind and overlay the existing one-lane on-ramp.

Eden Canyon Road (EB) PM 26.27

Eden Canyon Road EB on-ramp: Project proposes to install new ramp metering equipment. In addition, the project will grind and overlay the existing one-lane on-ramp.

Eden Canyon Road (WB) PM 26.27

Eden Canyon Road WB on-ramp: Project proposes to install new ramp metering equipment. In addition, the project will grind and overlay the existing one-lane on-ramp.

East Castro Valley Boulevard PM 28.27

East Castro Valley Boulevard WB on-ramp: Project proposes to install new ramp metering equipment. In addition, the project will have a sliver widening, grind and overlay the existing two-lane on-ramp.

Strobridge Avenue PM 30.16

Strobridge Avenue EB on-ramp: Project proposes to install new ramp metering equipment. In addition, the project will grind and overlay the existing one-lane on-ramp. In order to build a MVP at this location, the existing retaining wall will be extended approximately 100 ft.

TOS Elements

New TOS elements will be installed as part of this project to fill in gaps in existing TOS coverage on I-580 in Alameda and San Joaquin Counties. These elements include 21 closed circuit television (CCTV) cameras, two changeable message signs (CMS), and 36 one-directional traffic monitoring stations (TMS).

The proposed design features and approximate post miles for all of the on-ramps are listed in the table below (Table 1).

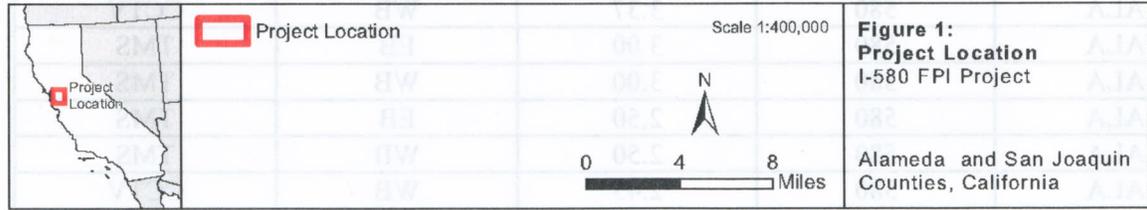
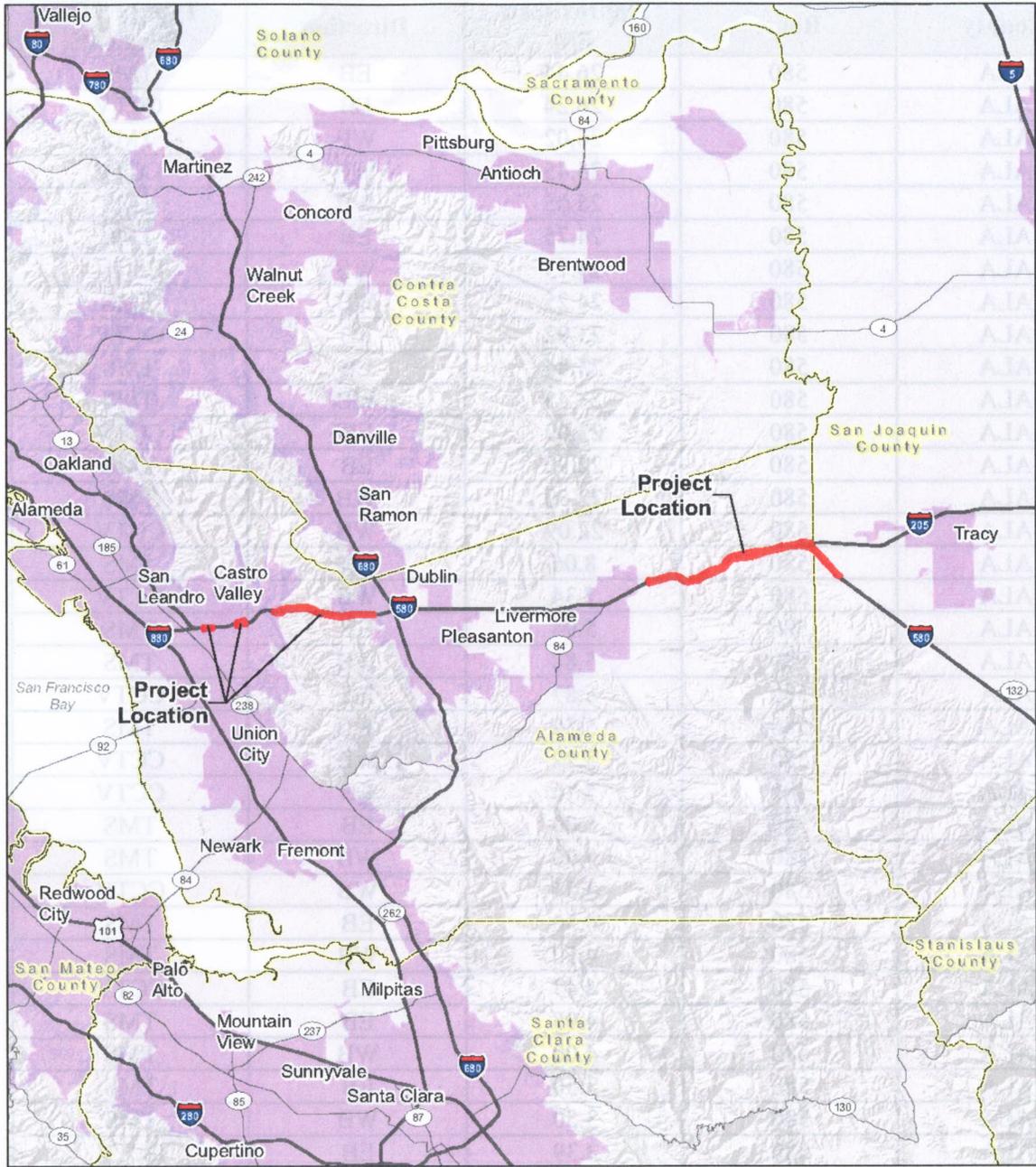


Table 1: Locations of TOS Elements

County	Route	Approximate PM	Direction	Type of TOS Element
ALA	580	26.44	EB	TMS
ALA	580	26.24	EB	CCTV
ALA	580	26.02	WB	TMS
ALA	580	25.45	WB	CCTV
ALA	580	25.05	WB	TMS
ALA	580	24.75	EB	TMS
ALA	580	24.73	WB	CCTV
ALA	580	24.25	WB	TMS
ALA	580	23.92	EB	CCTV
ALA	580	23.84	EB	TMS
ALA	580	23.45	WB	TMS
ALA	580	23.09	EB	CCTV
ALA	580	22.90	EB	TMS
ALA	580	22.50	WB	TMS
ALA	580	22.09	WB	CCTV
ALA	580	8.06	EB	TMS
ALA	580	7.34	WB	CCTV
ALA	580	5.94	EB	TMS
ALA	580	5.88	WB	TMS
ALA	580	5.87	EB	CCTV
ALA	580	5.50	WB	TMS
ALA	580	5.22	WB	CCTV
ALA	580	5.16	EB	CCTV
ALA	580	5.00	EB	TMS
ALA	580	5.00	WB	TMS
ALA	580	4.54	WB	CCTV
ALA	580	4.50	EB	TMS
ALA	580	4.50	WB	TMS
ALA	580	4.43	EB	CCTV
ALA	580	4.05	EB	TMS
ALA	580	4.00	WB	TMS
ALA	580	3.50	EB	TMS
ALA	580	3.50	WB	TMS
ALA	580	3.39	EB	CCTV
ALA	580	3.37	WB	CCTV
ALA	580	3.00	EB	TMS
ALA	580	3.00	WB	TMS
ALA	580	2.50	EB	TMS
ALA	580	2.50	WB	TMS
ALA	580	2.45	WB	CCTV
ALA	580	2.41	EB	CCTV
ALA	580	2.00	EB	TMS
ALA	580	2.00	WB	TMS
ALA	580	1.81	EB	CCTV
ALA	580	1.77	EB	CMS

County	Route	Approximate PM	Direction	Type of TOS Element
ALA	580	1.52	EB	TMS
ALA	580	1.40	WB	CCTV
ALA	580	1.25	WB	TMS
ALA	580	0.96	EB	TMS
ALA	580	0.96	WB	TMS
ALA	580	0.76	WB	CCTV
ALA	580	0.60	EB	TMS
ALA	580	0.60	WB	TMS
ALA	580	0.40	WB	CCTV
ALA	580	0.28	EB	CCTV
ALA	580	0.10	EB	TMS
ALA	580	0.10	WB	TMS
SJ	580	15.1	WB	Roadway Sign (2)
SJ	580	14.9	WB	Roadway Sign
SJ	580	14.3	WB	TMS
SJ	580	14.3	WB	EMS
SJ	580	0.5	WB	Roadway Sign (2)
SJ	580	0.4	WB	Roadway Sign (2)
SJ	580	0.3	WB	Roadway Sign
SJ	580	0.2	WB	EMS (2)
SJ	580	15.4	WB	CMS

Local power will be provided by Pacific Gas & Electric Company (PG&E). Telephone services will be provided by leased telephone lines. General Packet Radio Services (GPRS) wireless modems will provide communication links between the proposed TMS and the Transportation Management Center.

Conduit, cabinets and the other elements comprise the general TOS installation. The conduit relays power, communication, and control wiring between the element, cabinets, and service points.

The CCTVs, CMSs, and cabinets for TMSs will be sited off the shoulder within Caltrans's right-of-way. These will be installed within the clear recovery zone (CRZ), which is within 30 feet (ft) from the edge of the traveled way. They will be protected with Metal Beam Guard Rails (MBGRs).

The CCTVs and CMSs will be placed on poles, which will be anchored in a cast-in-drilled-hole (CIDH) pile foundation located at an approximate depth of 7 ft and 18 ft, having a diameter of 2 ft and 4 ft respectively. The actual depth of a CMS is dependent on soil conditions and is determined during project design. Electrical conduits will be enclosed in trenches 1 to 2 ft wide with a minimum depth of 30 inches.

In addition, eight roadside signs, three EMS, and one overhead sign will be installed between PM 13.5 and 15.4 in San Joaquin County to warn traffic of ramp metering ahead.

Maintenance Vehicle Pullouts (MVPs)

Maintenance vehicle pullouts (MVPs) will be built as part of the project. The MVPs will be approximately 85' long and 12' wide. The proposed locations of the MVPs are listed in the table below (Table 2).

Table 2: Proposed Locations of MVPs

County	Route	Approximate PM	Direction
ALA	580	30.16	WB
ALA	580	28.55	EB SB Crow Canyon Road/Grove Way On Ramp
ALA	580	28.27	NB Crow Canyon Road/Grove Way On-Ramp
ALA	580	26.47	WB Eden Canyon Road On-Ramp
ALA	580	26.24	EB
ALA	580	26.07	EB Eden Canyon Road On-Ramp
ALA	580	25.45	WB
ALA	580	24.73	WB
ALA	580	23.92	EB
ALA	580	23.09	EB
ALA	580	22.09	EB
ALA	580	7.34	WB
ALA	580	6.1	WB North Flynn Road On-Ramp
ALA	580	5.87	EB
ALA	580	5.22	WB
ALA	580	4.54	WB
ALA	580	3.39	EB
ALA	580	3.37	WB
ALA	580	2.45	WB
ALA	580	2.41	EB
ALA	580	1.81	EB
ALA	580	1.77	EB
ALA	580	1.4	WB
ALA	580	1.4	WB Grant Line Road On-Ramp
ALA	580	1.25	EB Grant Line Road On-Ramp
ALA	580	0.76	WB
ALA	580	0.4	WB
ALA	580	0.28	EB
SJ	580	15.4	WB

Surrounding Land Uses

I-580 runs east-west through the study area and serves both local and regional traffic in the area. The I-580 corridor is surrounded by a diverse mix of land uses as it traverses the cities of Castro Valley, Dublin, Pleasanton, and Livermore. The project area is surrounded by residential, commercial, office, public facility and open space uses.

Purpose and Need

The Bay Area is the second-most congested region in the nation with regards to vehicular traffic. Opportunities to relieve traffic congestion to any meaningful degree are limited, owing to a number of key factors. Bay Area freeways are basically a mature system, with capacity increases possible at only a limited number of locations. Finances in today's economy are constrained, and adequate funding for large transportation projects is often not available due to competing needs and rising construction costs. There is a need to maximize system performance through innovative, cost effective strategies, and thereby reduce the need for new, large-scale capital investments. Ramp metering is needed to improve freeway efficiency.

Need

I-580 experiences heavy congestion during peak periods. Some of the congestion and breakdown in traffic flow on I-580 are caused by platoons of vehicles entering the mainline traffic. The unmetered traffic from on-ramps contributes to the congested conditions of I-580. Metering the on-ramps would help alleviate the congestion on the mainline.

Installation and implementation of a ramp metering system on a freeway is an effective operation tool for the overall efficiency of a transportation corridor. In addition, Changeable Message Signs (CMS) are used to advise motorists of adverse traffic or road conditions and provide traveler information. CCTV cameras are used to identify the nature of an incident once it has been detected. When used along with traffic monitoring stations, which reduce the time to detect an incident, CCTV cameras reduce the time of verification. Transportation Management Center (TMC) personnel, upon verifying that an actual incident has occurred, are able to determine the basic type of response needed. When identifying an incident or congested condition, the TOS advises motorists to enable them to make decisions on how to minimize their trip time. The TOS provides information about incidents and traffic problems to motorists by means of CMS.

Therefore, the expansion of the ramp meter program on the proposed locations on I-580 is needed as per Caltrans' Ramp Metering Development Plan, 2011 (RMDP, 2011).

Purpose

I-580 is a major freeway connecting interregional traffic from Oakland to Vernalis. Caltrans has committed to implementing state of the art traffic operation systems on California's congested freeways, including ramp metering. The purpose of this project is to improve traffic operations by completing the installation and implementation of a ramp metering system, CCTV, TMS and CMS on I-580 in Alameda and San Joaquin Counties. The goal of this project is to improve traffic mobility and safety by mitigating associated traffic conflicts due to weaving and merging maneuvers.

Permits and Agreements Needed:

Permit	Agency	Acquired
Incidental Take Permit (ITP)	California Department of Fish and Wildlife (CDFW)	Will be acquired during the design phase of the project.
Biological Opinion (BO)	US Fish and Wildlife Service (USFWS)	Permit number: 08ESMF00-2014-F-0246-2

Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project. Please see the checklist below for additional information:

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input type="checkbox"/>	Mandatory Findings of Significance

Chapter 2 - CEQA Environmental Checklist

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.

I. AESTHETICS: Would the project:

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

Affected Environment

I-580 is listed as an eligible State Scenic Highway. The portion of I-580 south of the I-580/I-205 split is classified as an Officially Designated State Scenic Highway. Development of a Scenic Highway must incorporate “not only safety, utility and economy, but also beauty” and scenic appearance must be a consideration during the planning, design, and construction processes.

Environmental Consequences

The project is anticipated to result in minimal impacts to existing vegetation and outward views from the freeway. The visual quality would remain similar to existing conditions and thus will not alter its eligibility as a State Scenic Highway.

Avoidance, Minimization, and/or Mitigation Measures

The following measures to avoid or minimize visual impacts would be incorporated into the project:

- Landscaping and irrigation systems that are damaged or removed would be replaced or repaired.
- All disturbed ground surfaces would be restored.
- An appropriate aesthetic treatment would be applied to the face of new retaining walls that are exposed to public view. The treatment will be determined by the District 4 Office of Landscape Architecture.
- When practical and in areas where highway landscaping already exists, landscape planting would be installed to screen new equipment cabinets while providing clear access for maintenance and service of the cabinet. Landscape materials and placement would be determined by the Office of Landscape Architecture.
- New equipment cabinets would be painted green (Caltrans standard color).
- When possible, new CMS will be located so as to minimize interference with views of scenic features. The signs would be combined with existing structures (co-mounted) when feasible.
- CMS gantries would be painted green (Caltrans standard color).

Under these circumstances, Scenic Resources would not be adversely affected by the project, the appearance of the highway corridor would not be changed in a substantial manner, and the project would not have an adverse visual impact on neighbors of the project area or on users of the highway. Negative visual impacts would be avoided.

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?
- b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?
- c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
- d) Result in the loss of forest land or conversion of forest land to non-forest use?
- e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The project will not affect any agricultural lands or forest resources therefore no avoidance, minimization, and/or mitigation measures are needed.

III. AIR QUALITY:

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

Potentially Significant Impact Less Than Significant with Mitigation Less Than Significant Impact No Impact

- a) Conflict with or obstruct implementation of the applicable air quality plan?
- b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- d) Expose sensitive receptors to substantial pollutant concentrations?
- e) Create objectionable odors affecting a substantial number of people?

Affected Environment

An *Air Quality Report* (April 2013) was prepared for the proposed project. The technical report assessed the effects of the proposed project on air quality.

Air quality of a region is determined by the climatological conditions, topography, and the types and amounts of emitted pollutants. An air basin generally has similar meteorological and geographic conditions throughout. California is divided geographically into 15 air basins. The proposed project is located within the San Francisco Bay Area Air Basin, which is characterized by complex terrain consisting of coastal mountain ranges, inland valleys and bays. The region has a large population and automobiles are sources of CO, particulate matter, and photochemical air pollution.

The US EPA defines sensitive receptors as including, but not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants (<http://www.epa.gov/region1/eco/uep/sensitivereceptors.html>). Sensitive receptors are locations where people susceptible to the effects of air pollutants may stay for an extended period of time, which include land uses or facilities such as residences, schools, playgrounds, childcare centers and hospitals. There are residential developments and parks within close vicinity of the project.

The Bay Area Air Quality Management District (BAAQMD) maintained monitoring stations collect ambient air quality data around the Bay Area on a continuous basis. Data of recent years collected at three of the closest monitoring stations can be used to characterize the existing conditions near the proposed project. They are listed in the following table (Table 3).

Table 3: Ambient Air Quality Data

Pollu- tants	Category	Monitoring Stations								
		Livermore- 793 Rincon Avenue			Oakland- 9925 International Blvd			Hayward- La Mesa		
		2009	2010	2011	2009	2010	2011	2009	2010	2011
Ozone	Nat. 8-hr Max. (ppm)	<u>0.086</u>	<u>0.097</u>	<u>0.084</u>	0.062	0.058	0.051	<u>0.08</u>	-	0.07
	State 8-hr Max. (ppm)	<u>0.086</u>	<u>0.097</u>	<u>0.084</u>	0.063	0.058	0.052	<u>0.081</u>	-	0.07
	State 1-hr Max. (ppm)	<u>0.112</u>	<u>0.099</u>	<u>120</u>	0.092	<u>0.097</u>	0.091	<u>0.107</u>	-	0.088
CO	Nat. 8-hr Avg. (ppm)	1.31	-	-	1.99	1.63	1.5	-	-	-
	State 8-hr Avg. (ppm)	1.31	-	-	1.99	1.63	1.5	-	-	-
PM ₁₀	Nat. 24-hr Max. (ig/m3)	-	-	-	-	-	-	-	-	-
	State 24-hr Max. (ig/m3)	-	-	-	-	-	-	-	-	-

Pollutants	Category	Monitoring Stations								
		Livermore- 793 Rincon Avenue			Oakland- 9925 International Blvd			Hayward- La Mesa		
		2009	2010	2011	2009	2010	2011	2009	2010	2011
	State Annual Avg. (ig/m3)	-	-	-	-	-	-	-	-	-
PM _{2.5}	Nat. 24-hr Max. (ig/m3)	<u>45.7</u>	34.7	<u>45.4</u>	<u>36.3</u>	25.2	<u>49.3</u>	-	-	-
	Nat. Annual Avg. (ig/m3)	9.1	7.6	7.8	9.2	7.7	10.1	-	-	-
	State Annual Avg. (ig/m3)	9.2	7.6	-	-	-	-	-	-	-
NO ₂	Nat./State 1-hr Max (ppm)	0.052	0.058	0.057	0.062	0.064	0.057	-	-	-
	Nat./State Annual Avg. (ppm)	0.012	0.011	0.01	0.014	0.013	0.013	-	-	-

Note: Underlined figures “xxx” denote exceedances of either the NAAQS or the CAAQS.

The table below (Table 4) lists the attainment statuses of the BAAQMD for air pollutant under the state standards.

Table 4: California Ambient Air Quality Standards & Attainment Statuses

Pollutant	Averaging Time	California Standards	
		Concentration	Attainment Status
Ozone	8 Hour	0.070 ppm (137ig/m3)	N
	1 Hour	0.09 ppm (180 ig/m3)	N
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m3)	A
	1 Hour	20 ppm (23 mg/m3)	A
Nitrogen Dioxide	Annual Arithmetic Mean	0.030 ppm (57 ig/m3)	n/a
	1 Hour	0.18 ppm (339 ig/m3)	A
Sulfur Dioxide	24 Hour	0.04 ppm (105 ig/m3)	A
	1 Hour	0.25 ppm (655 ig/m3)	A
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 ig/m3	N
	24 Hour	50 ig/m3	N
Particulate Matter - Fine (PM _{2.5})	Annual Arithmetic Mean	12 ig/m3	N
	24 Hour	-	-

Pollutant	Averaging Time	California Standards	
		Concentration	Attainment Status
Sulfates	24 Hour	25 $\mu\text{g}/\text{m}^3$	A
Lead	Calendar Quarter	-	-
	30 Day Average	1.5 $\mu\text{g}/\text{m}^3$	A
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu\text{g}/\text{m}^3$)	U
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 $\mu\text{g}/\text{m}^3$)	U
Visibility Reducing particles	8 Hour (1000 to 1800 PST)	-	U
A=Attainment N=Nonattainment U=Unclassified			
mg/m ³ =milligrams per cubic meter			
ppm=parts per million			
$\mu\text{g}/\text{m}^3$ =micrograms per cubic meter			
Source: BAAQMD			

Project Level Analysis

Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless, odorless, poisonous gas. CO is emitted directly from traveling vehicles. A product of incomplete burning of hydrocarbon-based fuels, CO consists of a carbon atom and an oxygen atom linked together. It enters the bloodstream through the lungs and forms carboxyhemoglobin, a compound that inhibits the blood's capacity to carry oxygen to organs and tissues. Persons with heart disease are especially sensitive to carbon monoxide poisoning and may experience chest pain if they breathe the gas while exercising. Infants, elderly persons, and individuals with respiratory diseases are also particularly sensitive. CO can affect healthy individuals, impairing exercise capacity, visual perception, manual dexterity, learning functions, and the ability to perform complex tasks.

The CO analysis for this project adheres to the December 1997 "Transportation Project-Level Carbon Monoxide Protocol" prepared by the Institute of Transportation Studies, University of California at Davis and approved by the US EPA for use in the Bay Area. Since the Bay Area was designated a maintenance area for CO on June 1, 1988, the protocol indicates that an analysis by comparison is appropriate for this project. This involves a comparison of the proposed project with an existing facility within the air district that has the potential of creating higher CO concentrations at the time of attainment demonstration. In this study, comparisons are made between the existing Route 101 at Tully Road in San Jose and the proposed project on Route 580 at the Grant Line Road Interchange, where ramp widening is proposed (See Table 5).

Table 5: Comparison of Mainline Conditions

	Parameters	Route 580 – Build at Grant Line Rd.	Route 101 – Existing at Tully Rd. San Jose
A	Receptor Distance	750 ft	20 ft
B	Roadway Geometry	9 lanes	8 lanes + 2 auxiliary lanes
C	Worst case Meteorology	Coastal Valley	Coastal Valley
D	ADT Volumes	166,000 (2016) 224,000 (2035)	256,000 (2011)
E	Hot/Cold Starts	10/50 NB 10/50 SB	10/50 NB 10/50 SB
F	Percent Heavy Duty Gasoline (HDG) Trucks	1.10%	2.20%
G	8 Hr. Background CO	1.3 ppm (2009-2011)	2.3 ppm (2009-2011)

Environmental Consequences

Since all conditions in items A through G listed in Table 5 are satisfied, there is no reason to expect higher CO concentrations at the project location than existed at Route 101 at Tully Road in San Jose in Santa Clara County. The project therefore will not cause exceedances of state CO standards.

Avoidance, Minimization, and/or Mitigation Measures

The project will not cause exceedances of state CO standards and therefore no avoidance, minimization, and/or mitigation measures are required.

Particulate Matters (PM₁₀ and PM_{2.5})

Particulate Matters (PM₁₀ and PM_{2.5}) refer to airborne particles that are less than 10 microns in diameter (PM₁₀) or less than 2.5 microns in diameter (PM_{2.5}). Transportation related particulate matters are both a regional and a project-level issue. The coarser particulate matters, PM₁₀, are typically formed by earth-based material that enters the air through a variety of actions including “entrainment” into the atmosphere by windblown dust. Particles from brake and tire wear, from pavement wear, and from other vehicle degenerative processes also contribute to this PM size. However, the greatest contribution from this size category has “natural” rather than “man-made” origins. PM_{2.5} are thought to be more of a product of combustion sources. This material is believed to penetrate deeper into the lungs and remain lodged there rather than exhaled, causing negative impacts on health.

Environmental Consequences

US EPA lowered the 24-hour PM_{2.5} standard from 65 µg/m³ to 35 µg/m³ in 2006. The Bay Area Air Basin was designated as nonattainment of the 24-hour PM_{2.5} standard on October 8, 2009 by US EPA based upon violations of the new standard over the three-year period from 2007 through 2009. The designation became effective as of December 14, 2009.

The San Francisco Bay Area is an unclassified area for the national PM₁₀ standard and an attainment area for national annual PM_{2.5} standards. The Bay Area is non-attainment for the State PM₁₀ and PM_{2.5} standards.

The final conformity rule issued by US EPA on March 10, 2006 establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts for PM_{2.5} and PM₁₀. In PM_{2.5} and PM₁₀ nonattainment areas, a quantitative project-level

hot-spot analysis is required for project-level conformity determinations for projects of air quality concern (POAQC) as defined in 40 CFR 93.123(b)(1). POAQC are certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified in the PM_{2.5} or PM₁₀ SIP as a localized air quality concern, including:

- New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
- Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
- Projects in or affecting locations, areas, or categories of sites which are identified in the PM_{2.5} or PM₁₀ applicable implementation plan or implementation plan submission, a appropriate, as sites of violation or possible violation.

The project is not a new freeway or a highway expansion project. It does not significantly increase the volume or percentage of diesel vehicles. The proposed Ramp Metering and TOS Projects are non-capacity increasing projects. Metering and TOS are intended to maximize the efficiency and improve the management and reliability of the existing freeway infrastructure without widening the freeways.

The project does not affect intersections with Level of Service (LOS) of D, E, or F that have a significant number of diesel vehicles. The truck percentages are low on the ramps. The ramp meters will be in operation only during the AM and/or PM peak periods when diesel truck traffic may be limited due to congested freeways and local arterials.

The project does not create new bus or rail terminals and transfer points, or expand existing ones.

There is currently no implementation plan for PM_{2.5} for this region. The project is not in and does not affect areas that will potentially be identified in the PM_{2.5} implementation plan as sites of violation or possible violation.

The proposed project is not considered a POAQC for the reasons stated above and no hot-spot analysis is required according to the March 2006 Guidance. The project is not expected to cause or contribute to any new localized PM_{2.5} violations of NAAQS.

One of the requirements according to the March 2006 Guidance is interagency consultation must be conducted to determine project-level conformity. As the transportation planning agency for the San Francisco Bay Area, MTC has established the interagency consultation procedures in Bay Area Interagency Consultation Procedures for PM_{2.5} Hot-Spot Analyses in its Resolution No. 3946. MTC facilitates the consultation process through an Air Quality Community Task Force, which makes the determination as to whether the project is a POAQC or not at their regularly scheduled meetings.

Caltrans submitted the PM_{2.5} assessment form for the implementation of the Freeway Performance Initiative, which the proposed project is a part of, to the Task Force on February 7, 2012 and participated in the February 23, 2012 Task Force meeting. Task Force members from Caltrans, the FHWA, FTA and US EPA all concurred with the determination that the Freeway Performance Initiative is not a POAQC. Written confirmation of the concurrence was received from MTC on March 27, 2012.

Because the project has been determined not to be a POAQC regarding particulate matter (PM_{2.5}) as defined in 40 CFR 93.123(b)(1), a detailed PM_{2.5} hot-spot analysis was not completed because Clean Air Act and 40 CFR 93.116 requirements are met without an explicit hot-spot analysis.

Avoidance, Minimization, and/or Mitigation Measures

There is currently no implementation plan for PM_{2.5} for this region. The project is not in and does not affect areas that will potentially be identified in the PM_{2.5} implementation plan as sites of violation or possible violation.

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

Ozone

Ozone is an indirect pollutant. Ozone precursors are converted into ozone by photochemical reactions some distance downwind, over several hours.

Environmental Consequences

Since ozone precursors are converted into ozone by photochemical reactions some distance downward, over several hours, it is therefore impossible for most transportation projects to create a localized ozone “hot spot.” The traffic on a highway contributes to the regional ozone precursor emissions, and analysis of such emissions and their impact is normally done for regional planning.

Avoidance, Minimization, and/or Mitigation Measures

If a project can be shown, through a regional conformity analysis, to contribute to annual emission reductions as part of a regional transportation plan, then its individual impact on ozone should not be an issue. The proposed project was included in the regional emissions analysis conducted by MTC for the Transportation 2035 Plan (ID# 230419) and the 2011 Transportation Improvement Program (ID# REG090003). The project is also included in the 2013 TIP and the Plan Bay Area, which was adopted by MTC on July 18, 2013. Therefore this project’s individual impact on ozone should not be of concern.

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

Nitrogen Dioxides

Nitrogen dioxide (NO₂) is one of a group of highly reactive gases known as “nitrogen oxides (NO_x).” Other nitrogen oxides include nitrous acid and nitric acid. While the National Ambient Air Quality Standards (NAAQS) covers this entire group of NO_x, NO₂ is the component of greatest interest and the indicator for the larger group of nitrogen oxides. NO₂ forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone, and fine particle pollution, NO₂ is linked with a number of adverse effects on the respiratory system.

On January 22, 2010, US EPA established a new 1-hour NO₂ standard in the NAAQS at the level of 100 parts per billion (ppb). US EPA expects to designate areas as attaining or not attaining the new standard two years after establishing the new NO₂ standard. There is no approved regulatory model for roadway-related NO₂ hot-spot analysis at this time.

Environmental Consequences

There is no approved regulatory model for roadway-related NO₂ hot-spot analysis at this time; therefore project related impacts are unable to be determined.

Avoidance, Minimization, and/or Mitigation Measures

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

Construction Impacts

The proposed project would generate air pollutants during the construction period, which is expected to last a total of 2 1/2 years. Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates. Most pollution will consist of wind-blown dust generated by excavation, grading, hauling and various other activities. The impacts from the above activities would vary from day to day as construction progresses. No hot-spot analysis was conducted for the construction emissions of the project.

Recent studies have raised significant concerns about the health risks associated with emissions from diesel construction equipment. For PM₁₀, PM_{2.5} or air toxics, there currently are no microscale requirements that are applicable at the project level for the temporary impacts in the construction phase. To minimize air quality impacts from construction activities, control measures will be implemented as specified in the Environmental Stewardship section of Caltrans Standard Specifications - Section 14-9.01 Air Pollution Control and Section 14-9.02 Dust Control.

IV. BIOLOGICAL RESOURCES:

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 Wildlife 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 Wildlife 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"/>

WETLANDS AND OTHER WATERS

Affected Environment

A *Natural Environment Study Interstate 580 Freeway Performance Initiative Project* (NES) (October 2013) was prepared for the project. The NES identified 1,260 acres of potential waters of the US, including wetlands within the Biological Study Area (BSA) (See Figure 2). The BSA includes the area 30 ft from the edge of project impacts within the Caltrans’ right of way along I-580 in Alameda County from the San Joaquin County line (P.M. 0.0) to Greenville Road (P.M. 8.3), from Foothill Road (P.M. 21.7) to Strobridge Avenue (P.M. 30.4) and on I-205 from the San Joaquin County Line (P.M. 0.0) to I-580 (P.M. 1.0) for a total length of 18 miles. These features of interest include one wetland type, freshwater marsh, and three water feature types. Wetlands delineated as freshwater marsh in the BSA include one wetland delineated by American bulrush (American Bulrush Marsh Alliance [*Schoenoplectus americanus* Herbaceous Alliance]) and three wetlands dominated by cattail (Cattail Marshes Alliance [*Typha angustifolia, domingensis, latifolia* Herbaceous Alliance]). Wetlands that occur within the BSA total 0.146 acres. No wetlands occur within the construction area. The construction area is the area that will be temporarily or permanently impacted through project activities and is included entirely within the BSA. Five water features, including intermittent streams, perennial streams, and aqueduct (annual), occur within the BSA and total 1.114 acres. No water features occur within the construction area.

Environmental Consequences

Within the BSA, there are 0.146 acres of potentially jurisdictional wetland features. These features are not within the zones of permanent or temporary impacts. Total acreage for other water features within the BSA, including intermittent, perennial waterways and aqueduct, totals 1.114 acres, none of which will be permanently impacted or temporarily impacted.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures in the section below will reduce the potential for effects to waters of the U.S., including wetlands, during project construction. Specific water quality protection measures include water quality inspections (Measure #25), proper treatment of concrete waste (Measure #27), and Caltrans best management practices (BMPs) (Measure #24).

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(i) 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 Wildlife or US Fish and Wildlife Service?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(j) 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, peat bog, coastal, etc.) through direct removal, filling, hydrological alteration, or other means?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(k) 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 areas?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(l) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(m) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

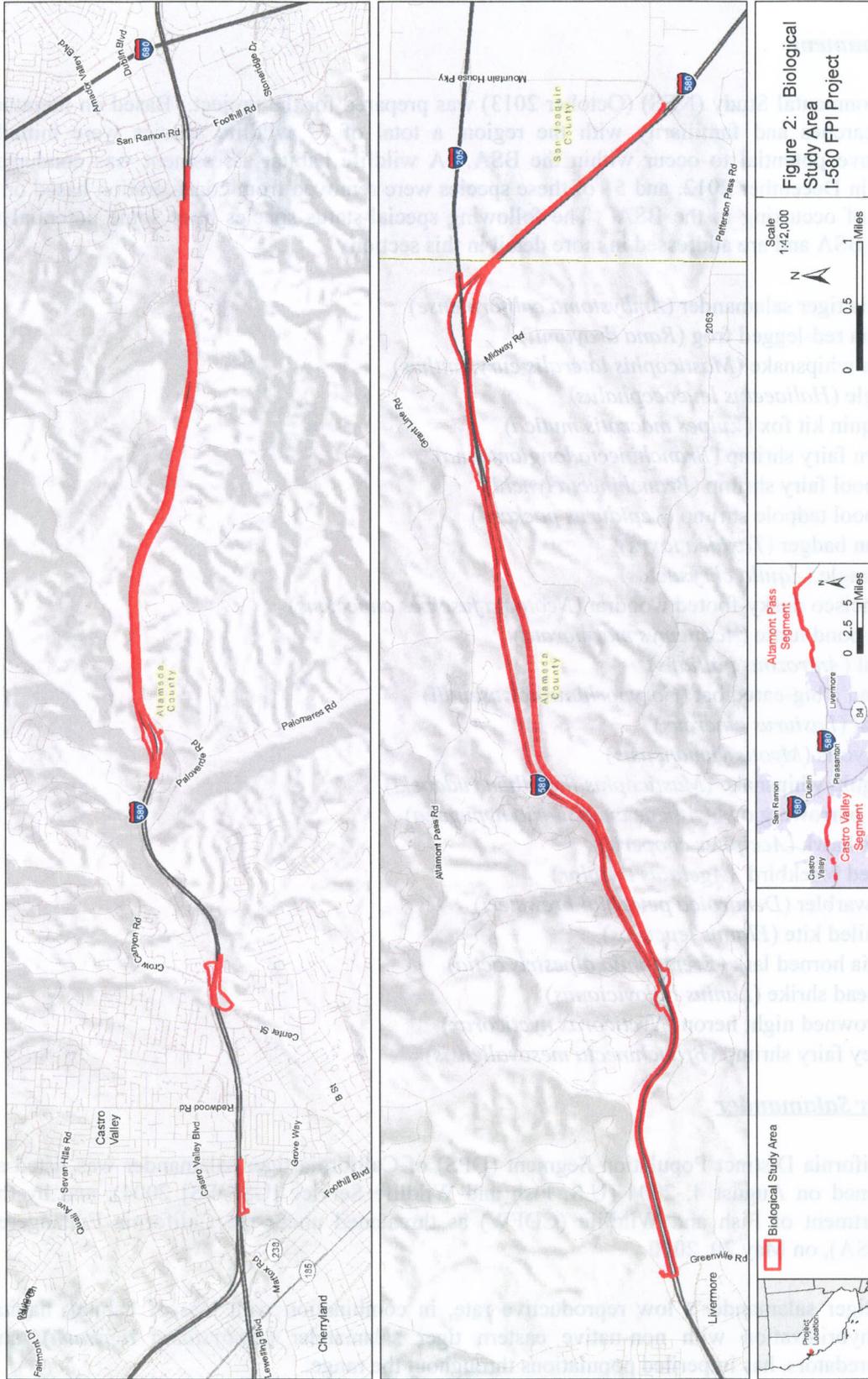


Figure 2: Biological Study Area I-580 FPI Project

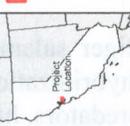
Scale 1:42,000



Alameda Pass Segment



Biological Study Area



ANIMAL SPECIES

Affected Environment

A Natural Environmental Study (NES) (October 2013) was prepared for the project. Based on literature and database searches and familiarity with the region, a total of 77 wildlife species were initially considered to have potential to occur within the BSA. A wildlife habitat assessment was conducted within the BSA in December 2012, and 51 of these species were removed from consideration based on a low probability of occurring in the BSA. The following special-status species have some potential to occur within the BSA and are addressed in more detail in this section:

- California tiger salamander (*Ambystoma californiense*)
- California red-legged frog (*Rana draytonii*)
- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
- Bald eagle (*Haliaeetus leucocephalus*)
- San Joaquin kit fox (*Vulpes macrotis mutica*)
- Longhorn fairy shrimp (*Branchinecta longiantenna*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Vernal pool tadpole shrimp (*Lepidurus packard*)
- American badger (*Taxidea taxus*)
- Golden eagle (*Aquila chrysaetos*)
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)
- Western pond turtle (*Actinemys marmorata*)
- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Hoary bat (*Lasiurus cinereus*)
- Yuma myotis (*Myotis yumanensis*)
- San Joaquin whipsnake (*Masticophis flagellum ruddocki*)
- Western burrowing owl (*Athene cunicularia hypugaea*)
- Cooper's hawk (*Accipiter cooperii*)
- Tricolored blackbird (*Agelaius tricolor*)
- Yellow warbler (*Dendroica petechial brewsteri*)
- White-tailed kite (*Elanus leucurus*)
- California horned lark (*Eremophila alpestris actia*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Black-crowned night heron (*Nycticorax nycticorax*)
- Midvalley fairy shrimp (*Branchinecta mesovallensis*)

California Tiger Salamander

The Central California Distinct Population Segment (DPS) of California tiger salamander was listed as federally threatened on August 4, 2004 (U.S. Fish and Wildlife Service [USFWS] 2004), and by the California Department of Fish and Wildlife (CDFW) as threatened under the California Endangered Species Act (CESA), on May 20, 2010.

The California tiger salamander's low reproductive rate, in combination with loss of habitat, habitat fragmentation, hybridization with non-native eastern tiger salamander (*Ambystoma tigrinum*), and introduction of predators, has imperiled populations throughout the range.

Affected Environment

Critical habitat was designated for the Central California DPS of California tiger salamander in 2005 (USFWS 2005a). There is no designated critical habitat within the BSA. The nearest critical habitat is East Bay Region Unit 18, located north of the intersection of I-580 and Isabel Avenue, approximately 5.10 miles west-northwest of the BSA (PM 8.3).

None of the aquatic features identified within the BSA are suitable habitat for California tiger salamanders because they are too shallow and/or ephemeral to support breeding. Suitable upland habitat is present in grassland habitat within the BSA.

Environmental Consequences

California tiger salamanders within the construction area may suffer direct harassment, harm, injury, or mortality as a result of construction activities, including initial site preparation, use of heavy equipment for excavation and backfill, handling of stockpiles and stored materials, ramp resurfacing, ramp widening, construction of ramp metering, installation of TOS elements, guard rails, MVPs, and retaining walls for ramp widening, and electrical trenching. The species-specific minimization measures for California tiger salamander, along with the General Avoidance and Minimization Measures detailed in the section below are intended to reduce the likelihood of direct take during project activities.

Avoidance, Minimization and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures listed below will reduce the potential for effects to California tiger salamander during project construction. Species-specific measures include biological monitoring (Measure # 4), a April 15 to October 15 work window for construction in suitable habitat (Measure # 6), preconstruction surveys (Measure # 7), wildlife exclusion fencing (Measure # 14), notification of listed and other special-status species on site (Measure # 15), prevention of wildlife entrapment (Measure # 16), proper materials storage (Measure # 17), and the prohibition of mono-filament netting (Measure # 26).

Caltrans proposes that the temporary impacts of 5.561 acres will be mitigated through on-site restoration at a ratio of 1:1 and 1.171 acres of permanent impacts will be mitigated at a ratio of 3:1 for 3.513 acres as off-site compensation. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans proposes this compensatory mitigation for California tiger salamander to meet the requirements of California FGC Section 2081 for obtaining an ITP. Caltrans anticipates that the avoidance and minimization measures, in conjunction with the proposed compensatory mitigation, will reduce potential adverse effects to a negligible level. This mitigation may be used to satisfy the conditions of multiple agencies and jurisdictions including the FESA, CESA, and the CEQA process. Caltrans will consult with USFWS and CDFW to establish mitigation requirements. During consultation, off-site mitigation location and its criteria will be determined, should off-site mitigation be necessary. The final mitigation proposal will be subject to modification during the agency consultation and permitting processes.

California Red-Legged Frog

The California red-legged frog was federally listed as a threatened species on May 23, 1996 (USFWS 1996). Revised critical habitat for this species was designated by USFWS on March 17, 2010 (USFWS 2010). It is also a California Species of Special Concern.

Affected Environment

Critical habitat determinations are based upon the presence of physical and biological Primary Constituent Elements (PCE) that is essential to the conservation of the species. PCE for California red-legged frog include aquatic breeding habitat, nonbreeding aquatic habitat, upland habitat, and dispersal habitat (USFWS 2006b).

Aquatic breeding habitat consists of standing bodies of fresh water, including: natural and manmade ponds, slow moving streams or pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years.

Non-breeding aquatic habitat consists of fresh water habitats that may or may not hold water long enough to be suitable for breeding, but that do provide shelter, foraging, predator avoidance, and aquatic dispersal. In addition to aquatic breeding habitat, non-breeding habitat may include plunge pools within intermittent creeks, seeps, quiet water refugia during high water flows, and springs of sufficient flow to withstand the summer dry period.

Upland habitat provides shelter, foraging, and predator avoidance, within 200 feet of the edge of aquatic and riparian habitat, and consists of grasslands, woodlands, or wetland/riparian vegetation. Upland habitat contains features that maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the wetland or riparian habitat. Upland features contribute to filling and drying of wetland or riparian habitat and maintain suitable periods of inundation in pools for breeding, non-breeding, feeding, and shelter. Upland habitat can include features such as boulders, rocks, downed trees, small mammal burrows, and moist leaf litter.

Dispersal habitat, which allows for movement between occupied sites, consists of accessible upland or riparian habitat within designated critical habitat units located between occupied locations within 0.70 miles of each other. Dispersal habitat includes natural and altered habitats that do not contain barriers. Barriers may include heavily traveled roads constructed without culverts or bridges. Dispersal habitat does not include moderate to high density urban or industrial development, large reservoirs, or areas that do not contain other primary constituent elements.

Critical habitat within the BSA contains few PCE for California red-legged frog. No aquatic breeding habitat or non-breeding aquatic habitat occurs within the critical habitat mapped within the BSA, although there is upland habitat within the critical habitat mapped within the BSA that occurs within 200 feet of the edge of aquatic and riparian habitat. The roadway does not contain any PCEs and acts as a barrier to dispersal.

There are 28 documented occurrences within ponds, streams, or wetlands within 1 mile of the BSA (CDFW 2013), as well as numerous ponds and streams within 1 mile of the BSA visible on aerial imagery that could contain suitable breeding habitat.

Adults and juveniles originating from these ponds and streams may potentially use the habitat in the BSA for upland refuge or dispersal. As such, California red-legged frogs have potential to occur in grassland, riparian woodland, freshwater marsh, and creek channel habitats in both the Castro Valley and Altamont Pass segments of the BSA.

I-580 represents a major barrier to dispersal of California red-legged frogs. The paved surface of I-580 is not considered to be a viable dispersal corridor for California red-legged frogs because heavy traffic likely causes mortality of almost all individuals attempting to cross.

Due to the presence of known populations and potential breeding ponds within dispersal distance of the BSA and designated critical habitat in the region, Caltrans has inferred presence of California red-legged frog throughout the BSA.

Environmental Consequences

California red-legged frogs within the construction area may suffer direct harassment, harm, injury, or mortality as a result of construction activities, including initial site preparation, use of heavy equipment for excavation and backfill, handling of stockpiles and stored materials, ramp resurfacing, ramp widening, construction of ramp metering, installation of TOS elements, guard rails, MVPs, and retaining walls for ramp widening, and electrical trenching. The species-specific minimization measures for California red-legged frog, along with the general avoidance and minimization measures detailed in the General Avoidance and Minimization Measures section below, are intended to reduce the likelihood of direct take during project activities.

California red-legged frogs may experience direct injury or mortality during earthwork within the construction area. Excavation, fill, and other construction activities will impact a total of 9.330 acres of grassland and riparian woodland habitat in the construction area that provides potential aestivation, foraging, and dispersal habitat for California red-legged frog. Temporary impacts will total 7.686 acres and permanent impacts will total 1.644 acres. The habitat within the construction area is considered to be of marginal quality because of the high levels of roadside disturbance associated with I-580. Caltrans anticipates that construction will push this zone of roadside disturbance further outward into less disturbed habitat, particularly at ramp widening locations, causing degradation of habitat due to edge effects. Caltrans concludes that the proposed modifications to California red-legged frog habitat within the construction area may have a potential adverse impact on the behavioral patterns of some individuals of this species, including foraging, migration, and aestivation. Caltrans does not anticipate any adverse impact to breeding habitat or breeding behavior within the construction area as a result of the proposed project.

Caltrans has requested formal consultation with USFWS for California red-legged frog. Part of the consultation process has been to analyze the potential effects to California red-legged critical habitat. Caltrans' analysis identified that the construction area within critical habitat does not provide the required PCEs and the amount of modified area within the critical habitat unit is less than 1 percent of the total area. Therefore, project related impacts will not result in any measurable decrease in the species' ability to reproduce. Caltrans concludes that the proposed project will not adversely modify California red-legged frog critical habitat.

Avoidance, Minimization and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to California red-legged frog during project construction. Species-specific measures include biological monitoring (Measure # 4), pre-construction surveys (Measure # 7), wildlife exclusion fencing (Measure # 14), notification of listed and other special-status species on site (Measure # 15), prevention of wildlife entrapment (Measure # 16), proper materials storage (Measure # 17), and the prohibition of mono-filament netting (Measure # 26).

Caltrans proposes that the temporary impacts of 7.686 acres will be mitigated through on-site restoration at a ratio of 1:1 and 1.644 acres of permanent impacts will be mitigated at a ratio of 3:1 for 4.932 acres as off-site compensation for a total compensation of 12.618. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans anticipates that the avoidance and minimization measures, in conjunction with the proposed compensatory mitigation, will reduce potential adverse effects to a negligible level. This mitigation may be used to satisfy the conditions

of multiple agencies and jurisdictions including the FESA, CESA, and CEQA process. Caltrans will consult with USFWS and CDFW to establish mitigation requirements. During consultation, off-site mitigation location and its criteria will be determined, should off-site mitigation be necessary. The final mitigation proposal will be subject to modification during the agency consultation and permitting processes.

Alameda Whipsnake

The Alameda whipsnake is listed as threatened under both the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA). It was federally listed on December 5, 1997 (USFWS 1997), and State listed in 1971.

Alameda whipsnakes typically occur on south-, southwest-, and southeast-facing slopes. They require open coastal shrub or chaparral, with small mammal burrows as retreat sites. (Stebbins and McGinnis 2012). Lizards, in particular western fence lizards, are the primary prey item of Alameda whipsnakes. Rocky outcrops are of importance to this species as cover and also to provide hunting opportunities (USFWS 2011).

This species will also venture into adjacent habitats, including grassland, oak savanna, and occasionally oak woodland (USFWS 2002b). Individual whipsnakes have been located over 4 miles from coastal scrub or chaparral habitat (USFWS 2011), though they have been found to occur more regularly within 500 meters (1,640 ft) of scrub habitats. They may also travel along riparian corridors (Swaim 2000 as cited in Jones & Stokes 2006).

Affected Environment

Due to the sensitivity of the species, the specific localities of Alameda whipsnake occurrences are suppressed in the California Natural Diversity Database (CNDDDB). Only the quadrangle in which each occurrence is located is given. There are 93 recorded occurrences of Alameda whipsnake within the 21-quadrangle CNDDDB search area around the BSA (CDFW 2013). Access to the location data for this species was made available through Caltrans to determine occurrences in or near the BSA. There are two occurrences within 2 miles of the Castro Valley segment of the BSA; however, there are no occurrences within the BSA. While the location data was used to help determine potential project impacts on this species, the precise locations were not mapped for this report.

Shrub land habitat within the BSA is suitable to support a resident population of Alameda whipsnakes. In addition, grassland and riparian woodland habitats within the BSA may also be used by individuals dispersing between other, more suitable areas. They are not expected to occur in urbanized areas. When the species was originally listed as threatened under the FESA in 1997, USFWS identified certain crossings that are located within the BSA for this project as important dispersal corridors between populations of Alameda whipsnake that are otherwise isolated from one another by I-580:

“The ability of the whipsnake to interchange among the . . . [Tilden-Briones and Oakland-Las Trampas populations and the Hayward Pleasanton Ridge population] . . . is contingent on their dispersing over the Caldecott Tunnel in Contra Costa County and under Highway 580 in Alameda County at the Eden Canyon interchange, the Dublin Boulevard undercrossing [Schafer Ranch Road], or where San Lorenzo Creek passes under the highway.” (USFWS 1997).

Two of the crossings referred to above, the Eden Canyon interchange and the Dublin Boulevard undercrossing (Schafer Ranch Road) are located within the BSA, and therefore the BSA contains a vital linkage between the Tilden-Briones and Oakland-Las Trampas populations and the Hayward-Pleasanton Ridge population of Alameda whipsnake. The paved surface of I-580 is not considered to be a viable

dispersal corridor for Alameda whipsnake because heavy traffic likely causes mortality of all individuals attempting to cross.

Critical habitat was designated for Alameda whipsnake in 2006 (USFWS 2006a), although there is none designated within the BSA. The nearest designated Alameda whipsnake critical habitat (Unit 3: Hayward-Pleasanton Ridge) is located adjacent to the BSA on the south side of I-580 in Castro Valley between PM 22.0 and 26.2. This critical habitat unit generally includes all of the undeveloped hills south of I-580, west of I-680, and north of Niles Canyon Road.

Due to the high mobility of this species, the presence of known populations and critical habitat in the region, and the presence of suitable shrub land habitat and dispersal corridors within the BSA, Alameda whipsnake may occur anywhere in the Castro Valley segment of the BSA between PM 21.7 and PM 26.6. Alameda whipsnakes are not expected to occur within the BSA west of PM 26.6 due to urban development. Based on known range and occurrence data points, Caltrans has excluded the Altamont Pass segment of the BSA as being able to support Alameda whipsnake.

Environmental Consequences

Caltrans has concluded that Alameda whipsnakes have a relatively low potential for occurring within the construction area but cannot rule out the risk that the species may be exposed to direct harassment, harm, injury, or mortality as a result of construction activities. These activities include initial site preparation, use of heavy equipment for excavation and backfill, handling of stockpiles and stored materials, ramp resurfacing, ramp widening, slope regrading for ramp widening, construction of ramp metering and maintenance vehicle pullouts (MVPs), installation of traffic operation system (TOS) elements and guard rails, and electrical trenching. The avoidance and minimization measures outlined above and detailed in the General Avoidance and Minimization Measures section below are intended to reduce the likelihood of direct take during project activities.

Excavation, fill, and other construction activities will impact a total of 2.599 acres of grassland habitat in the Castro Valley segment of the project that provides potential foraging and dispersal habitat for Alameda whipsnake. Caltrans anticipates the temporary impacts will total 2.125 acres and permanent impacts will total 0.474 acres. The habitat within the construction area is considered to be of marginal quality because of the high levels of roadside disturbance associated with I-580. Caltrans anticipates that construction will push this zone of roadside disturbance further outward into less disturbed habitat, particularly at ramp widening locations, causing degradation of habitat due to edge effects. Caltrans concludes that the proposed modifications to Alameda whipsnake habitat within the construction area may have a potential adverse impact on the behavioral patterns of some individuals of this species, including foraging, migration, and hibernation. Because breeding habitat – rocky outcrops and scrub habitats -- is not present in the construction area, Caltrans does not anticipate any adverse impact to breeding habitat or breeding behavior within the construction area as a result of the proposed project.

The project will not alter any of the existing crossings under I-580 that could be used by Alameda whipsnakes, such as the Eden Canyon interchange and the Dublin Boulevard undercrossing (Schafer Ranch Road). Therefore, the project is not expected to contribute to further fragmentation of Alameda whipsnake populations.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to Alameda whipsnake during project construction. Species specific measures include biological monitoring (Measure #4), pre-construction surveys (Measure #7), wildlife exclusion fencing (Measure #14), notification of listed and other special-status species on

site (Measure #15), prevention of wildlife entrapment (Measure #16), proper materials storage (Measure #17), and the prohibition of mono-filament netting (Measure #26).

Caltrans proposes that 2.125 acres of temporary impacts will be mitigated at a 1:1 ratio as on-site restoration and 0.474 acres of permanent impacts will be mitigated at a 3:1 ratio for 1.422 acres of off-site compensation for a total compensation of 3.547. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans proposes this compensatory mitigation for Alameda whipsnake to meet the requirements of California FGC Section 2081 for obtaining an ITP. Caltrans anticipates that the avoidance and minimization measures, in conjunction with the proposed compensatory mitigation, will reduce potential adverse effects to a negligible level. This mitigation may be used to satisfy the conditions of multiple agencies and jurisdictions including the FESA, CESA, and CEQA process. Caltrans will consult with USFWS and CDFW to establish mitigation requirements. During consultation, off-site mitigation location and its criteria will be determined, should off-site mitigation be necessary. The final mitigation proposal will be subject to modification during the agency consultation and permitting processes.

San Joaquin Kit Fox

The San Joaquin kit fox was listed as an endangered species by the State of California in 1971. No critical habitat has been designated for San Joaquin kit fox.

The San Joaquin kit fox is endemic to California. Historically it was known to occur in semi-arid habitats of the San Joaquin Valley and in arid grasslands of the adjacent foothills, from as far north as Tracy, San Joaquin County, and south to Kern County (Grinnell et al. 1937). Within the northern part of its range (including Alameda, Contra Costa, and San Joaquin counties), the San Joaquin kit fox is extremely rare and sparsely distributed due to habitat loss and the constriction of dispersal corridors linking the area to core population centers in the southern part of its range (Orloff et al. 1986, Smith et al. 2006, Clark et al. 2007).

The San Joaquin kit fox is primarily nocturnal and may cover ranges up to 20 miles at night (Girard 2001) when looking for mates, and somewhat less (6 miles) during the pup-rearing season. Home ranges vary from less than 1 square mile up to approximately 12 square miles. Their diet varies geographically, seasonally, and annually. They have been found to prey upon kangaroo rats (*Dipodomys* spp.), whitefooted mice and pocket mice (*Peromyscus* spp.), California ground squirrels, rabbits (*Sylvilagus* spp.), hares (*Lepus* spp.), San Joaquin antelope squirrels (*Ammospermophilus nelsoni*), and ground-nesting birds (Scrivner et al. 1987).

San Joaquin kit fox dens are generally located in open areas with grass or grass and scattered brush, and seldom occur in areas with thick brush. Preferred den sites are in relatively flat, well-drained terrain. Kit foxes maintain multiple dens and den use varies between the breeding season and the dispersal season. Kit fox den use is dynamic in that individual dens may only be used 10 percent of the time, and that individuals rotate amongst dens, often renovating and reusing old dens. In addition, San Joaquin kit fox will excavate new dens for temporary shelter (Koopman et al. 1998).

Affected Environment

This species is rare and sparsely distributed within the northern part of its range (Orloff et al. 1986, Smith et al. 2006, Clark et al. 2007), including Alameda County, and the presence of suitable habitat and CNDDDB records nearby suggest that San Joaquin kit foxes may intermittently be present in low numbers in the region. The BSA is at the periphery of the species' range, and the potential that the species would occur within the BSA during the limited time period of construction (approximately 2 years) is low. Although suitably friable soils are present, it is unlikely that San Joaquin kit foxes would dig or use dens

within the BSA due to constant disturbance from I-580 and other intersecting roads. San Joaquin kit foxes may use grassland habitat in the Altamont Pass segment of the BSA for dispersal. They are not expected to occur in urbanized areas, except under locally unique conditions, and are not known to occur in Livermore or other urbanized areas of the BSA. Caltrans considers San Joaquin kit fox to be absent from the Castro Valley segment of the BSA due to the known range and occurrence data.

Environmental Consequences

Since this project will occur on the margins of the known current range of San Joaquin kit fox, and because avoidance and minimization measures will be implemented to protect any transient individuals that may enter the construction area, the potential for impacts to San Joaquin kit fox is extremely remote. The limited number of observations of San Joaquin kit fox reported in the area, and a general consensus that the majority of the BSA is outside the typical range of the species, supports the conclusion that if the species does occur, it occurs sporadically and in low numbers. By following the avoidance and minimization measures outlined below and detailed in the General Avoidance and Minimization Measures section below, direct harm or injury from construction equipment and activities would be avoided. Following the minimization measures in regard to vehicle traffic, light and noise, and inspection of den-like structures on-site will be effective in minimizing potential effects. No direct impact to suitable habitat for the San Joaquin kit fox through the destruction of foraging or denning habitats is anticipated. In the rare instance that San Joaquin kit fox are identified, potential indirect impacts will be avoided through buffers outlined in the avoidance and minimization measures. Caltrans concludes that the proposed project would not affect the persistence of local populations of San Joaquin kit fox within the Altamont Pass region.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to San Joaquin kit fox during project construction. Species specific measures include biological monitoring (Measure #4), pre-construction surveys (Measure #7), wildlife exclusion fencing (Measure #14), notification of listed and other special-status species on site (Measure #15), and proper materials storage (Measure #17).

Longhorn Fairy Shrimp

The longhorn fairy shrimp, listed as endangered under FESA on September 19, 1994 (USFWS 1994), are found in vernal pools and swales in grasslands and are endemic to the eastern margin of the central Coast Mountains (CDFW 2006).

Affected Environment

Due to the sensitivity of the species, the specific localities of longhorn fairy shrimp occurrences are suppressed in the CNDDDB. Only the quadrangle in which each occurrence is located is given. There are two recorded occurrences of longhorn fairy shrimp within the 21-quadrangle CNDDDB search area around the BSA, both located in the Byron Hot Springs quadrangle, which is associated with the Altamont Pass segment of the BSA (CDFW 2013). There is one occurrence (CNDDDB occurrence #3) within 2 miles of the Altamont Pass segment of the BSA; however, there are no occurrences within the BSA.

Critical habitat was designated for the longhorn fairy shrimp in 2006 (USFWS 2006c). There is no designated critical habitat within the BSA. The nearest critical habitat for longhorn fairy shrimp is located 2.0 miles to the north of the BSA (north of PM 7.1). In the Altamont Pass segment of the BSA there is an American bulrush-dominated wetland, located under the I-580/I-205 connector ramps that may provide

suitable habitat. No wetlands occur within the construction area. A reconnaissance level survey for vernal pool habitats in the Altamont Pass segment of the BSA noted a few scrapes that had the potential to pond for a very limited duration, but no scrapes were observed with ponded water following rain. Numerous drainages that would have brief, fast flows were identified in the BSA, but that type of habitat feature is not considered suitable because the species does not occur in aquatic habitats that have flashy, flowing water. This species has a low potential for presence in the BSA in the wetland identified at the I-580/I-205 connector ramps and in areas where scrapes or borrow pits may be developed.

Environmental Consequences

The lack of apparent suitable habitat features within the construction area results in a conclusion that there will be no impacts to this species by the project. The general avoidance and minimization measures in the General Avoidance and Minimization Measures section below are intended to ensure water quality standards and that no impacts are caused to potential resources outside the defined construction area during project activities. Critical habitat for longhorn fairy shrimp is located outside the BSA; therefore there are no adverse modifications to designated critical habitat for this species. Caltrans concludes that the proposed project would not affect the persistence of local populations of longhorn fairy shrimp within the Altamont Pass region.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to resources during project construction ensuring no potential impacts occur outside the construction area through implementation of BMPs.

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp was listed as threatened under FESA on September 19, 1994 (USFWS 1994). Vernal pool fairy shrimp are found in vernal pools and are endemic to the Central Valley, central coastal mountains, and southern Coast Mountains (CDFW 2006).

Affected Environment

Critical habitat was designated for vernal pool fairy shrimp in 2006 (USFWS 2006c). There is no designated critical habitat within the BSA. The nearest critical habitat for vernal pool fairy shrimp is Unit 19C, located 0.05 miles to the northwest of the BSA (northwest of PM 8.2).

In the Altamont Pass segment of the BSA there is an American bulrush-dominated wetland, located under the I-580/I-205 connector ramps that may provide suitable habitat. No wetlands occur within the construction area. A reconnaissance level survey for vernal pool habitats in the Altamont Pass segment of the BSA noted a few scrapes that had the potential to pond for a very limited duration, but no scrapes were observed with ponded water following rain. Numerous drainages that would have brief, fast flows were identified in the BSA, but that type of habitat feature is not considered suitable because the species does not occur in aquatic habitats that have flashy, flowing water.

This species has a low potential for presence in the BSA in the wetland identified at the I-580/I-205 connector ramps and in areas where scrapes or borrow pits may be developed.

Environmental Consequences

The lack of apparent suitable habitat features within the construction area results in a conclusion that there will be no impacts to this species by the proposed project. The general avoidance and minimization measures in the General Avoidance and Minimization Measures section below are intended to ensure water quality standards and that no impacts are caused to potential resources outside the defined construction area during project activities. Critical habitat for vernal pool fairy shrimp is located outside the construction area; therefore there are no adverse modifications to designated critical habitat for this species. Caltrans concludes that the proposed project would not affect the persistence of local populations of vernal pool fairy shrimp within the Altamont Pass region.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to resources during project construction ensuring no potential impacts occur outside the construction area through implementation of BMPs.

Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp was listed as endangered under FESA on September 19, 1994 (USFWS 1994). Vernal pool tadpole shrimp are found in vernal pools and are endemic to the Central Valley, central coastal mountains, and southern Coast Mountains (CDFW 2006).

Affected Environment

Critical habitat was designated for vernal pool tadpole shrimp in 2006 (USFWS 2006c). There is no designated critical habitat within the BSA. The nearest critical habitat for vernal pool tadpole shrimp is Unit 14B, located 14 miles to the south of the Castro Valley segment of the BSA.

In the Altamont Pass segment of the BSA there is an American bulrush-dominated wetland, located under the I-580/I-205 connector ramps that may provide suitable habitat. No wetlands occur within the construction area. A reconnaissance level survey for vernal pool habitats in the Altamont Pass segment of the BSA noted a few scrapes that had the potential to pond for a very limited duration, but no scrapes were observed with ponded water following rain. Numerous drainages that would have brief, fast flows were identified in the BSA, but that type of habitat feature is not considered suitable because the species does not occur in aquatic habitats that have flashy, flowing water. This species has a low potential for presence in the BSA in the wetland identified at the I-580/I-205 connector ramps and in areas where scrapes or borrow pits may be developed.

Environmental Consequences

The lack of apparent suitable habitat features within the construction area results in a conclusion that there will be no impacts to this species by the project. The general avoidance and minimization measures in the General Avoidance and Minimization Measures section below are intended to ensure water quality standards and that no impacts are caused to potential resources outside the defined construction area during project activities. Critical habitat for vernal pool tadpole shrimp is located outside the construction area. Therefore there are no adverse modifications to designated critical habitat for this species. Caltrans concludes that the proposed project would not affect the persistence of local populations of vernal pool tadpole shrimp within the Altamont Pass region.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to resources during project construction ensuring no potential impacts occur outside the construction area through implementation of BMPs.

American Badger

The American badger is a State Species of Special Concern. They are widely distributed throughout California, occurring primarily in open habitats, such as grassland, oak savanna, and coastal scrub. They are solitary, proficient diggers that construct burrows for resting and rearing young. Badgers use multiple burrows and may dig new ones frequently. American badgers primarily prey upon small fossorial mammals, such as ground squirrels and pocket gophers, by digging them up out of their burrows (Laudenslayer et al. 1990). Declines in this species are often attributed to urban growth, conversion of grasslands to agriculture, and the use of rodenticides (Reid 2006).

Affected Environment

Suitable habitat is present in grassland and shrubland habitats within the BSA, though habitat is of marginal quality due to continual human disturbance associated with I-580. If any American badgers do occur within the Altamont Pass or Castro Valley segments of the BSA, they are likely to be foraging or dispersing rather than establishing permanent dens. They are not expected to occur in urbanized habitats.

Environmental Consequences

Direct impacts to occupied burrows are not expected as a result of the project. Any active badger burrows detected during initial pre-construction surveys within the construction area will be avoided. American badger may be indirectly affected by noise, light, and visual disturbance. Caltrans anticipates that since the construction area is already highly disturbed due to roadway traffic, badgers are highly unlikely to be present within the construction area due to the proximity of the high traffic highway. Caltrans concludes that the proposed project would not affect the persistence of local populations of American badger within the Altamont Pass or Castro Valley regions.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to American badger during project construction. Species-specific measures include pre-construction surveys (Measure #7) and notification of listed and other special-status species on site (Measure #15). If an individual is found, work will not commence until the individual leaves the work area of its own volition.

San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat is a State Species of Special Concern and is locally common in undisturbed portions of habitat throughout its range. They inhabit densely forested areas with a brushy understory, such as in riparian areas and oak woodlands. They may also nest in chaparral, coastal sage-scrub, and mixed coniferous forests. Woodrats build large stick nests, referred to as houses, where they live year-round. Nests are generally placed against the base of a tree or a fallen log, though they may also be located above the ground in a tree's branches. Nests on hillsides often include subterranean tunnels

dug into the side of the slope. On average, woodrat nests are approximately 4 ft tall and 5 ft wide at the base, though there is considerable variation in size. The nests are very complex, containing multiple chambers for sleeping, food storage, latrines, and other life activities. Woodrat nests provide cover and habitat for numerous other small mammals, reptiles, amphibians, and invertebrate species (Carraway 1991).

The San Francisco dusky-footed woodrat is a subspecies that occurs only in the southern half of the Bay Area (south of Golden Gate through the Santa Cruz Mountains to the Pajaro River and in the East Bay, south of the Suisun Bay along the western slope of the Diablo Range). As a unique subspecies, this designation was confirmed by genetic studies based on mitochondrial DNA (Matocq 2002), although the range may extend slightly farther south along the inner coast range. Woodrats feed mostly on woody plants such as coast live oak, other oaks, big-leaved maple, coffeeberry (*Rhamnus crocea*), alder (*Alnus* sp.), elderberry (*Sambucus* sp.), toyon (*Heteromeles arbutifolia*), and poison oak (Johnston and Cezniak 2004).

Affected Environment

San Francisco dusky-footed woodrats may occur in riparian woodland habitat within the Castro Valley segment of the BSA.

Environmental Consequences

Riparian woodland habitat within the Castro Valley segment of the project provides potential habitat for San Francisco dusky-footed woodrats. Minimal direct (temporary and permanent) impacts to riparian woodland habitat within the construction area are expected as a result of the project. No evidence of woodrat nests was observed during field visits. Caltrans does not anticipate any adverse impacts to the species. Should active woodrat nests be detected during pre-construction surveys within or adjacent to the construction area, Caltrans will coordinate with CDFW. Caltrans concludes that the proposed project would not affect the persistence of local populations of San Francisco duskyfooted woodrat within the Castro Valley region.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to San Francisco dusky-footed woodrat during project construction. Species-specific measures include pre-construction surveys (Measure #7) and notification of listed and other special-status species on site (Measure # 15). The need for nest dismantling and relocation will be determined by Caltrans in coordination with CDFW should nests be found within the construction area.

Bat Species

Bats are widespread within California, and may be found in any habitat. They are nocturnal aerial predators of insects and other arthropods and often forage over water and other moist, open areas where flying insects tend to congregate. Different bat species will roost in a variety of places, including crevices, caves, mines, buildings, bridges, trees, and snags. Some species are nearly or entirely solitary, while others gather in roosting colonies numbering in the thousands or even millions. Roosts used during the day and as maternity colonies tend to be well hidden and require precise temperature conditions. Bats will also use separate night roosts as temporary resting locations while out on their nightly foraging trips. Night roosts have less precise temperature conditions than day roosts, and may be located in more open areas such as overhangs on buildings and open areas on the undersides of bridges.

Four special-status bat species were considered during the preparation of this report based on range, habitat, and recorded occurrences in the region.

Pallid Bat – State Species of Special Concern

The pallid bat is a medium-sized bat that occurs throughout much of California. They may occur in a wide variety of grasslands, shrublands, and woodlands, though they are generally found in dry, open areas at lower elevations. They typically fly low while foraging for prey. Most prey are caught on the ground or gleaned off of foliage. Prey species include beetles, orthopterans, homopterans, moths, spiders, scorpions, and solpugids (wind scorpions or camel spiders) (CDFW 2008). The species is capable of taking heavy-bodied insects such as June beetles and Jerusalem crickets as well (Jameson and Peeters 2004). Pallid bats make day roosts within caves, crevices, mines, and occasionally in hollow trees or buildings. Night roosts may be in more open areas such as under porches and open buildings. Pallid bats are particularly sensitive to disturbance from humans at roost sites (CDFW 2008).

Townsend's Big-eared Bat – State Species of Special Concern

The Townsend's big-eared bat is found throughout California except at high elevations. Maternity colonies have been found in caves, mines, and buildings (Jameson and Peeters 2004), and they will hibernate during the winter in roosts that are cold, but not below freezing. Townsend's big-eared bats feed primarily on small moths, though beetles and other insects may be taken as well. They capture prey in flight by echolocation and by gleaning from foliage. This species is highly sensitive to disturbance at roost sites (CDFW 2008).

Hoary Bat – State Special Animals List

The hoary bat is a widespread species found in a variety of habitats throughout California. This solitary bat's range includes Canada (near the limit of trees) to South America (Bolster 1998). They are most commonly found in association with forested habitats near water (CDFW 2013). Roosting sites are generally in dense foliage of both coniferous and deciduous trees, at the ends of branches 10 to 40 feet above the ground, and with open flying space below (Bolster 1998). Moths are the primary food source for hoary bats (Black 1974). Females give birth to young between mid-May and early July.

Yuma Myotis – State Special Animals List

The Yuma myotis is common throughout California except for the arid Mojave and Colorado Desert regions. They feed on a variety of small insects and generally forage over water sources such as rivers, lakes, ponds, and stock tanks, most often in open woodland or forest areas. Roosting habitat, which may contain maternity roosts consisting of thousands of individuals during the breeding season, includes caves, crevices, mines, buildings, and large trees. Temporary night roosts may be located in more open areas (CDFW 2008).

Affected Environment

Bats in general are under-reported to the CNDDDB relative to their actual abundance in the environment. They are nocturnal, difficult to detect, and it's difficult to positively identify species when detected. They may be present despite a lack of reported occurrences in the region.

There are two occurrences of pallid bat recorded within 2 miles of the Castro Valley segment of the BSA. One occurrence was recorded in Santa Rita in 2003, approximately 1.20 miles southeast of the BSA. The

second was recorded in Hayward, approximately 1.50 miles south of the BSA, but the date of the occurrence is not specified in the CNDDDB (CDFW 2013).

There are no recorded occurrences of Townsend's big-eared bat within 2 miles of the BSA. The nearest occurrence is recorded over 7 miles southwest of the Altamont Pass segment of the BSA (CDFW 2013).

There is one CNDDDB occurrence of hoary bat within 2 miles of the BSA. The occurrence was recorded in 1920 and is located in Hayward approximately 1.95 miles south of the Castro Valley segment of the BSA (CDFW 2013).

There is one occurrence of Yuma myotis recorded within 2 miles of the BSA (Figure 2). The occurrence was recorded in 2003 approximately 1.20 miles southeast of the BSA in the Castro Valley segment of the proposed project (CDFW 2013).

A habitat assessment was conducted for bat species within the BSA. Surveyors inspected all underpasses (bridges that carry I- 580 above surface streets, waterways, or other open areas) within the BSA. Overpasses (bridges that carry roads above I-580) were not assessed as they were considered to be unsuitable due to excessive traffic on the freeway below. Surveyed bridges included two perennial stream crossings (bridges over Crow Creek and San Lorenzo Creek at Crow Canyon Road, PM 28.5), six road/railroad crossings (Palo Verde Road at PM 26.2, Schaefer Ranch Road/Hollis Canyon Road at PM 23.9, a railroad/unsealed road at PM 8.0, an unsealed road at PM 3.9, Grant Line Road at PM 1.5, and Midway Road at PM 1.0), and one elevated highway span at PM 7.1. The bridges at the I-580/I-205 interchange and at North Flynn Road were not surveyed as they pass over the highway. The habitat assessment consisted of an inspection of the exterior of the bridges and would not be considered sufficient to confirm the presence or absence of day-roosting bats within the interior cavities of the bridges.

Although live bats were observed or heard at only two bridges, all of the bridges within the BSA were found to have suitable day roost and night roost habitat based on bridge design elements. The bridges are generally of a box-girder construction, which leaves a hollow interior space below the roadbed in the center of the bridge structure. Weep holes designed for drainage could also make this interior space accessible to bats. In addition, some of the larger bridges also had expansion joints, which are lateral seams in the concrete that sometimes leave gaps suitable for bat roosting. Other types of crevices and angles created by the concrete bridge design also create roosting habitat. Confirmed day roosts were observed at two bridges, as evidenced by guano deposits and echolocation calls; however, species or genus-level identifications could not be made. Potentially suitable night roosts were observed in the understructure of bridges in recessed, protected areas that are high enough above the ground to provide a flyway for bats. No evidence of actual night roosts was observed. Riparian habitat at Crow Creek and San Lorenzo Creek may also be suitable roosting habitat.

Environmental Consequences

Within the construction area, roosts at bridges may be indirectly impacted by noise, nighttime lighting, vibration from construction activities, and disturbance from humans and equipment during electrical conduit installation on, under, or up to bridges at Crow Creek (PM 28.5), San Lorenzo Creek (PM 28.5), Palo Verde Road (PM 26.2), Schaefer Ranch Road/Hollis Canyon Road (PM 23.9), the railroad crossing (PM 8.0), Grant Line Road (PM 1.5), and Midway Road (PM 1.0). Caltrans does not anticipate any impacts associated with bats roosting in riparian trees. There are no planned tree removals within the riparian habitat located in the Castro Valley segment of the project.

Avoidance and minimization measures outlined above and detailed in the General Avoidance and Minimization Measures section below have been put in place to diminish the probability of impacts to

roosting bats within the construction area. Caltrans concludes that the proposed project would not affect the persistence of local populations of bat species within the Altamont Pass or Castro Valley regions.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to special-status bat species during project construction. Species specific measures include pre-construction surveys (Measure # 7), notification of listed and other special-status species on site (Measure # 15), and the Caltrans Bats and Bridges Technical Bulletin (Erickson et al. 2002) procedures for construction activities around bat roosts (Measure # 8).

Western Pond Turtle

The western pond turtle is a State Species of Special Concern. Western pond turtles range throughout California, from southern coastal California and the Central Valley, east to the Cascade and Sierra Nevada. The known elevation range of the species extends from sea level to 4,690 ft.

Affected Environment

Aquatic habitat is present within the BSA at Mountain House Creek in the Altamont Pass segment of the BSA and Crow Creek and San Lorenzo Creek in the Castro Valley segment of the BSA. The portion of Crow Creek and San Lorenzo Creek within the BSA is in a moderately urban area and all creeks within the BSA may be too shallow to harbor resident populations of western pond turtles. Streams within the BSA could be used as movement corridors between areas of deeper water habitat. Individuals travelling into uplands for nesting or dispersal from other streams or ponds in the vicinity may use grassland, shrubland, or riparian woodland within the BSA. Western pond turtles may occur within these habitats in both the Castro Valley and Altamont Pass segments of the BSA.

Environmental Consequences

Direct impacts to western pond turtle may result from earth-moving activities within 350 feet of Mountain House Creek in the Altamont Pass segment of the project and Crow Creek and San Lorenzo Creek in the Castro Valley segment of the project, and indirect impacts from construction activities near these creeks may include water quality degradation from erosion or sediment loading. However, impacts from earthmoving activities and water quality impacts are unlikely, given the proposed avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below and Caltrans BMPs. Caltrans concludes that the proposed project would not affect the persistence of local populations of western pond turtle within the Altamont Pass or Castro Valley regions.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to western pond turtle during project construction. Species specific measures include pre-construction surveys (Measure #7) and notification of listed and other special-status species on site (Measure #15). In the event that individuals are found, they will be relocated to suitable habitat outside of the BSA.

San Joaquin Whipsnake

The San Joaquin whipsnake is a State Species of Special Concern. This species of snake occurs in grasslands, deserts, chaparral, scrub, and other open terrain (Stebbins 1972) in the southern half of the

Central Valley and the eastern slopes of the South Coast Range, with an isolated population on the Sutter Buttes in Sutter County (Stebbins and McGinnis 2012). The San Joaquin whipsnake is a diurnal snake that uses small mammal burrows, brush, and rock piles or climbs into bushes and trees to seek prey or cover or moderate temperature. (Stebbins and McGinnis 2012). San Joaquin whipsnake is a feeding generalist and prey includes rodents, lizards, eggs, other snakes, insects and carrion (Cowles 1946, Stebbins 1954, Wright and Wright 1957, Carpenter 1958, Cunningham 1959, Miller and Stebbins 1964), as well as carrion (Stebbins and McGinnis 2012).

San Joaquin whipsnake populations have been dramatically reduced by the increased development of large-scale agriculture, grazing, and other human land use through most of its range (Stebbins and McGinnis 2012).

Affected Environment

Caltrans has identified suitable grassland and shrubland habitat within the Altamont Pass segment of the BSA. Because there is a CNDDDB occurrence in the area and suitable habitat in the BSA, Caltrans believes that the San Joaquin whipsnake has the potential to disperse through the BSA.

Environmental Consequences

Grassland and shrubland in the Altamont Pass segment of the project provides potential habitat for the San Joaquin whipsnake. The habitat within the construction area is considered to be of marginal quality because of the high levels of roadside disturbance associated with I-580. Caltrans anticipates that construction will push this zone of roadside disturbance further outward into less disturbed habitat, particularly at ramp widening locations, causing degradation of habitat due to edge effects. Implementation of avoidance and minimization measures outlined above and detailed in the General Avoidance and Minimization Measures section below will prevent direct harm or injury to San Joaquin whipsnakes from construction equipment and activities. Caltrans concludes that the proposed project would not affect the persistence of local populations of San Joaquin whipsnake within the Altamont Pass region.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to San Joaquin whipsnake during project construction. Species specific measures include pre-construction surveys (Measure #7), wildlife exclusion fencing (Measure #14), notification of listed and other special-status species on site (Measure #15), prevention of wildlife entrapment (Measure #16), proper materials storage (Measure #17), and the prohibition of monofilament netting (Measure #26). In the event that individuals are found during pre-construction surveys, they will be relocated to suitable habitat outside of the BSA.

Western Burrowing Owl

The western burrowing owl is a State Species of Special Concern. This species prefers open, flat, or sloped grasslands and requires burrows for nesting and wintering. Typically burrowing owls nest in burrows created by fossorial mammals but will also nest in artificial structures such as open pipes, concrete rubble piles, and small, dry culverts. Western burrowing owls nest and forage in grasslands, the margins of agricultural fields, and urban areas with short vegetation or even bare soil because these areas offer a wide field of view. They perch on raised mounds at the mouth of their burrows or on other prominent objects nearby such as rocks, tall plants, fence posts, and debris piles, in order to attain a good field of view (Haug et al. 1993). Western burrowing owls may use multiple burrows simultaneously,

often with one primary burrow and several nearby satellite burrows (Peeters 2007). Although they may use the abandoned burrows of badgers, coyotes, and foxes, they are most often found occupying burrows created by California ground squirrels. As such, ground squirrel eradication efforts undertaken for pest management purposes may limit the availability of suitable habitat for western burrowing owls (Gervais et al. 2008).

Affected Environment

Suitable habitat for burrowing owl is present within the BSA in grassland habitat and landscaped areas. Numerous California ground squirrels and their burrows were observed in close proximity to the BSA, particularly in the Altamont Pass segment, and burrowing owls may potentially occur in these areas where vegetation is short.

Environmental Consequences

Direct impacts to occupied burrows are not expected as a result of the proposed project. Any active burrowing owl burrows detected during initial occupancy surveys within or adjacent to the construction area will be avoided (per the measures in the Staff Report on Burrowing Owl Mitigation, CDFG 2012). Burrowing owls may be indirectly affected by noise, light, and visual disturbance. Caltrans has identified that the construction area is highly disturbed by heavy traffic volumes which create ambient noise levels in excess of 67.8 decibels (Caltrans 2013) and high ambient light levels after sundown. Caltrans concludes that the proposed project would not affect the persistence of local populations of burrowing owl within the Altamont Pass or Castro Valley regions.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures below will reduce the potential for effects to western burrowing owl during project construction. Species specific measures from the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game [CDFG] 2012) include occupancy surveys (Measure #12) and notification of listed and other special-status species on site (Measure #15).

If burrowing owls are found to occupy burrowing owl habitat in or adjacent to the construction area, avoidance and minimization measures will be determined in consultation with CDFW.

Migratory Bird Species

Under the federal Migratory Bird Treaty Act (MBTA) and California FGC Sections 3505, 3513, and 3800, migratory birds, their nests, and eggs are protected from disturbance or destruction. Removal or disturbance of active nests would be in violation of these regulations. All birds, except non-native species, are protected under the MBTA and California Fish and Game Code.

In addition to common bird species, several special-status bird species have at least some potential to occur within the BSA, including:

- Bald eagle (*Haliaeetus leucocephalus*) – Federal Delisted, Protected under the Bald and Golden Eagle Protection Act, State Endangered, Fully Protected Species under California Fish and Game Code
- Golden eagle (*Aquila chrysaetos*) – Protected under the Bald and Golden Eagle Protection Act, Fully Protected Species under California Fish and Game Code
- Cooper’s hawk (*Accipiter cooperii*) – State Special Animals List

- Tricolored blackbird (*Agelaius tricolor*) – State Species of Special Concern
- Yellow warbler (*Dendroica petechial brewsteri*) – State Species of Special Concern
- White-tailed kite (*Elanus leucurus*) – Fully Protected Species under California Fish and Game Code
- California horned lark (*Eremophila alpestris actia*) – State Special Animals List
- Loggerhead shrike (*Lanius ludovicianus*) – State Species of Special Concern
- Black-crowned night heron (*Nycticorax nycticorax*) – State Special Animals List

Affected Environment

In general, habitat within the BSA is of marginal quality due to continual human disturbance from I-580 and high traffic volumes associated with the highway. All land cover types within the BSA may be used by one or more bird species for nesting, even bare ground and urbanized areas. Raptors and many smaller bird species may nest in trees within the BSA, and many other birds may nest among grassland, shrubland, and freshwater marsh land cover types. Bridges on I-580 may also provide nesting habitat. Riparian areas such as those found at Crow Creek and Lorenzo Creek are particularly attractive for nesting birds.

Occurrences are recorded within the 21-quadrangle project region for bald eagle, Cooper’s hawk, loggerhead shrike, and black-crowned night heron (CDFW 2013). None of these occurrence data points are located within the BSA. During field surveys and project site visits, Caltrans biologists did not observe any listed bird species within the BSA.

Environmental Consequences

Grading, tree and brush removal, or vegetation pruning has the potential to impact nesting migratory or other bird species by causing destruction or abandonment of occupied nests and potential disruption of foraging behavior. During construction, common migratory or other bird species may be temporarily displaced by habitat alteration or disturbance due to construction activity. Through the implementation of the proposed avoidance and minimization measures outlined above and detailed in the General Avoidance and Minimization Measures section below, no mortality of migratory or other birds is anticipated. The proposed project has the potential to remove or disturb unoccupied habitat used by nesting or foraging birds. This potential impact would be limited to a relatively small area compared to the extensive nesting and foraging habitat adjacent to the construction area. Caltrans concludes that the proposed project would not affect the persistence of populations of migratory and special-status bird species within the Altamont Pass or Castro Valley regions.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to nesting migratory and other bird species during project construction. Migratory and other bird species-specific measures include a September 1 to February 15 work window for clearing and grubbing activities (Measure #9), pre-construction surveys for nesting birds if work must occur during the nesting season (February 15 to August 31) (Measure #10), if necessary, non-disturbance buffers for active nests found during pre-construction surveys (Measure #11), and notification of listed and other special-status species on site (Measure #15).

Midvalley Fairy Shrimp

The midvalley fairy shrimp is on the State Special Animals List. Midvalley fairy shrimp are small, freshwater crustaceans found in grassland vernal pools, seasonally ponded areas, and other ephemeral

ponds (Eriksen and Belk 1999). This species has similar habitat requirements as vernal pool fairy shrimp, longhorn fairy shrimp, and vernal pool tadpole shrimp; however, the midvalley fairy shrimp has a smaller overall range and uses shallower pools (USFWS 2003), and the majority of occurrences for this species are in vernal pools (vs. vernal swales) (USFWS 2004b); however, this species is known to occur in questionable habitats that do not resemble vernal pools.

Affected Environment

There are no recorded occurrences of Midvalley fairy shrimp within 2 miles of the BSA (CDFW 2013). The nearest CNDDDB occurrences are more than 5 miles north of the BSA (CDFW 2013).

In the Altamont Pass segment of the BSA there is an American bulrush-dominated wetland, located under the I-580/I-205 connector ramps that may provide suitable habitat. No wetlands occur within the construction area. A reconnaissance level survey for vernal pool habitats in the Altamont Pass segment of the BSA noted a few scrapes that had the potential to pond for a very limited duration, but no scrapes were observed with ponded water following rain. Numerous drainages that would have brief, fast flows were identified in the BSA, but that type of habitat feature is not considered suitable because the species does not occur in aquatic habitats that have flashy, flowing water.

Caltrans concludes that the Midvalley fairy shrimp has an extremely low potential to be present in the BSA in the wetland identified at the I-580/I-205 connector ramps and in areas where scrapes or borrow pits may be developed.

Environmental Consequences

The lack of apparent suitable habitat features within the construction area results in a conclusion that there will be no impacts to this species by the project. The general avoidance and minimization measures in Section 1.2.2 are intended to ensure water quality standards and that no impacts are caused to potential resources outside the defined construction area during project activities. Caltrans concludes that the proposed project would not affect the persistence of local populations of Midvalley fairy shrimp within the Altamont Pass region.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance and Minimization Measures section below will reduce the potential for effects to resources during project construction ensuring no potential impacts occur outside the construction area through implementation of BMPs.

General Avoidance and Minimization Measures

To avoid and minimize effects to federally listed species and their habitats within the BSA, Caltrans would implement the following general measures:

1. **Biological Opinion.** Caltrans will include a copy of the Biological Opinion within the construction bid package of the proposed project. The resident engineer or their designee will be responsible for implementing the *Conservation Measures and Terms and Conditions* of the U.S. Fish and Wildlife Service (USFWS) Biological Opinion and the California Department of Fish and Wildlife (CDFW) Incidental Take Permit.
2. **Reinitiation of Consultation.** Caltrans will reinitiate consultation if the project results in effects to listed species not considered in the USFWS Biological Opinion or CDFW Incidental Take Permit.

3. **Agency Approval for Biological Monitors.** Caltrans will submit the names and qualifications of the biological monitor(s) for USFWS and CDFW approval prior to initiating construction activities for the proposed project.
4. **Biological Monitoring.** The agency-approved biologist(s) will be on site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in the Biological Opinion and project permits. The biologist(s) will keep copies of applicable permits in their possession when on site. Through the resident engineer or their designee, the agency-approved biologist(s) shall be given the authority to communicate either verbally or by telephone, email, or hardcopy with all project personnel to ensure that take of listed species is minimized and permit requirements are fully implemented. Through the resident engineer or their designee, the agency-approved biologist(s) shall have the authority to stop project activities to minimize take of listed species or if he/she determines that any permit requirements are not fully implemented. If the agency-approved biologist(s) exercises this authority, the agencies shall be notified by telephone and email within 48 hours.
5. **Worker Environmental Awareness Training (WEAT).** All construction personnel will attend a mandatory environmental education program delivered by an agency-approved biologist prior to working in the construction footprint.
6. **Work Window for Listed Species:** All work within suitable habitat for California tiger salamander will occur between April 15 and October 15, if practicable; otherwise, wildlife exclusion fencing (WEF) will be installed and then monitored following rain events.
7. **Pre-construction Surveys:** Prior to initiation of construction activities that include ground disturbance (or bridge disturbance for bats), pre-construction surveys will be conducted by an agency-approved biologist for listed and other special-status species. These surveys will consist of walking surveys of the construction area and, if possible, accessible adjacent areas within at least 50 feet of the construction footprint. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, appropriately sized soil cracks, tree roots, debris, and (for bat roosts) bridge structures and trees. Nonpoisonous native vertebrates found in cover sites within the construction footprint will be documented and relocated to an adequate cover site in the vicinity. San Joaquin kit fox surveys should identify kit fox habitat features on the project site, evaluate use by kit fox, and, if possible, assess the potential impacts to the kit fox by the proposed activity. If an occupied den is discovered within the construction area, or within 100 feet of the project boundary, an exclusion zone of a minimum of 100 feet around the den will be established. If the minimum exclusion zone cannot be met, then CDFW and USFWS will be contacted. If a natal/pupping den is discovered within the action area or within 200 feet of the action area boundary, the agencies will be notified immediately.
8. **Construction Activities around Bat Roosts:** As stated in the Caltrans Bats and Bridges Technical Bulletin (Erickson et al. 2002), any area under a confirmed day or night bat roost that is within visual sight of bats will be designated as an environmentally sensitive area (ESA). To minimize impacts to day roosts during the non-volant period when young are present but cannot fly (May 1 to July 31), work should not occur directly under or adjacent to the roost. To minimize impacts to night roosts, construction activities should not occur immediately around a roost site between 10:00 p.m. and sunrise, in particular during the period of highest night-roost use from spring to fall. Clearing of vegetation and grubbing around roosts is to be minimized wherever possible. Combustion equipment (e.g., pumps, generators, vehicles) should not be used immediately under the roost. The presence of personnel under roost sites should be minimized, particularly during the evening exodus. Lights should not be placed in a location where a roost site would be illuminated.
9. **Work Window for Nesting Birds.** To the extent practicable, clearing and grubbing activities will be conducted during the non-nesting season between September 1 and February 15.

10. **Pre-construction Surveys for Nesting Birds.** Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 15 to August 31).
11. **Non-Disturbance Buffer for Nesting Birds.** If work is to occur within 100 feet of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance.
12. **Occupancy Surveys for Western Burrowing Owl.** Occupancy surveys, as defined in the Staff Report on Burrowing Owl Mitigation (CDFG 2012), shall be conducted by a qualified biologist. If burrowing owls are found to occupy burrowing owl habitat in or adjoining the construction area, avoidance and minimization measures will be determined in consultation with CDFW.
13. **Environmentally Sensitive Area (ESA) Fencing.** Environmentally sensitive areas will be delineated with high visibility temporary fencing at least 4 feet in height, flagging or other barrier to prevent encroachment of construction personnel and equipment outside the action area described in the project description. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated construction footprint.
14. **Wildlife Exclusion Fencing (WEF).** The construction area for ramp widening within suitable habitat for listed species will be delineated with high visibility wildlife exclusion fencing (WEF) at least 4 feet in height to discourage wildlife from accessing the action area. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated construction area. No project activities will occur outside the delineated construction footprint.
15. **Listed and Other Special-status Species On-Site.** The resident engineer will immediately contact the agency-approved project biologist(s) in the event that a California tiger salamander, California red-legged frog, Alameda whipsnake, San Joaquin kit fox, or other special-status species is observed within a construction zone. The resident engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established.
16. **Prevention of Wildlife Entrapment.** To prevent inadvertent entrapment of listed and other special-status species during construction excavated holes or trenches more than 1 foot deep with walls steeper than 30 degrees will be covered by plywood or similar materials at the close of each working day. Alternatively, an additional 4-foot high vertical barrier, independent of exclusionary fences, will be used to further discourage the inadvertent entrapment of listed species. If it is not feasible to cover an excavation or provide an additional 4-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed or other special-status animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape or the USFWS and/or CDFW will be contacted by telephone for guidance. The USFWS and CDFW will be notified of the incident by telephone and electronic mail within 48 hours.
17. **Materials Storage:** All construction pipes, culverts, similar structures, construction equipment, or construction debris left overnight within the project footprint will be inspected for listed species by the agency-approved biological monitor prior to being removed.
18. **Night Work.** To the extent practicable, nighttime construction will be minimized, although night work is expected to occur.
19. **Night Lighting.** Except when necessary for construction, driver, or pedestrian safety, use of artificial lighting will be minimized to the maximum extent practicable.
20. **Trash Control.** All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers.

21. **Firearms.** No firearms will be allowed in the action area except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.
22. **Pets.** To prevent harassment, injury, or mortality of sensitive species, no pets will be permitted in the action area.
23. **Vehicle Use.** Project employees will be required to comply with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.
24. **Caltrans Best Management Practices (BMPs).** The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the Caltrans' Standard Specifications. Caltrans erosion control BMPs will be used to minimize any wind- or water-related erosion. The State Water Resources Control Board has issued a National Pollution Discharge Elimination System (NPDES) Statewide Storm Water Permit to Caltrans to regulate stormwater and non-stormwater discharges from Caltrans facilities. A Storm Water Pollution Prevention Plan (SWPPP) will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Caltrans Storm Water Management Plan (SWMP). The SWMP includes guidance for Caltrans design staff to incorporate provisions in construction contracts to include measures to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges.

The SWPPP will reference the Caltrans Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found online at: <http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>.

SWPPP measures will include but will not be limited to the following:

- a. There will be no discharge of pollutants from vehicle and equipment cleaning into storm drains or water courses.
 - b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.
 - c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of and not allowed into water courses.
 - d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.
 - e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydromulching will be applied to all unfinished disturbed and graded areas.
 - f. Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and re-seeded with a native seed mix.
 - g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.
 - h. A Revegetation Plan will be prepared for restoration of temporary work areas.
25. **Water Quality Inspections.** Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater best management practices (BMPs) are adequate.
 26. **Mono-filament Erosion Control.** Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because California tiger salamanders, California red-legged frogs, and Alameda whipsnakes, as well as San Joaquin whipsnakes, may become entangled or trapped in it. Alternative erosion control devices, such as coconut coir matting or tackified hydroseeding compounds, will be used.

- 27. **Concrete Waste.** All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.
- 28. **Revegetation Following Construction.** All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, or tree species. Invasive, exotic plants will be controlled within the construction area to the maximum extent practicable, pursuant to Executive Order 13112.
- 29. **Biological Opinion Permanent Loss Compensation.** Caltrans will provide off-site compensation for the permanent loss of California tiger salamander, California red-legged frog, and Alameda whipsnake habitat at 3:1. Habitat loss will be considered temporal when it can be successfully restored to baseline or better ecological function within 1 year of the initial ground disturbance. Listed species habitat subjected to temporal loss will be compensated at 1.1:1 ratio, with a 1:1 credit for onsite restoration. This would leave 0.1:1 to be satisfied off-site. Caltrans will provide in perpetuity preservation of listed species habitat through purchase of an appropriate conservation easement and/or purchase of credits at a Service-approved species mitigation bank. Acquired compensation will be within the range of the San Joaquin kit fox. The quantification of the habitat loss and associated compensation is summarized in the table below.

Biological Opinion Compensation

Species	Temporary habitat loss (acres)		Permanent habitat loss (acres)		Total off-site compensation (acres)
	Amount lost	Compensation at 0.1:1	Amount lost	Compensation at 3:1	
California tiger salamander	7.624	0.7624	1.624	4.832	5.6
California red-legged frog	7.686	.7686	1.644	4.932	5.7
Alameda whipsnake	2.125	.2125	.474	1.422	1.635

- 30. **Biological Opinion Terms and Conditions.** The following Terms and Conditions implement Reasonable and Prudent Measure one (1):
 - a. Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of the project footprint identified in this BO, including vehicle parking, staging, laydown areas, and access.
 - b. At least 15 days prior to the onset of any construction-related activities, Caltrans shall submit to the Service, for approval, the name(s) and credentials of biologists it wishes to conduct activities specified for this project. Information included in a request for authorization should include, at a minimum: (1) relevant education; (2) relevant training on Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized for such activities by the Service; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of BOs under which they were authorized to work with the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox and at what level (such as construction monitoring versus handling), this should also include the names and qualifications of persons under which the work was supervised as well as the amount

of work experience on the actual project; (5) A list of Federal Recovery Permits [10(a)1 (A)] held or under which are authorized to work with the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox (to include permit number, authorized activities, and name of permit holder); (6) any relevant professional references with contact information. No project construction shall begin until Caltrans has received written Service approval for biologists to conduct specified activities.

- c. The Worker Environmental Awareness Training Program shall include a summary of the conservation measures that are relevant to employees' personal responsibility and shall include an explanation as how to best avoid disturbance and injury of the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox. The program shall include an explanation of Federal laws protecting these species as well as the importance of compliance with the BO. As needed, training shall be conducted in Spanish for Spanish language speakers. Documentation of the training, including sign-in sheets, shall be kept on file and be available on request.
- d. Safety permitting, the Service-approved biologist shall investigate areas of disturbed ground for signs of listed animals within 30 minutes following the initial disturbance of that given area.
- e. Each Central California tiger salamander and California red-legged frog encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured animal if it is not in danger or (2) move the salamander or frog to a nearby location if it is in danger.

These two options are further described as follows:

1. When a Central California tiger salamander or California red-legged frog is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the monitor needs to assess the situation in order to select a course of action that will minimize adverse effects to the individual. Contact the Service once the site is secure. The contacts for this situation are Ryan Olah (ryan_olah@fws.gov) or John Cleckler (john_cleckler@fws.gov). They can also be reached at (916) 414-6600. If you get voicemail messages for these contacts then contact John Cleckler on his cell phone at (916) 712-6784. Contact the Service prior to the start of construction to confirm the status of this contact information.

The first priority is to avoid contact with the animal and allow it to move out of the action area and hazardous situation on its own to a safe location. The animal should not be picked up and moved because it is not moving fast enough or it is inconvenient for the construction schedule. This guidance only applies to situations where a Central California tiger salamander or California red-legged frog is encountered on the move during conditions that make their upland travel feasible. This does not apply to animals that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the Central California tiger salamander or California red-legged frog should they move outside the construction footprint.

Avoidance is the preferred option if the animal is not moving and is using aquatic habitat or is within some sort of burrow or other refugia. The area should be well marked for avoidance by construction and a Service-approved biological monitor should be assigned to the area when work is taking place nearby.

2. The animal should be captured and moved when it is the only option to prevent its death or injury. If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the frog should not be moved outside of the area it would have traveled on its own. Under no circumstances should a salamander or frog be relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission. The release must be coordinated with the Service and will depend on where the individual was found and the opportunities for nearby release. In most situations the release location is likely to be into the mouth of a small burrow or other suitable refugia and in certain circumstances pools without non-native predators may be suitable.

Only Service-approved biologists for the project can capture Central California tiger salamanders or California red-legged frogs. Nets or bare hands may be used to capture Central California tiger salamanders and California red-legged frogs. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within 2 hours before and during periods when they are capturing and relocating Central California tiger salamanders or California red-legged frogs. To avoid transferring disease or pathogens between sites during the course of surveys or handling of amphibians, Service-approved biologists must use the following guidance for disinfecting equipment and clothing. These recommendations are adapted from the Declining Amphibian Population Task Force's Code (<http://www.open.ac.uk/daptf/>).

- i. All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, must be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water and/ or an amphibian. Cleaned items should be rinsed with fresh water before leaving each site.
- ii. Boots, nets, traps, etc., must then be scrubbed with either a 70 percent ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6 percent sodium hypochlorite 3 solution and rinsed clean with water between sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland. All traces of the disinfectant must be removed before entering the next aquatic habitat.
- iii. Used cleaning materials (liquids, etc.) must be disposed of safely, and if necessary, taken back to the lab for proper disposal.
- iv. Service-approved biologists must limit the duration of handling and captivity. While in captivity, Central California tiger salamanders and California red-legged frogs shall be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. Containers used for holding or transporting should not contain any standing water.

The Service believes that all the Central California tiger salamanders, California red-legged frogs, Alameda whipsnakes, and San Joaquin kit foxes in the action area will be incidentally taken due to harassment, but no more than one (1) Central California tiger salamander and one (1) California red-legged frog will be incidentally taken due

to harm as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. Caltrans must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

31. Biological Opinion Reporting Requirements. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

- a. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5-minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the following Disposition of Individuals Taken section.
- b. Sightings of any listed or sensitive animal species should be reported to the CNDDDB (<http://www.dfg.ca.gov/biogeodata/cnddb/>).
- c. Caltrans shall submit an annual construction compliance report prepared by the on-site biologist to the Service within forty (40) working days following the end of the year and/ or project completion or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days. This report will detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on listed species, if any; (v) occurrences of incidental take of any listed species; and (vi) other pertinent information. The report(s) will be addressed to the Coast-Bay /Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office.

Disposition of Individuals Taken Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast-Bay /Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Office of Law Enforcement, 5622 Price Way, McClellan, California 95562, at (916) 569-8444.

V-1. CULTURAL RESOURCES:

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

Affected Environment

A review of the project to ensure that the undertaking is carried out in a manner consistent with Caltrans responsibilities under the January 2004 *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA) for compliance with Section 106 of the National Historic Preservation Act (NHPA) was completed by Caltrans’ District 4 Office of Cultural Resources.

Environmental Consequences

A detailed search of Caltrans records, maps, plans and an intensive pedestrian survey of the project’s Area of Potential Effects (APE) were conducted. A record search was conducted at the Northwest Information Center (NWIC) on January 17, 2013 (NWIC #12-0719). Native American groups were given information about the proposed project and solicited for comments on April 3, 2013. One response was received expressing concern for potential buried archaeological resources. No further comments were received.

The research indicated the potential presence of a prehistoric archaeological site within the project APE. Further inspection of the APE and relevant documents concluded that the archaeological site lay outside Caltrans right of way and outside the APE. The archaeological survey did not identify any other archaeological resources.

Twenty three bridges were identified within project APE. All the bridges were listed as Category 5 (evaluated as Not Eligible for the National Register) in the Caltrans Historic Bridge Inventory. Further consideration is not necessary.

Avoidance, Minimization, and/or Mitigation Measures

In accordance with the Programmatic Agreement (PA), Caltrans has determined that the project has a Finding of No Historic Properties Affected according to Section 106 PA Stipulation IX.A and 36 CFR 800.4(d)(1). Caltrans has determined a Finding of No Impact is appropriate because there are no historical resources within the Project Area limits pursuant to CEQA Guidelines §15064.5 (b)(3).

No avoidance, minimization, and/or mitigation measures have been identified.

If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find.

V-2. PALEONTOLOGY:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Affected Environment

The project area is underlain by highly sensitive formations at many locations along the alignment. These formations are the Cretaceous Great Valley Group (Ku, Kd, Kcu, Kcm, Kjk, Kjkc, Kcv), Miocene Monterey Formation (Tcc, Tt, To) and Miocene-Pliocene San Pablo Group (Tbr, Tc, Tn, Tol)(all three formation crop-out along the Dublin Pass and Altamont Pass areas). The Late Pliocene-Pleistocene (Qpaf) and the Pleistocene (Qt) deposits are located in the eastern Dublin/Livermore and western-Tracy, California areas.

Environmental Consequences

There are various locations within the project area that have the potential for paleontological resources. Construction activities at any of the feature locations can include ground disturbance. The potential of any ground disturbance to affect paleontological resources will depend on the geological features of the specific site.

Avoidance, Minimization and/or Mitigation Measures

Mitigation measures are the best route to work within known paleontological localities. Mitigation procedures include some, but not all, of the actions listed below:

- A project-specific Paleontological Mitigation Plan will be prepared by a qualified principal paleontologist once adequate project design information regarding subsurface disturbance location, depth and lateral extent is available.
- The qualified principal paleontologist will be present at pre-construction meetings to train contractors on paleontological identification during ground-disturbance activities.
- Paleontological monitors, under the direction of the qualified principal paleontologist, will be onsite to inspect excavations for fossils at all times during original ground disturbance involving sensitive geologic formations.
- A project-specific Paleontological Mitigation Plan has been prepared by qualified principal paleontologist.
- The qualified principal paleontologist will be present at pre-construction meetings to train contractors on paleontological identification during ground-disturbance activities. o During the pre-construction paleontological training, construction personnel will be specifically instructed about the kinds of material that may be encountered during excavation.
- Paleontological monitors, under the direction of the qualified principal paleontologist, will be onsite to inspect excavations for fossils at all times during original ground disturbance involving sensitive geologic formations.
 - o Monitoring should be conducted full-time during augering or trenching in sedimentary rocks of the Great Valley, Monterey, and San Pablo Groups; and Pleistocene Formations and deposits. If, after 50% of the project's excavations in a particular rock unit is completed, it can be demonstrated that the level of monitoring should be reduced (few or no fossils are discovered), the qualified principal paleontologist shall amend the mitigation program accordingly.

- Monitoring should be conducted for the initial ground disturbance for each section of trenching associated with installation of electrical conduit, ramp meter installation, and High-Occupancy Vehicle bypass lane installation taking place in sedimentary rocks of the Great Valley, Monterey, and San Pablo Groups, and Pleistocene deposits. The level of monitoring effort required may be reduced, modified or suspended at the discretion of the paleontological monitor, in consultation with the qualified principal paleontologist based on field conditions and rock units identified.
- A need for a single paleontologist monitor has been identified. Should additional monitors be needed, the qualified principal paleontologist will make the determination during construction.
- Paleontological monitoring field work will take place only when earth-moving and/or excavation are occurring during project construction. Fieldwork shall cease when all excavation work has been completed and when significant fossils, if any, are properly recovered and treated for transport to a laboratory for further processing.
- When fossils are discovered, the paleontologist (or paleontological monitor) will recover them.
 - Macrofossils
 - When uncovered during excavation operations, a representative sample of well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if dictated by the research design for that particular geologic formation. A research design is an outline of research methods which differs depending on fossil type. If fossils are microscopic, such as algae, foraminiferans, or radiolarians, the research design would involve microscope work and the necessary laboratory items required for that style of research.
 - When vertebrate macrofossils are uncovered during excavation operations, all well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if directed by the research design for that particular geologic formation.
 - When plant macrofossils are uncovered during excavation operations, a representative sample of well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if directed by the research design for that particular geologic formation.
 - Microfossils
 - When marine microfossils are discovered (or their presence suspected based on site conditions) during excavation operations, it may be necessary to collect stratigraphically controlled matrix samples as directed by the research design for that particular geologic formation. Such samples should be taken at reasonable stratigraphic intervals (based on overall stratigraphic thickness) and should consist of standard hand samples. If initial processing of such samples shows them to be barren or sparsely fossiliferous, the qualified principal paleontologist may authorize suspension of further processing of the sample, and the sample may be discarded.
 - When vertebrate microfossils are discovered (or their presence suspected based on site conditions) during excavation operations, it may be necessary to collect stratigraphically controlled bulk matrix samples (up to 6,000 pounds) for processing. The decision to collect such samples will be made if relatively well-

preserved vertebrate microfossils are observed in hand samples in the field or if processing of a 100-pound test sample yields more than five identifiable microvertebrate fossils.

- If during processing of a bulk matrix sample, too few identifiable microvertebrate fossils are recovered, the qualified principal paleontologist may suspend further processing of the sample and the sample may be discarded. The following criteria must be met to suspend sample processing:
 - No or few identifiable microvertebrate fossils are recovered after processing 200 pounds.
 - Recovered fossils are too poorly preserved to be identified.
 - Recovered fossils.
- When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction in these areas may be halted or diverted by the Resident Engineer to allow the prompt recovery of fossils.
- Fossils collected during the monitoring and salvage portion of the mitigation program will be prepared to the point of identification, sorted, and cataloged.
- Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited in a scientific institution with paleontological collections.
- A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.

Where feasible, selected road cuts or large finished slopes in areas where critically interesting paleontological features may be left so they can serve as important educational and scientific features. This may be possible if no substantial adverse visual or safety impacts result.

VI. GEOLOGY AND SOILS:

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

sewers are not available for the disposal of waste water?

VII. GREENHOUSE GAS EMISSIONS: Would the project:

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

An assessment of the greenhouse gas emissions and climate change is included in Chapter 3. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

VIII. HAZARDS AND HAZARDOUS MATERIALS:

Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
- g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<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"/>

The project is located in an area that is susceptible to ground shaking as well as liquefaction. Any proposed engineering design will be carried out in accordance with Caltrans Seismic Design Criteria and Standard Construction Practices.

The proposed improvements will require roadway excavation in unpaved areas where surface soils might have been contaminated by aerially deposited lead (ADL) from historic leaded-gasoline emissions. A soil investigation that ascertains the level of lead and other potential chemicals of concern will be conducted during the design phase of the project. Based on the investigation results, appropriated special provisions

dealing with proper soil handling and management practices and construction worker health and safety concerns will be included in the contract documents.

IX. HYDROLOGY AND WATER QUALITY: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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"/>
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 type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

This discussion is divided into two sections: IX-1. Hydrology, and IX-2. Water Quality.

IX-1. HYDROLOGY:

Based on available Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels for all ramp widening locations, all ramp widening locations are not located within Federal Emergency Management Agency (FEMA) Base Floodplain. The remainder of the project is within FEMA FIRM panel 400G for Alameda County. This panel is not printed which indicates that the site is not in any FEMA special flood hazard area.

IX-2. WATER QUALITY:

Affected Environment

The water bodies listed as a 303(d) are:

<u>Water Body</u>	<u>Pollutants of concern</u>
Alameda Creek	Diazinon
Arroyo De La Laguna	Diazinon

Arroyo Del Valle	Diazinon
Arroyo Las Positas	Nutrient/Eutrophication Biological Indicators
Calaveras Reservoir	Mercury
Del Valle Reservoir	Mercury, PCBs (Polychlorinated biphenyls)
Shadow Cliffs Reservoir	Mercury, PCBs (Polychlorinated biphenyls)

The project site is located within Hydrologic Sub-Area # 204.30, with average annual rainfall of 20.25 inches. The Hydrologic Unit is South Bay; the Hydrologic Area is Alameda Creek. The Watershed Area is 404,764 acres.

The project site is within the San Joaquin Valley Groundwater Basin, Tracy Sub-basin Area Groundwater Basin (Basin ID: 5-22.15) (Groundwater Bulletin 118). The San Joaquin Valley comprises the southernmost portion of the Great Valley Geomorphic Province of California. The Great Valley is a broad structural trough bounded by the tilted block of the Sierra Nevada on the east and the complexly folded and faulted Coast Ranges on the west. The Tracy Sub-basin is defined by the areal extent of unconsolidated to semi-consolidated sedimentary deposits that are bounded by the Diablo Range on the west, the Mokelumne and San Joaquin Rivers on the north, the San Joaquin River to the east, and the San Joaquin-Stanislaus County line on the south. The Tracy Sub-basin is located adjacent to the Eastern San Joaquin Sub-basin on the east and the Delta-Mendota Sub-basin on the south. All of the above mentioned sub-basins are located within the larger San Joaquin Valley Groundwater Basin. The Tracy Sub-basin also lies to the south of the Sacramento Valley Groundwater Basin, and the Solano Sub-basin. The Tracy Sub-basin is drained by the San Joaquin River and one of its major west side tributaries, Corral Hollow Creek. The San Joaquin River flows northward into the Sacramento and San Joaquin Delta and discharges into the San Francisco Bay. Annual precipitation within the sub-basin ranges from about 11 inches in the south to about 16 inches in the north.

The Basin Plan establishes beneficial uses for waterways and water bodies within the region. The designated beneficial uses for Alameda Creek are Agricultural Water Supply (AGR), Freshwater Habitat (COLD), Ground Water Recharge (GWR), Fish Migration (MIGR), Water Contract Recreation (REC1), Noncontract Water Recreation (REC2), Fish Spawning (SPWN), and Wildlife Habitat (WILD).

Under the Section 303(d) of the Clean Water Act (CWA), it states, territories and authorized tribes are required to develop a list of water quality limited segments. These waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. No water bodies near the project area where the project discharges are listed on the 303(d) List of Water Quality Limited Segments.

Environmental Consequences

Caltrans has performed many studies to monitor and characterize storm water runoff from highway throughout the State. Pollutants of Concern in Caltrans runoff found from the "Final Report of the Caltrans BMP Retrofit Pilot Program" were phosphorus, nitrogen, copper, lead, zinc, sediments, general metals (unspecified metals), and litter. Some sources of these pollutants are natural erosion, phosphorus from tree leaves, combustion products from fossil fuels, trash and falling debris from motorists, and the wearing of brake pads.

There is 2.89 acres of Disturbed Soil Area (DSA), reworked area is 2.44 acres, new impervious area is 0.6 acres, and existing impervious area is 83.5 acres.

Avoidance, Minimization, and/or Mitigation Measures

CWA Section 401

Caltrans' District Office of Biological Sciences and Permits has concluded that a CWA Section 404 permit is not required from the U.S. Army Corps of Engineers. As such, a CWA Section 401 certification is not required from either Region 2 or 5.

CWA Section 402

According to the Caltrans NPDES permit and the Construction General Permit (CGP), best management practices (BMPs) will be incorporated into this project to reduce the discharge of pollutants during and after construction to the maximum extent practicable (MEP). Since the project will involve more than one acre of DSA, this project is subject to the CGP.

In general, BMPs fall into three main categories:

1. **Design Pollution Prevention BMPs:** These BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Design Pollution Prevention BMPs are expected to be required for this project. These may include riprap for drainage improvements. Erosion control measures will be provided on all disturbed areas.
2. **Temporary Construction Site BMPs:** These BMPs are applied during construction activities to reduce the pollutants in the storm water discharges throughout construction. This project will require Construction Site BMPs including, but not limited to:
 - a. Soil Stabilization: scheduling, preservation of existing vegetation, slope protection, slope interrupter devices, and channelized flow.
 - b. Sediment Control: run-on or run-off control, storm drain inlet protection, sediment or desilting basins, and sediment traps.
 - c. Tracking Control: stabilized construction entrances, tire or wheel washes, stabilized construction roadways, and street sweeping and vacuuming.
 - d. Wind Erosion Control: hydraulic mulch, hydroseeding, and temporary cover;.
 - e. Non-Storm Water Management: temporary stream crossing, clear water diversion, water conservation practices, dewatering operations, paving and grinding operations, potable water/irrigation, vehicle and equipment operations (fueling, cleaning and maintenance), pile driving operations, concrete curing and finishing, material and equipment use, and structure demolition or removal over water.
 - f. Waste Management and Materials Pollution Control: material delivery and storage, material use, stockpile management, spill prevention and control, solid and concrete waste management, hazardous waste and contaminated soil management, and sanitary or septic and liquid waste management.
3. **Permanent Treatment BMPs:** These BMPs are permanent water quality controls used to remove pollutants from storm water runoff prior to being discharged from Caltrans right-of-way. Since this project is considered a major reconstruction project, it is not exempt from incorporating Treatment BMPs. Treatment BMPs are permanent devices and facilities treating storm water runoff. Typical Treatment BMPs are biofiltration strips or swales with or without soil amendment, infiltration basins, detention basins, traction sand traps, dry weather flow diversions, media filters (Austin and Delaware), gross solids removal devices, multi-chamber treatment

trains, and wet basins. In general, biofiltration strips or swales are the most cost-effective alternative.

Based on the sediment risk and the receiving water risk, the project is classified as "Risk Level 2" under the CGP. The requirements for Risk Level 2 projects are presented in Attachment E of the CGP. In summary, Risk Level 2 projects are required:

- To prepare a Storm Water Pollution Prevention Plan (SWPPP) that has to be developed and certified by a Qualified SWPPP Developer (QSD);
- To develop a Construction Site Monitoring Program by the QSD, which includes the procedures and methods related to the visual monitoring and the sampling and analysis for non-visible pollutants, sediment and turbidity, and pH;
- To prepare a Rain Event Action Plan that will include the current construction activity and strategy or actions to be taken for the implementation of BMPs; and
- To submit a Storm Water Annual Report, annually, that includes a summary and evaluation of sampling and analysis results as well as any violations or exceedance and corrective actions.

X. LAND USE AND PLANNING: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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"/>

Affected Environment

I-580 runs east-west through the study area and serves both local and regional traffic in the area. The I-580 corridor is surrounded by a diverse mix of land uses as it traverses the cities of Castro Valley, Dublin, Pleasanton, Livermore and the Altamont Pass. The western portion of the corridor, from SR 238 in Castro Valley to the Altamont Pass, is surrounded by residential, commercial, office, and public facility uses.

Environmental Consequences

The proposed project will not change or alter the current land use and therefore will not have any conflict with current land use plans, policies, or regulations within the project area.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measure is required as there are no impacts to land use or planning identified.

XI. MINERAL RESOURCES: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no mineral resources within the project area. No avoidance, minimization, and/or mitigation measures are needed.

XII. NOISE:

Would the project result in:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 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 expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

A *Noise Impact Report* (April 2013) was prepared for the project. It assessed the traffic noise impact resulting from the installation and implementation of a ramp metering system and traffic operations system along I-580 in Alameda County. It determined that residential areas and commercial areas are mixed along both sides of I-580 within the proposed project area. The roadway alignment is basically straight with a roadway profile grade being a few meters above the surrounding residential areas.

Existing noise levels ranging from 53.7 to 67.8 dBA Leq(h) were measured at various locations within the project limits. These sites were chosen from the first row of residences closest to the freeway and were also used to predict future worse-case scenario. The locations of the residences, also known as receptors, are listed in the table below (Table 6).

Table 6: Receptors

Receiver	Location	Existing Peak Noise Level (dBA)	Future Build Worst-case Noise Level (dBA)	Comment
R-1	6427 Almaden Way, Livermore	56.5	56.5	Existing Soundwall, No widening
R-2	729 Hattan Dr/5622 Sunflower Ct., Livermore	67.8*	67.8*	Existing Soundwall, No widening
R-3	704 E. Airway Blvd, Livermore	72.7	72.7	No Existing Soundwall, No widening. Mobil Homes Community.
R-4	537 Saddleback Circle, Livermore	60.1	60.1	Existing Soundwall, No widening
R-5	11443 Rampart Drive, Dublin	61.7	61.7	Existing Soundwall, No widening
R-6	7690 Canyon Meadow Circle, Pleasanton	53.7	53.7	Existing Soundwall, No widening
R-7	8050-8056 Canyon Creek Cir., Pleasanton	57.4	57.4	Existing Soundwall, No widening
R-8	22043 Chaparral Lane, Castro Valley	57.1	57.1	Existing Soundwall, No widening
R-9	Don Castro Regional Park, Castro Valley	58.8	58.8	Existing Soundwall, No widening
R-10	2853 Greenview Drive, Castro Valley	58.8	58.8	Existing Soundwall, No widening
R-11	3627 Juniper Street, Castro Valley	62.1	62.1	Existing Soundwall, No widening
R-12	2750 Norbridge Avenue, Castro Valley	64.2	64.2	Existing Soundwall, No widening
R-13	Rizzo Avenue / Lake Chabot Road, Castro Valley	61.4	61.4	Existing Soundwall, No widening
*Highway traffic noise plus local street traffic noise				

Environmental Consequences

The predicted future noise levels at the project area range from 53.7 to 67.8 dBA Leq (h). Existing and predicted noise levels exceed the Noise Abatement Criteria (NAC) of 67 dBA Leq(h) at two receptors, receptors 2 and 3.

Noise levels were measured at 67.8 and predicted to be 67.8 dBA Leq (h) at receptor 2. The receptor is behind a heavily traveled local street, and the dominant noise is from the local street traffic. While recording the traffic noise level, we noted that without the local street traffic noise, the noise level at this receptor did not exceed 65 dBA, which is below the State Noise Abatement Criteria of 67 dBA Leq (h). Even with the existing noise barrier on the State right-of-way, this receptor still receives noise from the local traffic. Therefore, no noise abatement/mitigation measures can feasibly abate the noise by the required 5 dBA. No additional noise abatement is recommended for this location.

At receptor 3, noise levels were measured and predicted to be 72.7 dBA Leq (h). The level exceeds the NAC and noise abatement must be considered. This location was studied earlier, and a commitment was made to build a soundwall in a prior environmental document (Negative Declaration and Finding of No Significant Impact, I-580 Eastbound HOV Lane Project from East of Greenville Road to Hacienda Drive, November 2007). Therefore, no further consideration for noise abatement is required.

All other sensitive receptors had measured and predicted noise levels well below the NAC. No noise abatement measures are proposed at those locations.

Avoidance, Minimization and/or Mitigation Measures

Under CEQA, the project will not cause a permanent increase in noise levels above the existing or baseline condition.

Construction Noise

It is possible that the high levels of noise generated by construction equipment may annoy residents but it will likely be short-lived at each location. Construction equipment should be required to conform to the provisions in Section 14-8.02 Noise Control, of the latest Standard Specifications. These requirements are meant to minimize the impact from short duration construction noise.

In addition to the aforementioned Standard Specifications, construction noise impacts can be minimized by implementing some or all of the following measures:

- Avoiding construction activities during the nighttime and on weekends.
- Constructing noise barriers as the first order of work.
- Using stockpiled dirt as earth berms where possible.
- Keeping noisy equipment and haul roads away from sensitive receptors.
- Keeping the community informed of upcoming, especially noisy, construction activities and establish a field office to handle noise complaints.

XIII. POPULATION AND HOUSING:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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"/>

While the project is expected to improve the efficiency of the highway system, it is not projected to have any growth-inducing effects. No avoidance, minimization and/or mitigation measures have been identified.

XIV. PUBLIC SERVICES:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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"/>

The project is not expected to have any effects to public services. A Traffic Management Plan will be prepared during the design phase to ensure that public service vehicle access is not affected during construction.

XV. RECREATION:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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"/>

The proposed project would improve the efficiency of the highway system by implementing the TOS elements. It is anticipated that no changes will occur in traffic patterns and thus will not likely increase the use of recreational facilities within the project area. The project will have no effect to any recreational facilities.

XVI. TRANSPORTATION/TRAFFIC:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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"/>

- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- e) Result in inadequate emergency access?
- f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The proposed project does not have any conflict with any plans, congestion management programs, or ordinances. The proposed project would improve the efficiency of the highway system by implementing the TOS elements. It is anticipated that no changes will occur in traffic patterns. The project will not create an inadequate access to emergency services as it will increase the efficiency of the highway system.

XVII. UTILITIES AND SERVICE SYSTEMS:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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"/>

The proposed project will have no impact to utilities or service systems. No avoidance, minimization and/or mitigation measures have been identified.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project has minimal impact on potential habitat for special-status species. Please see Section IV. Biological Resources.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project's impacts were taken into consideration with regards to other projects that have occurred, or will occur within the proposed project's area. It was determined that the proposed project's impacts to the following environmental factors do not contribute to cumulative effects with those projects:

- Special-status species
- Archaeological resources
- Paleontological resources
- Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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"/>

The proposed project proposes to improve the efficiency of the highway system by metering the ramps and installing traffic operation system elements. These elements will not have any impacts which will cause any adverse effects on human beings either directly or indirectly.

Chapter 3 – Climate Change

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 (GHG) 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 (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” “Greenhouse Gas Mitigation” is a term for reducing GHG emissions to reduce or “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)¹.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.²

Regulatory Setting

This section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

State

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

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases (2002): This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce

¹ http://climatechange.transportation.org/ghg_mitigation/

² http://www.fhwa.dot.gov/environment/climate_change/mitigation/

automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

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

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

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

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

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor’s Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

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

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

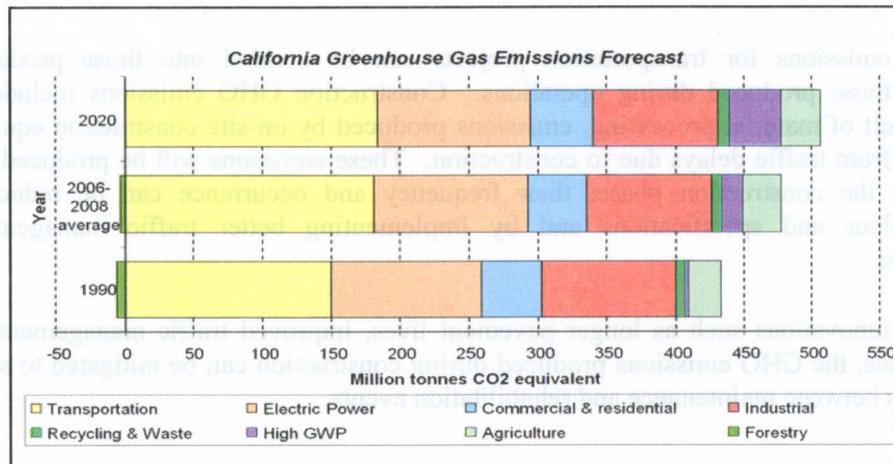
Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.³ In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

³ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

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

Figure 3 California Greenhouse Gas Forecast



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

Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the [Climate Action Program at Caltrans](#) that was published in December 2006.⁴

The purpose of this project is to improve traffic operations by completing the installation and implementation of ramp metering and TOS elements on eastbound and westbound I-580 in Alameda County. Under the project, any queues that develop beyond dedicated lanes and spill onto local roads as a result of the ramp metering activity are to be adjusted by the metering frequency. Although the proposed project will not increase roadway capacity via changes to the number of lanes on the mainline system, any GHG reductions that may be reduced through improved traffic flow on the mainline through ramp metering are likely to be negated by the emissions resulting from queuing associated with the ramp metering⁵. Additionally, operation of new ramp meter lights will result in a small increase in electricity use, causing indirect emissions from electricity generation. Use of energy efficient LED ramp metering lights and solar panels will help to offset these emissions.

⁴ 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

⁵ Shaheen and Lopman, "Reducing Greenhouse Gas Emissions and Fuel Consumption: Sustainable Approaches for Surface Transportation". June 2007. <http://tsrc.berkeley.edu/reduceghgs>

The project is included in the current Regional Transportation Plan (the MTC Transportation 2035 plan⁶: project reference number: 230091). While the ramp metering activities themselves are expected to generate a small amount of indirect GHG emissions through electricity used in powering the ramp meters, the project, which includes HOW priority lanes, supports the Plan's goal to improve mobility in the region as well as in reducing emissions by promoting transit and ridesharing. The Final EIR for the Transportation 2035 Plan addresses climate change and finds that the project is proposed under the RTP, including this one, will not have cumulatively considerable impacts as they relate to climate change⁷.

Construction Emissions

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

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

CEQA Conclusion

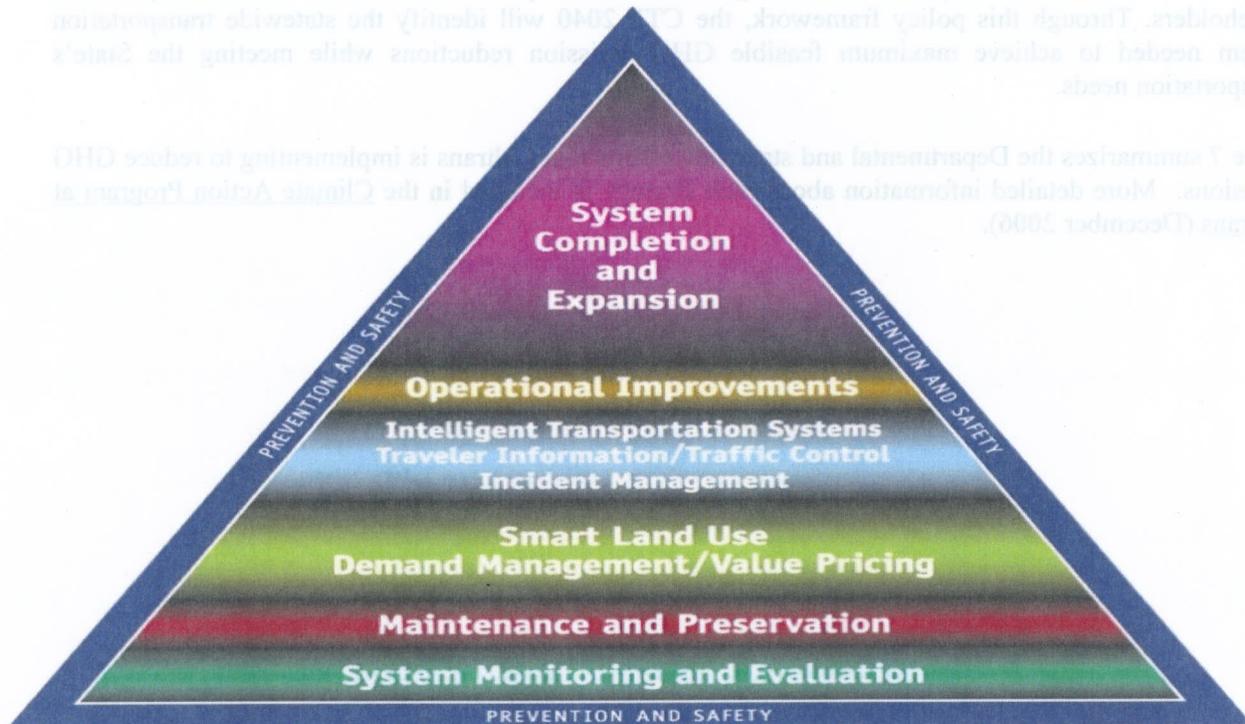
While constructing the project will result in a slight increase in GHG emissions during construction, it is anticipated that the project will not result in an overall increase in operational GHG emissions. While it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

⁶ http://mtc.ca.gov/planning/2035_plan/

⁷ While the RTP's climate change impact conclusion is included, it is included for informational purposes to inform the Department's CEQA conclusion regarding the Project's impact on climate change.

Greenhouse Gas Reduction Strategies

Figure 4: Mobility Pyramid



Caltrans continues to be involved on the Governor’s Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger’s Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 4: The 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, 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 participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

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 SB 375 (Steinberg 2008), SB 391(Liu 2009) requires the State’s long-range transportation plan to meet California’s climate change goals under AB 32.

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

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

Table 7 summarizes the Departmental and statewide efforts that Caltrans is implementing to reduce GHG emissions. More detailed information about each strategy is included in the [Climate Action Program at Caltrans](#) (December 2006).

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targets a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 4: The 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, 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 participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

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 SB 375 (Steinberg 2008), SB 399 (in 2009) requires the state's long-range transportation plan to meet California's climate change goals under AB 32.

Table 7 Climate Change/CO₂ Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services	Fleet Replacement			0.0065
			B20		0.0045	0.045
			B100			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		1.2	4.2
			25% fly ash cement mix		0.36	3.6
			> 50% fly ash/slag mix			
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)⁸ provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measure will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- The project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs cost \$60 to \$70 each, but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO₂ emissions.⁹
- According to the Department's Standard Specifications, the contractor must comply with all of the Bay Area Air Quality Management District rules, ordinances, and regulations in regards to air quality restrictions.

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.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011¹⁰, 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 .

⁸ http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

⁹ Knoxville Business Journal, "LED Lights Pay for Themselves," May 19, 2008 at <http://www.knoxnews.com/news/2008/may/19/led-traffic-lights-pay-themselves/>.

¹⁰ <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

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

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009)¹¹, 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 EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency, Business, Transportation, and Housing Agency, Health and Human Services, and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health, Biodiversity and Habitat, Ocean and Coastal Resources, Water Management, Agriculture, Forestry, and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report¹² to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

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

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the State's

¹¹ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

¹² *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.

infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

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

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

EO 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.

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 review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

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

Chapter 4 – Public Review and Comments

Summary

This chapter describes the public review and comment process for the draft environmental document (DED) and responds to public comments. The DED described two possible alternatives, the build and no-build. Of the two alternatives presented in the DED, the project development team has selected the build alternative.

Organizations and Individuals Contacted

A newspaper announcement informing the public of the availability of the Initial Study Proposed Mitigated Negative Declaration and the opportunity to request for a public meeting for the project was placed in the Bay Area Newsgroup newspapers on January 2, 2014. In addition to the newspaper announcement, postcards were sent to individuals who owned property within 500 feet of the project location. The addresses were obtained from public records. Letters were also sent to elected officials and business/organizations as listed in Appendix G.

Circulation of Draft Environmental Document

The Initial Study with Proposed Mitigated Negative Declaration for the project was circulated from January 2, 2014 to January 31, 2014. During the circulation of the DED, one comment was received. The comment and its respective responses are included on the following pages.



San Francisco Bay Chapter

Serving Alameda, Contra Costa, Marin and San Francisco counties

February 7, 2014

via email to sheryl.m.garcia@dot.ca.gov

Department of Transportation (Caltrans)
P. O. Box 23660
Oakland, CA 94623-0660

Attn: Sheryl M. Garcia (Sablan)

re: Freeway Performance Initiative Interstate 580 in Alameda and San Joaquin Counties (dated November 2013)
Initial Study with Proposed Mitigated Negative Declaration
District 4 – ALA 580 (PM 0.0/8.1, 22.0/30.3)
EA 4G190/Project ID 0412000348) and

re: Interstate 580 Roadway Rehabilitation Project (dated November 2013)
Initial Study with Proposed Mitigated Negative Declaration
DISTRICT 4 – ALA – 580 (PM0.0/7.8)
DISTRICT 4 – ALA – 205 (PM 0./1.0)
3G590 EFIS #0412000115

To Whom It May Concern:

The Sierra Club writes to express our concerns about the subject documents and proposed projects. We are also writing to register our concerns about the flawed public notice(s) and unclear information for public involvement regarding both of these two projects, and for the District website. The comment period should be re-opened to allow appropriate, full and informed public comment.

1 [Based on the information available, we do not believe that a Negative Declaration is the appropriate environmental result. We have been unable to find any documentation of Environmental Justice impacts. We also incorporate by reference our additional comments in our letter of February 5, 2014 regarding the project labeled as “I-580 Eastbound Express Lanes Project, Initial Study with Proposed Negative Declaration/Environmental Assessment (IS/EA)” (dated December 2013).

2 [As nearly as we can tell from our review, there are physical areas of overlap with the “Express Lanes Project,” which may or may not be relatively small. The map for the Roadway Rehabilitation project does not identify intersections, and the cover map for the Freeway Performance Initiative is very hard to read. We have separately tried to map the locations from

2530 San Pablo Ave., Suite I Berkeley, CA 94702 Tel. (510) 848-0800 www.sfbay.sierraclub.org ☎

the narrative descriptions. But since there is no coherent, cohesive, or clearly cumulative identification of the multiple projects along the I-580 corridor, we seriously question how the public can be understandably informed about the impacts, especially to local communities and residents.

We express appreciation to Ms Garcia/Sablan for allowing a brief extension for the consideration of our comments, per her correspondence with Patrisha Piras of our committee.

3 We became aware of the two subject projects due to two notices in two Bay Area newspapers dated January 5, 2014. But the fact that the notices were so different was quite confusing. When we contacted the Caltrans phone number listed in the notices for information, we were told that “Sheryl Garcia” did not exist in the District directory, and were referred to a “Shirley Garcia” in Caltrans’ Fresno office, which clearly did not make sense. We were also told that the website listed in the notices was incorrect, and were directed to another link which turned out to be invalid. We were also unable to find any project(s) listed on the posted website of <http://dot.ca.gov/dist4/cnvdocs.htm> that may correspond to the projects noticed.

4 When we finally were able to contact Ms Sheryl M. Garcia on January 23rd, she graciously provided electronic files for the two subject projects. But it was not until on-or-after that date that the documents actually appeared on the District 4 website. Therefore, the public was provided with inadequate opportunity to review and comment on the proposals, and the environmental process should be properly revisited.

5 We also note that, although the “Freeway Performance Initiative” project extends into San Joaquin County, the project does not appear to be listed on the District 10 website for that County: <http://www.dot.ca.gov/dist10/d10projects/sjco.html> Therefore, again, notice to the public has been flawed for this proposal.

As a result of these experiences, we have several suggestions, which are not meant to be all-encompassing, for Caltrans and District consideration:

- 6
- The general website of <http://dot.ca.gov/dist4/cnvdocs.htm> is not “user friendly” to navigate. The site at least breaks out projects by major county of location. But it does not appear to be consistent as to how multi-county projects are to be found.
 - Projects appears to be loosely grouped by route configuration, but provide little identification of the timing of the report document(s) or any sequencing. The public really needs to know what exactly they’re looking at in order to find it! And if the subject document is missing, as in this case, it leads to further confusion.
 - There should be some way of distinguishing on the “cnvdocs” site, or a more clearly accessible from the homepage, of documents that are currently available for public review and comment. Even something as simple as color-coding on the “cnvdocs” page to show projects currently open for comment (accommodating, of course, for people who have color blindness) would be far more informative and useful.
 - Caltrans, or the District, should consider a way for people to “subscribe” for notices of projects either overall, or in one or more specific county(ies). Such blast notices should not be difficult to

set up, and can provide an additional monitoring process to ensure that information is actually available to the public.

- Files for the two specific projects which are the subject of this letter do not appear to be formatted to be searchable. Why not? Some other available documents can be searched, which is important to public review.

In the interest of improved public involvement, we are available to discuss these and other concerns with you. If you have any questions or desire further information, please do not hesitate to contact me at mwillia@mac.com or via phone at 510-530-5259. Thank you for your attention to these matters.

Sincerely,



Matt Williams, Chair
Transportation & Compact Growth Committee
San Francisco Bay Chapter

cc: Chapter Chair
Chapter Director
Mother Lode Chapter
Three-Chapter SB375 Working Group
Earthjustice

1 – Caltrans has not identified any potential for the proposed project to have significant impacts. While the project does impact biological resources, avoidance, minimization, and mitigation measures will be implemented and this reduces the significance of these impacts to less than significant. Therefore, the appropriate document for this project is a Mitigated Negative Declaration.

Chapter 2 of the Environmental Document analyzed whether the proposed project's potential impacts of physical change would result in economic or social change. The Aesthetics, Agriculture and Forestry Resources, Cultural Resources, Land Use and Planning, Air Quality, Noise, Population and Housing, Public Services, Recreation, Transportation/Traffic, and Utilities and Service Systems of the CEQA checklist identified potential impacts of the project and how it may relate to the community. For example, the Air Quality section identified how the project would impact Air Quality in the area. The technical report determined that the project would have no effect on Air Quality. The Noise section also looked into potential noise impacts related to the project. The technical report prepared for the project determined that there is no noise impacts related to the project. Sections on Transportation/Traffic and Population and Housing identified that the TOS elements proposed for the project will have a positive impact. The physical change caused by the project will not result in any social or economic impacts to the community.

2– We have included an updated map to include intersections and to make them more reader friendly (please see below).

The Environmental Document analyzed the potential cumulative impacts related to the project. Impacts to special status species, archaeological resources, paleontological resources, and geological and soils were identified as potentially having cumulative impacts. Due to avoidance, minimization, and/or mitigation measures that will be implemented by the project, these impacts were found to not contribute to the cumulative effects on these resource areas. Please see Chapter 2 of the Environmental Document for more information.

3– We apologize for the difficulties in contacting Sheryl M. Garcia with the number listed for Caltrans in the advertisement. While the telephone number listed was not Ms. Garcia's direct line, the newspaper advertisements you identified in your comment did include an email address and mailing address by which you could reach Ms. Garcia.

4– We apologize for the technical issues you encountered related to the website link for the environmental document. As soon as Caltrans was notified of this technical issue, action was taken to ensure the environmental document links were correct. In addition to the website, the documents were made available at various locations. CEQA Guidelines require that the environmental document be placed in a location that would be open during business hours for the public to have a chance to view it (CEQA Guidelines Title 14 California Code of Regulations Section 15072 (g) (4)). The document was made available to the public at the Castro Valley Library, Dublin Library, and the Livermore Library located on South Livermore Ave in addition to the Caltrans district office in Oakland for the entire comment period, as noted in the newspaper advertisement.

5– As part of meaningful public notification, Caltrans submitted the Notice of Availability to the San Joaquin County Clerk's office for posting. In addition, local officials received notification by mail. We did not identify Caltrans District 10 website as a useful way of notifying the public of this project.

6– Thank you for your input. We will work with the various offices within Caltrans to strive to improve the website.

1 – Caltrans has not identified any potential for the proposed project to have significant impacts. While the project does impact biological resources, avoidance, minimization, and mitigation measures will be implemented and this reduces the significance of these impacts to less than significant. Therefore, the appropriate document for this project is a Mitigated Negative Declaration.

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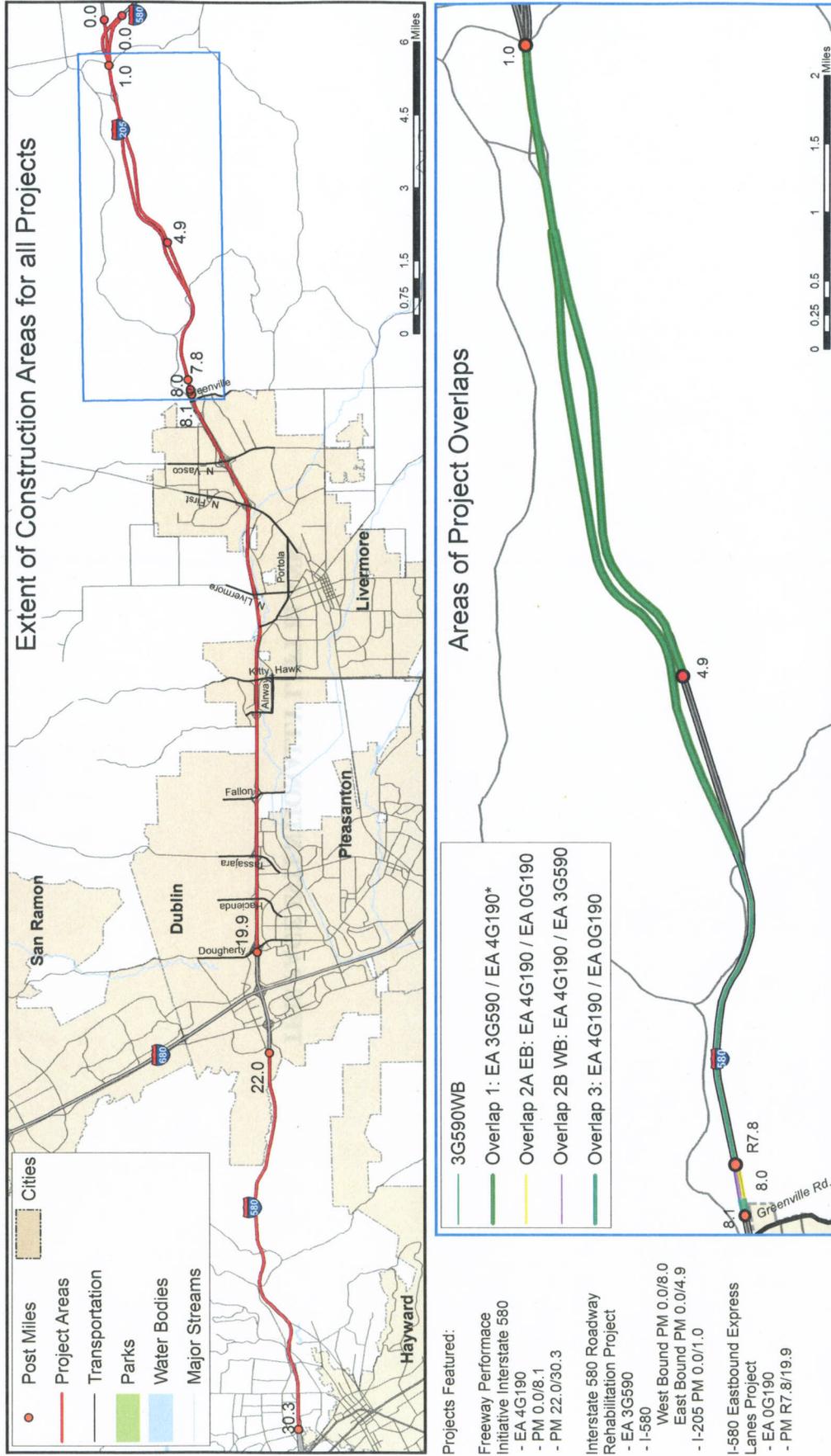
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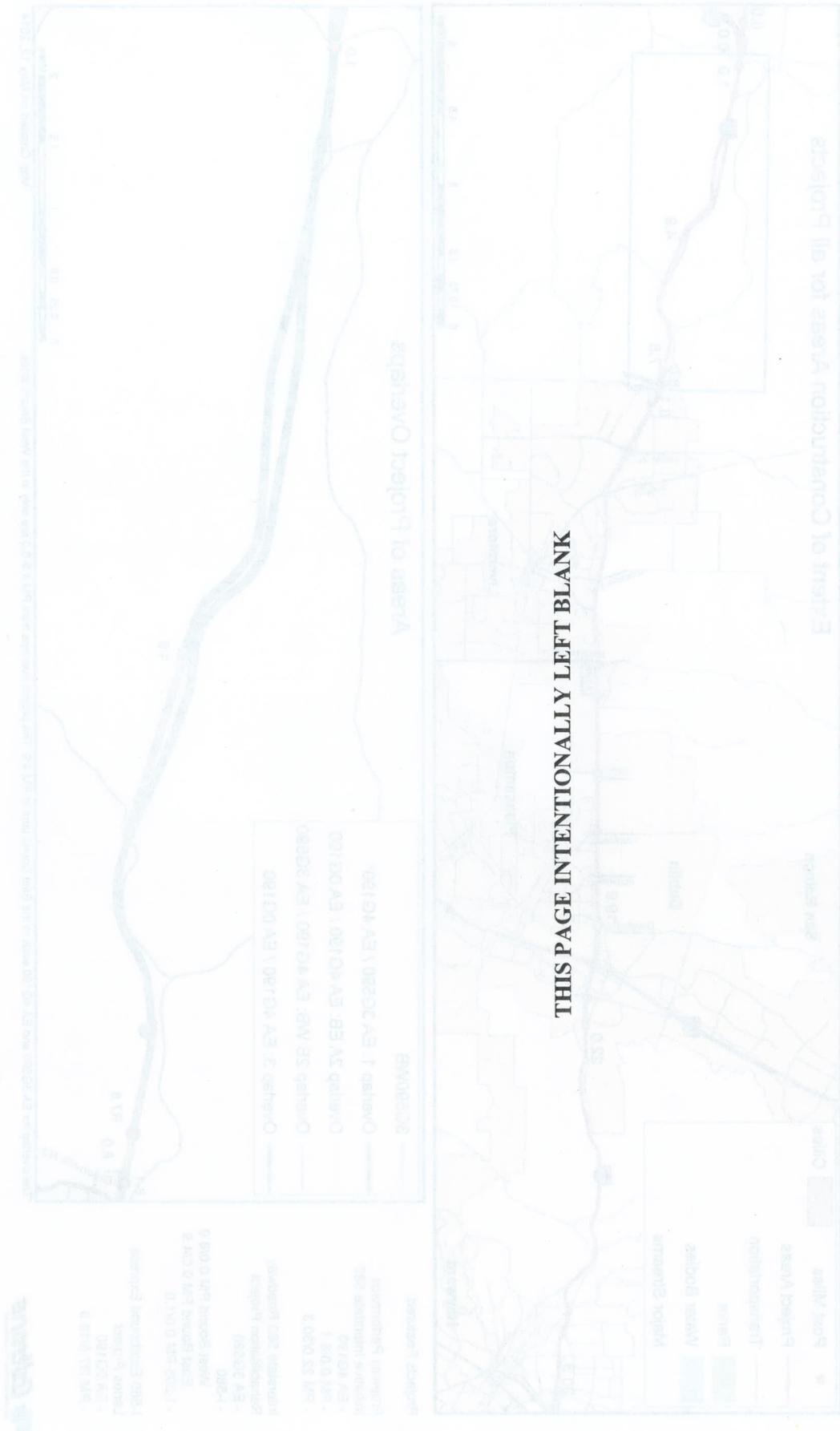
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6- Thank you for your input. We will work with the various offices within Caltrans to strive to improve the website.

Project Overlap Areas for Three Caltrans Projects on Interstate 580





Appendices

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Appendix A

Acronyms

ADL	Aerially Deposited Lead
ALA	Alameda
AMA	Archaeological Monitoring Areas
ARB	Air Resource Board
ASR	Archaeological Survey Report
BAAQMD	Bay Area Air Quality Management District
BSA	Biological Study Area
CA	California
CAA	California Clean Air Act
CCTV	Closed Circuit Television
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CHP	California Highway Patrol
CIDH	Cast-In-Drilled-Hole
CMS	Changeable Message Signs
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Co	County
CO	Carbon Monoxide
CRZ	Clear Recovery Zone
dBA	Decibel
EA	Expenditure Authorization
ES	Edge of Shoulder
ESA	Environmentally Sensitive Areas
FHWA	Federal Highway Administration
ft.	Feet
GHG	Greenhouse Gas
H ₂ S	Hydrogen Sulfide
HOV	High Occupancy Vehicle
HPSR	Historic Property Survey Report
I-680	Interstate 680
ig/m ³	micrograms per cubic meter
LOS	Level of Service
MBGRs	Metal Beam Guard Rails

mg/m ³	milligrams per cubic meter
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
MVPs	Maintenance Vehicle Pullouts
NAC	Noise Abatement Criteria
NHPA	National Historic Preservation Act
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NRHP	National Register of Historic Places
O ₃	Ozone
OG	Original Ground
PA	Programmatic Agreement
Pb	Lead
PM	Post Mile
PM	Particulate Matter
ppm	parts per million
PRC	Public Resources Code
RMDG	Ramp Meter Design Guidelines
RMS	Ramp Metering System
Rte	Route
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
TCM's	Transportation Control Measures
TIP	Transportation Improvement Plan
TMC	Traffic Management Center
TMS	Traffic Monitoring Stations
TOS	Traffic Operations Systems
U.S. EPA	United States Environmental Protection Agency
US DOT	United State Department of Transportation
USC	United States Code
USFWS	United States Fish and Wildlife Service

Appendix B

Technical Studies prepared by Caltrans District 4

Visual Impact Assessment, Ala 680 TOS Improvement Project, District 4 Office of Landscape Architecture, June 2013

Noise Impact Report, Freeway Performance Initiative on Route 680 Between Santa Clara County Line and Contra Costa County Line In Alameda County, District 4 Office of Environmental Engineering, July 2011

Air Quality Study Report, Freeway Performance Initiative on Route 680 Between Santa Clara County Line and Alcosta Road In Alameda County, District 4 Office of Environmental Engineering, July 2011

Water Quality Report, District 4 Office of Water Quality Program, September 2013

Natural Environment Study, Interstate 680 Freeway Performance Initiative Project, District 4 Office of Biological Science and Permits, October 2013

Paleontological Identification Report, Office of Geotechnical Design, October 2013

Paleontological Mitigation Plan, Garcia and Associates, May 2014

The following technical studies have been removed due to confidentiality:

2013 Archaeological Survey Report for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M0.0/R21.9, EA 4G111, District 4 Office of Cultural Resources, September 2013

2013 Historic Property Survey Report for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M0.0/R21.9, EA 4G111, District 4 Office of Cultural Resources, September 2013

2013 Finding of Effect for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M0.0/R21.9, EA 4G111, District 4 Office of Cultural Resources, September 2013

2013 Environmentally Sensitive Area (ESA) and Archaeological Monitoring Area (AMA) Action Plan for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M0.0/R21.9, EA 4G111, District 4 Office of Cultural Resources, September 2013

The legal authority to restrict cultural resource information can be found in California Government Code sections 6254.10 and 6254(r); California Code of Regulations Section 15120(d); and Section 304 of the National Historic Preservation Act of 1966.

Appendix B

Technical Studies prepared by Caltrans District 4

Visual Impact Assessment, Alt 680 TOS Improvement Project, District 4 Office of Landscape Architecture, June 2013

Final Impact Report, Freeway Performance Initiative on Route 680 Between Santa Clara Line and Contra Costa County Line in Alameda County, District 4 Office of Environmental Engineering, July 2011

Air Quality Study Report, Freeway Performance Initiative on Route 680 Between Santa Clara County Line and Alameda Road in Alameda County, District 4 Office of Environmental Engineering, July 2011

Water Quality Report, District 4 Office of Water Quality Program, September 2013

Natural Environment Study, Interstate 680 Freeway Performance Initiative Project, District 4 Office of Biological Services, September 2013

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Patentological Identification Report, Office of Geotechnical Design, October 2013

Patentological Mitigation Plan, Garcia and Associates, May 2014

The following technical studies have been removed due to confidentiality:

2013 Archeological Survey Report for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M00R21.9, EA 4G11, District 4 Office of Cultural Resources, September 2013

2013 Historic Property Survey Report for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M00R21.9, EA 4G11, District 4 Office of Cultural Resources, September 2013

2013 Finding of Effect for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M00R21.9, EA 4G11, District 4 Office of Cultural Resources, September 2013

2013 Environmentally Sensitive Area (ESA) and Archeological Monitoring Area (AMA) Action Plan for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M00R21.9, EA 4G11, District 4 Office of Cultural Resources, September 2013

The legal authority to review cultural resource information can be found in California Government Code sections 632410 and 632411; California Code of Regulations Section 15120(d); and Section 304 of the National Historic Preservation Act of 1966.

Appendix C

List of Preparers

Tom Packard, Project Landscape Architect, Office of Landscape Architecture

Susan Lindsay, Caltrans Senior Landscape Architect, Office of Landscape Architecture

Sheryl Garcia, Associate Environmental Planner, Office of Environmental Analysis

Alex Choi, Engineer, Office of Environmental Engineering

Shiang Yang, Engineer, Office of Environmental Engineering

Glenn Kinoshita, District Branch Chief, Office of Environmental Engineering

Chris Wilson, District Branch Chief, Office of Environmental Engineering

Craig Tomimatsu, District Branch Chief, Office of Hydraulics

Ronald Karpowicz, Engineering Geologist, Office of Geotechnical Design West

Chris Riden, Branch Chief, Office of Geotechnical Design West

Kristina Montgomery, Archaeologist, Office of Cultural Resources

Lauren Clementino, Architectural Historian, Office of Cultural Resources

Christopher States, District Branch Chief, Office of Biological Sciences and Permits

Elizabeth White, Associate Environmental Planner, Office of Environmental Analysis

Melanie C. Hunt, Associate Environmental Planner, Office of Environmental Analysis

Appendix C

List of Proprietary

Tom Packard, Project Landscape Architect, Office of Landscape Architecture
Susan Lindsay, Campus Senior Landscape Architect, Office of Landscape Architecture
Sheryl Garcia, Associate Environmental Planner, Office of Environmental Analysis
Alex Choi, Engineer, Office of Environmental Engineering
Shiang Yang, Engineer, Office of Environmental Engineering
Glen Kinschla, District Branch Chief, Office of Environmental Engineering

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Craig Tomlinson, District Branch Chief, Office of Hydraulics
Ronald Krowiec, Engineering Geologist, Office of Geotechnical Design West
Chris Kiser, Branch Chief, Office of Geotechnical Design West
Kristina Montgomery, Archaeologist, Office of Cultural Resources
Lorenz Clementine, Architectural Historian, Office of Cultural Resources
Christopher Sauer, District Branch Chief, Office of Biological Sciences and Permits
Elizabeth White, Associate Environmental Planner, Office of Environmental Analysis
Michelle C. Hunt, Associate Environmental Planner, Office of Environmental Analysis

Appendix D

Environmental Commitments Record

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Environmental Commitments Record for EA 04-4G190_ / ID 0412000348

Last updated 7/16/2014

ALA 580 FPI

ALA-580-0/9.5

Current Project Phase: 0

EP: Sheryl M Garcia

CL:

RE: TBD

Permits

Permit	Agency	Date Submitted	Date Received	Expiration	Requirements Completed Name	Completed Date	Comments
2081 - Incidental Take Permit	California Department of Fish & Wildlife						
BO (FWS)	US Fish and Wildlife	10/2/13	7/10/14				

Commitments

Task and Brief Description	Source	SSP/ Nssp	Responsible Staff	Action to Comply	Task Completed Name	Completed Date	Remarks/Due Date
PA&ED							
Biology							

NES

Biologist

California Tiger Salamander Mitigation: Caltrans proposes that the temporary impacts of 5,561 acres will be mitigated through on-site restoration at a ratio of 1:1 and 1,171 acres of permanent impacts will be mitigated at a ratio of 3:1 for 3,513 acres as off-site compensation. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans proposes this compensatory mitigation for California tiger salamander to meet the requirements of California FGC Section 2081 for obtaining an ITP.

PS&E/Before RTL

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Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
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Biology

Alameda Whipsnake Mitigation: Caltrans proposes that 2,125 acres of temporary impacts will be mitigated at a 1:1 ratio as on-site restoration and 0.474 acres of permanent impacts will be mitigated at a 3:1 ratio for 1,422 acres of off-site compensation for a total compensation of 3,547. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans proposes this compensatory mitigation for Alameda Whipsnake to meet the requirements of California FGC Section 2081 for obtaining an ITP. Caltrans anticipates that the avoidance and minimization measures, in conjunction with the proposed compensatory mitigation, will reduce potential adverse effects to a negligible level. This mitigation may be used to satisfy the conditions of multiple agencies and jurisdictions including the FESA, CESA, and CEQA process. Caltrans will consult with USFWS and CDFW to establish mitigation requirements. During consultation, off-site mitigation location and its criteria will be determined, should off-site mitigation be necessary. The final mitigation proposal will be subject to modification during the agency consultation and permitting processes.

NES	Biologist
California Red-legged Frog Mitigation: Caltrans proposes that the temporary impacts of 7,686 acres will be mitigated through on-site restoration at a ratio of 1:1 and 1,644 acres of permanent impacts will be mitigated at a ratio of 3:1 for 4,932 acres as off-site compensation for a total compensation of 12,618. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans anticipates that the avoidance and minimization measures, in conjunction with the proposed compensatory mitigation, will reduce potential adverse effects to a negligible level. This mitigation may be used to satisfy the conditions of multiple agencies and jurisdictions including the FESA, CESA, and CEQA process. Caltrans will consult with USFWS and CDFW to establish mitigation requirements. During consultation, off-site mitigation location and its criteria will be determined, should off-site mitigation be necessary. The final mitigation proposal will be subject to modification during the agency consultation and permitting processes.	Biologist

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Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of the project footprint identified in this BO, including vehicle parking, staging, laydown areas, and access.	BO	SSP	Biologist				

Hazardous Waste

Testing of aerially deposited lead will need to be conducted by the Office of Environmental Engineering during the project's PS&E phase. If the test results reveal that the soils exceed regulatory limits for lead concentrations, excess material must be handled, transported, and disposed at a properly permitted disposal facility. The special handling may also include implementing a health and safety plan in accordance with OSHA regulations. The disposal cost will vary from \$100 to \$250 per cubic yard, depending on the soil test results.

Pre-Construction

Testing of aerially deposited lead will need to be conducted by the Office of Environmental Engineering during the project's PS&E phase. If the test results reveal that the soils exceed regulatory limits for lead concentrations, excess material must be handled, transported, and disposed at a properly permitted disposal facility. The special handling may also include implementing a health and safety plan in accordance with OSHA regulations. The disposal cost will vary from \$100 to \$250 per cubic yard, depending on the soil test results.

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Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
<p>Biology</p> <p>At least 15 days prior to the onset of any construction-related BO activities, Caltrans shall submit to the Service, for approval, the name(s) and credentials of biologists it wishes to conduct activities specified for this project. Information included in a request for authorization should include, at a minimum: (1) relevant education; (2) relevant training on Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized for such activities by the Service; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of BOs under which they were authorized to work with the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox and at what level (such as construction monitoring versus handling); this should also include the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) A list of Federal Recovery Permits [(C)(a)1 (A)] held or under which are authorized to work with the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox (to include permit number, authorized activities, and name of permit holder); (6) any relevant professional references with contact information. No project construction shall begin until Caltrans has received written Service approval for biologists to conduct specified activities.</p>			Biologist				
<p>Occupancy Surveys for Western Burrowing Owl. Occupancy surveys, as defined in the Staff Report on Burrowing Owl Mitigation (CDFG 2012), shall be conducted by a qualified biologist. If burrowing owls are found to occupy burrowing owl habitat in or adjoining the construction area, avoidance and minimization measures will be determined in consultation with CDFW.</p>	NES		Biologist				
<p>Pre-construction Surveys for Nesting Birds. Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of</p>	NES		Biologist				

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<p>construction for activities occurring during the breeding season (February 15 to August 31).</p> <p>Pre-construction Surveys: Prior to initiation of construction activities that include ground disturbance (or bridge disturbance for bats), pre-construction surveys will be conducted by an agency-approved biologist for listed and other special-status species. These surveys will consist of walking surveys of the construction area and, if possible, accessible adjacent areas within at least 50 feet of the construction footprint. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, appropriately sized soil cracks, tree roots, debris, and (for bat roosts) bridge structures and trees. Nonpoisonous native vertebrates found in cover sites within the construction footprint will be documented and relocated to an adequate cover site in the vicinity. San Joaquin kit fox surveys should identify kit fox habitat features on the project site, evaluate use by kit fox, and, if possible, assess the potential impacts to the kit fox by the proposed activity. If an occupied den is discovered within the construction area, or within 100 feet of the project boundary, an exclusion zone of a minimum of 100 feet around the den will be established. If the minimum exclusion zone cannot be met, then CDFW and USFWS will be contacted. If a natal/pupping den is discovered within the action area or within 200 feet of the action area boundary, the agencies will be notified immediately.</p> <p>The Worker Environmental Awareness Training Program shall include a summary of the conservation measures that are relevant to employees' personal responsibility and shall include an explanation as to how to best avoid disturbance and injury of the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox. The program shall include an explanation of Federal laws protecting these species as well as the importance of compliance with the BO. As needed, training shall be conducted in Spanish for Spanish language speakers. Documentation of the training, including sign-in sheets, shall be kept on file and be available on request.</p>	NES/BO		Biologist				
<p>Worker Environmental Awareness Training (WEAT). All</p>	NES/BO		Resident				

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construction personnel will attend a mandatory environmental education program delivered by an agency-approved biologist prior to working in the construction footprint.

Engineer/Contr
actor/Biologist

Construction

Biology

1. Reporting BO
The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5-minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the following Disposition of Individuals Taken section.

2. Reporting BO
Sightings of any listed or sensitive animal species should be reported to the CNDDDB (<http://www.dfg.ca.gov/biogeodata/cnddb/>).

3. Reporting BO
Caltrans shall submit an annual construction compliance report prepared by the on-site biologist to the Service within forty (40) working days following the end of the year and/ or project completion or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days. This report will detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on listed species, if any; (v) occurrences of incidental take of any listed species; and (vi) other pertinent information. The report(s) will be addressed to the Coast-Bay/Forest Foothills Division Chief of the

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Endangered Species Program at the Sacramento Fish and Wildlife Office.							
Agency Approval for Biological Monitors. Caltrans will submit the names and qualifications of the biological monitor(s) for USFWS and CDFW approval prior to initiating construction activities for the proposed project.	NES/BO		Biologist				
Biological Monitoring. The agency-approved biologist(s) will be on site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in the Biological Opinion and project permits. The biologist(s) will keep copies of applicable permits in their possession when on site. Through the resident engineer or their designee, the agency-approved biologist(s) shall be given the authority to communicate either verbally or by telephone, email, or hardcopy with all project personnel to ensure that take of listed species is minimized and permit requirements are fully implemented. Through the resident engineer or their designee, the agency-approved biologist(s) shall have the authority to stop project activities to minimize take of listed species or if he/she determines that any permit requirements are not fully implemented. If the agency-approved biologist(s) exercises this authority, the agencies shall be notified by telephone and email within 48 hours.	NES/BO		Biologist				
Biological Opinion. Caltrans will include a copy of the Biological Opinion within the construction bid package of the proposed project. The resident engineer or their designee will be responsible for implementing the Conservation Measures and Terms and Conditions of the U.S. Fish and Wildlife Service (USFWS) Biological Opinion and the California Department of Fish and Wildlife (CDFW) Incidental Take Permit.	NES/BO		Resident Engineer/Contractor/Biologist				
Caltrans Best Management Practices (BMPs). The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the Caltrans' Standard Specifications. Caltrans erosion control BMPs will be used to minimize any wind- or water-related erosion. The State Water Resources Control Board has issued a National Pollution Discharge	NES/BO		Resident Engineer/Contractor				

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<p>Elimination System (NPDES) Statewide Storm Water Permit to Caltrans to regulate stormwater and non-stormwater discharges from Caltrans facilities. A Storm Water Pollution Prevention Plan (SWPPP) will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Caltrans Storm Water Management Plan (SWMP). The SWMP includes guidance for Caltrans design staff to incorporate provisions in construction contracts to include measures to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges.</p> <p>The SWPPP will reference the Caltrans Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found online at: http://www.dot.ca.gov/hq/construct/stormwater/manuals.htm.</p> <p>SWPPP measures will include but will not be limited to the following:</p> <ol style="list-style-type: none"> There will be no discharge of pollutants from vehicle and equipment cleaning into storm drains or water courses. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of and not allowed into water courses. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require. Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydromulching will be applied to all unfinished disturbed and graded areas. Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and reseeded with a native seed mix. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate. 							

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<p>h. A Revegetation Plan will be prepared for restoration of temporary work areas.</p> <p>Caltrans will provide off-site compensation for the permanent BO loss of California tiger salamander, California red-legged frog, and Alameda whipsnake habitat at 3:1. Habitat loss will be considered temporal when it can be successfully restored to baseline or better ecological function within 1 year of the initial ground disturbance. Listed species habitat subjected to temporal loss will be compensated at 1:1:1 ratio, with a 1:1 credit for onsite restoration. This would leave 0.1:1 to be satisfied off-site. Caltrans will provide in perpetuity preservation of listed species habitat through purchase of an appropriate conservation easement and/or purchase of credits at a Service-approved species mitigation bank. Acquired compensation will be within the range of the San Joaquin kit fox.</p>			Biologist				
<p>Concrete Waste. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.</p>	NES/BO		Resident Engineer/Contractor				
<p>Construction Activities around Bat Roosts: As stated in the Caltrans Bats and Bridges Technical Bulletin (Erickson et al 2002), any area under a confirmed day or night bat roost that is within visual sight of bats will be designated as an environmentally sensitive area (ESA). To minimize impacts to day roosts during the non-volant period when young are present but cannot fly (May 1 to July 31), work should not occur directly under or adjacent to the roost. To minimize impacts to night roosts, construction activities should not occur immediately around a roost site between 10:00 p.m. and sunrise, in particular during the period of highest night-roost use from spring to fall. Clearing of vegetation and grubbing around roosts is to be minimized wherever possible. Combustion equipment (e.g., pumps, generators, vehicles) should not be used immediately under the roost. The presence of personnel under roost sites should be minimized, particularly during the evening exodus. Lights should not be placed in a location where a roost site would be illuminated.</p>	NES		Resident Engineer/Biologist				

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Disposition of Individuals Taken Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast-Bay Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Office of Law Enforcement, 5622 Price Way, McClellan, California 95662, at (916) 569-8444.	BO		Biologist				

Each Central California tiger salamander and California red-legged frog encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured animal if it is not in danger or (2) move the salamander or frog to a nearby location if it is in danger. These two options are further described as follows:

- 1) When a Central California tiger salamander or California red-legged frog is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the monitor needs to assess the situation in order to select a course of action that will minimize adverse effects to the individual. Contact the Service once the site is secure. The contacts for this situation are Ryan Olah (ryan_olah@fws.gov) or John Cleckler (john_cleckler@fws.gov). They can also be reached at (916) 414-6600. If you get voicemail messages for these contacts then contact John Cleckler on his cell phone at (916) 712-6784. Contact the Service prior to the start of construction to confirm the status of this contact information. The first priority is to avoid contact with the animal and allow it to move out of the action area and hazardous situation on its own to a safe location. The animal should not be picked up and moved because it is not moving fast enough or it is

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<p>inconvenient for the construction schedule. This guidance only applies to situations where a Central California tiger salamander or California red-legged frog is encountered on the move during conditions that make their upland travel feasible. This does not apply to animals that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the Central California tiger salamander or California red-legged frog should they move outside the construction footprint.</p> <p>Avoidance is the preferred option if the animal is not moving and is using aquatic habitat or is within some sort of burrow or other refugia. The area should be well marked for avoidance by construction and a Service-approved biological monitor should be assigned to the area when work is taking place nearby.</p> <p>2. The animal should be captured and moved when it is the only option to prevent its death or injury. If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the frog should not be moved outside of the area it would have traveled on its own. Under no circumstances should a salamander or frog be relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission. The release must be coordinated with the Service and will</p>							
<p>Environmentally Sensitive Area (ESA) Fencing. Environmentally sensitive areas will be delineated with high visibility temporary fencing at least 4 feet in height, flagging or other barrier to prevent encroachment of construction personnel and equipment outside the action area described in the project description. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated construction footprint.</p> <p>Firearms. No firearms will be allowed in the construction area except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.</p>	NES/BO		Resident Engineer/Contractor/Biologist				
	NES/BO		Resident Engineer/Contractor				

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If burrowing owls are found to occupy burrowing owl habitat in or adjacent to the construction area, avoidance and minimization measures will be determined in consultation with CDFW.	NES		Biologist				
Listed and Other Special-status Species On-Site. The resident engineer will immediately contact the agency-approved project biologist(s) in the event that a California tiger salamander, California red-legged frog, Alameda whipsnake, San Joaquin kit fox, or other special-status species is observed within a construction zone. The resident engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established.	NES/BO		Resident Engineer/Contractor/Biologist				
Materials Storage: All construction pipes, culverts, similar structures, construction equipment, or construction debris left overnight within the project footprint will be inspected for listed species by the agency-approved biological monitor prior to being removed.	NES/BO		Resident Engineer/Contractor/Biologist				
Mono-filament Erosion Control. Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because California tiger salamanders, California red-legged frogs, and Alameda whipsnakes, as well as San Joaquin whipsnakes, may become entangled or trapped in it. Alternative erosion control devices, such as coconut coir matting or tackified hydroseeding compounds, will be used.	NES/BO		Resident Engineer/Contractor				
Night Lighting. Except when necessary for construction, driver, or pedestrian safety, use of artificial lighting will be minimized to the maximum extent practicable.	NES/BO		Resident Engineer/Contractor				
Night Work. To the extent practicable, nighttime construction will be minimized, although night work is expected to occur.	NES/BO		Resident Engineer/Contractor				
Non-Disturbance Buffer for Nesting Birds. If work is to occur within 100 feet of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the	NES		Resident Engineer/Contractor/Biologist				

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<p>nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance.</p> <p>Pets. To prevent harassment, injury, or mortality of sensitive species, no pets will be permitted in the action area.</p>	NES/BO		Resident Engineer/Contractor				
<p>Prevention of Wildlife Entrapment. To prevent inadvertent entrapment of listed and other special-status species during construction excavated holes or trenches more than 1 foot deep with walls steeper than 30 degrees will be covered by plywood or similar materials at the close of each working day. Alternatively, an additional 4-foot high vertical barrier, independent of exclusionary fences, will be used to further discourage the inadvertent entrapment of listed species. If it is not feasible to cover an excavation or provide an additional 4-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed or other special-status animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape or the USFWS and/or CDFW will be contacted by telephone for guidance. The USFWS and CDFW will be notified of the incident by telephone and electronic mail within 48 hours.</p>	NES/BO		Resident Engineer/Contractor				
<p>Reinitiation of Consultation. Caltrans will reinitiate consultation if the project results in effects to listed species not considered in the USFWS Biological Opinion or CDFW Incidental Take Permit.</p>	NES		Biologist				
<p>Safety permitting, the Service-approved biologist shall investigate areas of disturbed ground for signs of listed animals within 30 minutes following the initial disturbance of that given area.</p>	BO		Biologist				
<p>The Service believes that all the Central California tiger salamanders, California red-legged frogs, Alameda whipsnakes, and San Joaquin kit foxes in the action area will be incidentally taken due to harassment, but no more than one (1) Central California tiger salamander and one (1)</p>	BO		Biologist				

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<p>harm as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. Caltrans must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.</p>							
<p>Trash Control. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers.</p>	NES/BO		Resident Engineer/Contr actor				
<p>Vehicle Use. Project employees will be required to comply with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.</p>	NES/BO		Resident Engineer/Contr actor				
<p>Water Quality Inspections. Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater best management practices (BMPs) are adequate.</p>	NES/BO		Resident Engineer/Contr actor				
<p>Wildlife Exclusion Fencing (WEF). The construction area for ramp widening within suitable habitat for listed species will be delineated with high visibility wildlife exclusion fencing (WEF) at least 4 feet in height to discourage wildlife from accessing the action area. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated construction area. No project activities will occur outside the delineated construction footprint.</p>	NES/BO		Resident Engineer/Contr actor/Biologist				
<p>Work Window for Listed Species: All work within suitable habitat for California tiger salamander will occur between April 15 and October 15, if practicable; otherwise, wildlife exclusion fencing (WEF) will be installed and then monitored following rain events.</p>	NES/BO		Resident Engineer/Contr actor/Biologist				
<p>Work Window for Nesting Birds. To the extent practicable, clearing and grubbing activities will be conducted during the</p>	NES		Resident Engineer/Contr actor				

Environmental Commitments Record for EA 04-4G190_ / ID 0412000348

Last updated 7/16/2014

Ala 580 FPI

EP: Sheryl M Garcia

ALA-580-0/9.5

CL:

Current Project Phase: 0

RE: TBD

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
non-nesting season between September 1 and February 15.			actor/Biologist				

Cultural Resources

If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find.

Section 106
Resident Engineer/Contractor/Archaeologist

Landscape

The following measures to avoid or minimize visual impacts would be incorporated into the project.

- Landscaping and irrigation systems that are damaged or removed would be replaced or repaired.
- All disturbed ground surfaces would be restored.
- An appropriate aesthetic treatment would be applied to the face of new retaining walls that are exposed to public view. The treatment will be determined by the District 4 Office of Landscape Architecture.
- When practical and in areas where highway landscaping already exists, landscape planting would be installed to screen new equipment cabinets while providing clear access for maintenance and service of the cabinet.
- Landscape materials and placement would be determined by the Office of Landscape Architecture.
- New equipment cabinets would be painted green (Caltrans standard color).
- When possible, new CMS will be located so as to minimize interference with views of scenic features. The signs would be combined with existing structures (co-mounted) when feasible.
- CMS gantries would be painted green (Caltrans standard color).

Env Doc
Resident Engineer/Contractor

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Last updated 7/16/2014

Ala 580 FPI

ALA-580-0/9.5

Current Project Phase: 0

EP: Sheryl M Garcia

CL:

RE: TBD

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
<p>Paleontology</p> <p>Mitigation measures are the best route to work within known paleontological localities. Mitigation procedures include some, but not all, of the actions listed below:</p> <ul style="list-style-type: none"> A project-specific Paleontological Mitigation Plan will be prepared by a qualified principal paleontologist once adequate project design information regarding subsurface disturbance location, depth and lateral extent is available. The qualified principal paleontologist will be present at pre-construction meetings to train contractors on paleontological identification during ground-disturbance activities. Paleontological monitors, under the direction of the qualified principal paleontologist, will be onsite to inspect excavations for fossils at all times during original ground disturbance involving sensitive geologic formations. When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction in these areas may be halted or diverted by the Resident Engineer to allow the prompt recovery of fossils. Fossils collected during the monitoring and salvage portion of the mitigation program will be prepared to the point of identification, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited in a scientific institution with paleontological collections. A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program. Where feasible, selected road cuts or large finished slopes in areas where critically interesting paleontological features may be left so they can serve as important educational and scientific features. This may be possible if no substantial adverse visual or safety impacts result. 	Env Doc		Resident Engineer				

Post-Construction

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Last updated 7/16/2014

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 ALA-580-0/9.5
 Current Project Phase: 0
 EP: Sheryl M Garcia
 CL:
 RE: TBD

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
<p>Biology</p> <p>Revegetation Following Construction. All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, or tree species. Invasive, exotic plants will be controlled within the construction area to the maximum extent practicable, pursuant to Executive Order 13112.</p>	NES/BO		Resident Engineer/Contractor				
<p>PS&E/Before RTL/Construction</p> <p>Noise</p> <p>It is possible that the high levels of noise generated by construction equipment may annoy residents but it will likely be short-lived at each location. Construction equipment should be required to conform to the provisions in Section 14 -8.02 Noise Control, of the latest Standard Specifications. These requirements are meant to minimize the impact from short duration construction noise. In addition to the aforementioned Standard Specifications, construction noise impacts can be minimized by implementing some or all of the following measures:</p> <ul style="list-style-type: none"> • Avoiding construction activities during the nighttime and on weekends. • Constructing noise barriers as the first order of work. • Using stockpiled dirt as earth berms where possible. • Keeping noisy equipment and haul roads away from sensitive receptors. • Keeping the community informed of upcoming, especially noisy, construction activities and establish a field office to handle noise complaints. 							
	Env Doc		Design/Resident Engineer/Contractor				

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Last updated 7/16/2014

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ALA-580-0/9.5

Current Project Phase: 0

EP: Sheryl M Garcia

CL:

RE: TBD

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
<p>Water Quality</p> <p>According to the Caltrans NPDES permit and the Construction General Permit (CGP), best management practices (BMPs) will be incorporated into this project to reduce the discharge of pollutants during and after construction to the maximum extent practicable (MEP). Since the project will involve more than one acre of DSA, this project is subject to the CGP.</p> <p>In general, BMPs fall into three main categories:</p> <ol style="list-style-type: none"> Design Pollution Prevention BMPs: These BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Design Pollution Prevention BMPs are expected to be required for this project. These may include riprap for drainage improvements. Erosion control measures will be provided on all disturbed areas. Temporary Construction Site BMPs: These BMPs are applied during construction activities to reduce the pollutants in the storm water discharges throughout construction. This project will require Construction Site BMPs including, but not limited to: <ol style="list-style-type: none"> Soil Stabilization: scheduling, preservation of existing vegetation, slope protection, slope interrupter devices, and channelized flow. Sediment Control: run-on or run-off control, storm drain inlet protection, sediment or desilting basins, and sediment traps. Tracking Control: stabilized construction entrances, tire or wheel washes, stabilized construction roadways, and street sweeping and vacuuming. Wind Erosion Control: hydraulic mulch, hydroseeding, and temporary cover. Non-Storm Water Management: temporary stream crossing, clear water diversion, water conservation practices, dewatering operations, paving and grinding operations, potable water/irrigation, vehicle and equipment operations (fueling, cleaning and maintenance), pile driving operations, concrete curing and finishing, material and equipment use, and structure demolition or removal over water. Waste Management and Materials Pollution Control: material delivery and storage, material use, stockpile management, spill prevention and control, solid and 	Env Doc		Design/Resident Engineer/Contractor/WQ Specialist				

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Last updated 7/16/2014

Ala 580 FPI

ALA-580-0/9.5

Current Project Phase: 0

EP: Sheryl M Garcia

CL:

RE: TBD

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
<p>concrete waste management, hazardous waste and contaminated soil management, and sanitary or septic and liquid waste management.</p> <p>3. Permanent Treatment BMPs: These BMPs are permanent water quality controls used to remove pollutants from storm water runoff prior to being discharged from Caltrans right-of-way. Since this project is considered a major reconstruction project, it is not exempt from incorporating Treatment BMPs. Treatment BMPs are permanent devices and facilities treating storm water runoff. Typical Treatment BMPs are biofiltration strips or swales with or without soil amendment, infiltration basins, detention basins, traction sand traps, dry weather flow diversions.</p> <p>Based on the sediment risk and the receiving water risk, the project is classified as "Risk Level 2" under the CGP. The requirements for Risk Level 2 projects are presented in Attachment E of the CGP. In summary, Risk Level 2 projects are required:</p> <ul style="list-style-type: none"> To prepare a Storm Water Pollution Prevention Plan (SWPPP) that has to be developed and certified by a Qualified SWPPP Developer (QSD); To develop a Construction Site Monitoring Program by the QSD, which includes the procedures and methods related to the visual monitoring and the sampling and analysis for non-visible pollutants, sediment and turbidity, and pH; To prepare a Rain Event Action Plan that will include the current construction activity and strategy or actions to be taken for the implementation of BMPs; and To submit a Storm Water Annual Report, annually, that includes a summary and evaluation of sampling and analysis results as well as any violations or exceedance and corrective actions. 	Env Doc		Design/Resident Engineer/Contractor/WQ Specialist				

Environmental Commitments Record for EA 04-4G190 / ID 0412000348

Last updated 7/16/2014

Ala 580 FPI
 ALA-580-09.5
 Current Project Phase: 0

EP: Sheryl M Garcia
 CL:
 RE: TBD

Task and Brief Description	Source	SSP/ N SSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
Valerie Steiner Environmental Branch Chief	Valerie Steiner	7/22/2014	7/21, 2014	BOURLISSA F Project Manager	BOURLISSA F	7/22/2014	
Kenneth Nihen Project Engineer	Kenneth Nihen	7/22/2014				7/22/2014	
Resident Engineer							

Appendix E

Biological Opinion



In Reply Refer to:
08ESMF00-
2014-F-0246-2

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846



JUL 10 2014

Mr. Hardeep Takhar
California Department of Transportation
Environmental Division, MS-8E
111 Grand Avenue
Oakland, California 94612

Subject: Biological Opinion for the Interstate 580 Freeway Performance Initiative Project,
Alameda and San Joaquin Counties, California (Caltrans EA 4G1900)

Dear Mr. Takhar:

This Biological Opinion (BO) is in response to your October 2, 2013, request for formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Interstate 580 (I-580) Freeway Performance Initiative (FPI) Project in Alameda and San Joaquin Counties, California. Your letter was received in our office on October 18, 2013 and included a request for formal consultation on the threatened Central California Distinct Population Segment of the California tiger salamander (Central California tiger salamander) (*Ambystoma californiense*), threatened California red-legged frog (*Rana draytonii*), threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), and endangered San Joaquin kit fox (*Vulpes macrotis mutica*). The project description portion of the consultation package was considered complete on May 5, 2014, following the Service's review of additional project information provided by Caltrans.

The Service agrees with the California Department of Transportation (Caltrans) that the proposed project may affect, and is likely to adversely affect the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox. This document represents the Service's biological opinion on the effects of the proposed action on these 4 listed species and has been prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*)(Act).

Caltrans determined that the project may affect, but is unlikely to adversely affect the endangered longhorn fairy shrimp (*Branchinecta longiantenna*), threatened vernal pool fairy shrimp (*Branchinecta lynchi*), and the endangered vernal pool tadpole shrimp (*Lepidurus packardii*).

The Service concluded that the project was not likely to adversely affect these 3 listed branchiopods because: (1) associated vernal pool habitat and hydrological features with connectivity to vernal pool habitat are not found within the project footprint; (2) the project is unlikely to result in direct effects to vernal pool habitat within the project footprint or the action area; (3) the project will not result in modification of hydrological features associated with vernal pool habitat; and (4) Caltrans' will implement their standardized best management practices (BMPs) and a Storm Water Pollution Prevention Plan (SWPPP) to reduce the potential for adverse effects (such as controlling fugitive

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dust) to offsite aquatic habitat. Critical habitat has been designated for the longhorn fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp but none is located within the action area and therefore the project will not have effects to their critical habitat.

Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law on July 6, 2012. Effective, October 1, 2012, MAP-21 includes provisions to promote streamlined and accelerated project delivery. Caltrans was approved to participate in the MAP-21 Surface Transportation Project Delivery Program through the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding (MOU). The MOU allows Caltrans to assume the Federal Highway Administration's (FHWA) responsibilities under NEPA as well as FHWA's consultation and coordination responsibilities under Federal environmental laws for most highway projects in California. Caltrans is exercising this authority as the Federal nexus for section 7 consultation on this project.

This BO is based on: (1) the September 2013, Biological Assessment (BA); (2) Caltrans' March 21, 2014, response to the Service's February 19, 2014, electronic mail (e-mail) message; and (3) other information available to the Service.

Consultation History

June 25, 2013	The Service visited the proposed project area with Caltrans.
October 18, 2013	The Service received Caltrans' October 2, 2013 request for consultation and a September 2013 BA.
February 19, 2014	The Service sent Caltrans comments and questions resulting from our review of the September 2013 BA via an e-mail message. The requested information was necessary for the Service to complete consultation and was the equivalent of a 30-day letter.
March 21, 2014	The Service received Caltrans' March 17, 2014 response to the Service's February 19, 2014 request for additional information.
May 16, 2014	The Service received project description edits from Caltrans via an e-mail message.
May 21, 2014	Via telephone conference, the Service recommended that Caltrans seek formal consultation on the San Joaquin kit fox for the Altamont Pass Segment rather than the requested informal consultation. The Service also recommended that Caltrans seek formal consultation on the California tiger salamander for the Castro Valley Segment in addition to the requested formal consultation for the Altamont Pass Segment. Caltrans agreed to formally consult on the listed fox based on past consultations through the I-580 corridor. The Service provided Caltrans with information regarding California tiger salamander occurrences in the Castro Valley Segment vicinity.
May 21, 2014	The Service and Caltrans participated in a telephone call regarding consultation on the California tiger salamander for the Castro Valley Segment.

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- May 29, 2014 The Service sent Caltrans an e-mail message summarizing our opinion that the California tiger salamander has potential to occur within the Castro Valley Segment.

- May 30, 2014 The Service received an e-mail message from Caltrans summarizing their rationale for why the California tiger salamander is not likely to occur within the Castro Valley Segment.

- June 2, 2014 The Service sent an e-mail message to Caltrans stating our agreement with the assessment that Dublin Canyon Road is a likely barrier to California tiger salamanders accessing the project footprint within the Castro Valley Segment, south of eastbound I-580. The Service maintained that Caltrans should seek formal consultation for the northern half of the Castro Valley Segment project footprint.

- June 10, 2014 Caltrans sent the Service an e-mail message restating their determination that the California tiger salamander is absent from the northern half of the Castro Valley Segment.

- June 11, 2014 The Service sent Caltrans an e-mail message addressing Caltrans' June 10, 2014 message. The Service restated and expanded upon our rationale as to why Caltrans should seek formal consultation on the northern half of the Castro Valley Segment.

- July 1, 2014 The Service issued a draft BO for Caltrans' review and comment (Service File #08ESMF00-2014-F-0246-1).

- July 2, 2014 The Service received Caltrans' e-mail message response to the July 1, 2014 draft BO. The request included Caltrans' requested edits prior to issuance of a final BO.

BIOLOGICAL OPINION

Description of the Action

According to Caltrans, the purpose and need of the proposed project is to: (1) reduce traffic congestion and delay on I-580 by metering vehicles entering the mainline traffic; (2) provide real-time traffic information to the Caltrans District 4 Traffic Management Center; (3) encourage additional high occupancy vehicle (HOV) lane usage by adding high HOV lanes to three onramps; and (4) maximize the efficiencies of the existing road network and improve human safety.

The project includes numerous small localized construction activities spread throughout two distinct segments of I-580, totaling approximately 17.1 miles. Caltrans refers to the eastern segment as the Altamont Pass Segment and the western portion as the Castro Valley Segment. The Altamont Pass Segment extends approximately 10.1 miles from the Patterson Pass Road intersection just west of Tracy to Greenville Road intersection in Livermore. The Castro Valley Segment extends from Pleasanton to Castro Valley and includes an approximately 6-mile continuous stretch and two additional segments, each approximately 0.5-mile long. Approximately 1.8 miles of the Altamont Pass Segment is within San Joaquin County with the remainder of the project in Alameda County.

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Construction Schedule

The project is expected to begin in November 2015 and be completed by November 2017.

Staging and Access

Staging will be provided on and access will be gained by the existing I-580 road shoulder.

Project Components and Methods

The project will include the following:

1. Ramp widening at 2 locations;
2. Ramp metering at 12 locations;
3. One of 2 mixed-flow lanes at a connector ramp will be converted to a HOV lane;
4. Installation of 70 Traffic Operation Systems (TOS) components [21 closed circuit television cameras (CCTV), 1 changeable message sign (CMS), 4 extinguishable message signs (EMS), 8 roadway signs, and 36 traffic monitoring stations (TMS). TOS installations will include associated metal beam guard rails (MBGR) and trenching for electrical connections; and
5. Twenty maintenance vehicle pullouts (MVP).

The above project components are further described as follows.

Ramp Widening and Metering

The project includes widening of 2 onramps/connectors, converting an on-ramp lane to HOV, and installing traffic control metering at 12 onramps/connectors along I-580 and I-205. The locations and associated activities are summarized in Table 1.

Table 1. On-Ramp/Connector Project Locations

Location	Postmile	Proposed Activities
1. I-580/I-205 Connector On-Ramp	0.6	Install new ramp metering equipment.
2. I-580/I-205 Connector On-Ramp	1.0	Install new ramp metering equipment and convert 2 existing mixed-flow lanes to 1 HOV preferential lane and 1 mixed-flow lane.
3. Grant Line Road On-Ramp	1.4	Install new ramp metering equipment. On-ramp will be widened by slope regrading to provide 1 HOV preferential lane and 1 mixed-flow lane. Widening will require slope regrading on the right side of the ramp that will be 430 feet in length and a maximum of 105 feet in width. The temporary work area will extend 15 feet beyond the widened roadway.
4. East-Bound North Flynn Road On-Ramp	5.8	Install new ramp metering equipment.
5. West-Bound North Flynn Road On-Ramp	6.1	Install new ramp metering equipment.
6. East-Bound Eden Canyon Road On-Ramp	26.27	Install new ramp metering equipment. Grind and overlay the existing one-lane on-ramp.
7. West-Bound Eden Canyon Road On-Ramp	26.27	Install new ramp metering equipment. Grind and overlay the existing one-lane on-ramp.
8. North-Bound Crow Canyon Road/Grove Way	28.27	Install new ramp metering equipment. Grind and overlay the existing one-lane on-ramp.
9. South-Bound Crow Canyon Road/Grove Way	28.55	Install new ramp metering equipment. Grind and overlay the existing one-lane on-ramp.
10. East Castro Valley Boulevard	28.27	Install new ramp metering equipment. Grind and overlay the existing 2-lane on-ramp. Widen ramp for 1 HOV preferential lane and 1 mixed-flow lane. Sliver widening will be on the right side of the ramp and approximately 8 feet in width and 300 feet in length. The temporary work area will extend 15 feet beyond the widened roadway.
11. Strobridge Avenue	30.16	Install new ramp metering equipment. Grind and overlay the existing one-lane on-ramp.

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The work area at each of the 12 metering locations will include a 1-foot wide strip of permanent effects immediately adjacent and parallel to the existing road shoulder. Temporary effects will include a 10-foot wide access and work space area immediately adjacent and parallel to the area of permanent effects. The surface pavement will be replaced at all 12 metering locations. The electrical connections will be installed in trenches located at the outside edge of the road shoulder, with the exception of bridges where the conduit will be attached to the structure. The conduit trenches will be 1-foot wide and at least 30 inches deep. Above ground metering equipment will be installed at the edge of the ramp.

Traffic Operation Systems

The proposed 21 CCTVs, 1 CMSs, 4 EMSs, 8 roadway signs, and 36 TMS will be installed within the Caltrans' right-of-way (ROW). Installation will include links to existing electrical and telephone lines, associated maintenance vehicle pullouts, controller cabinets, and metal beam guard rails to protect the TOS components. The locations of the 70 TOS installations are included in Table 2.

Table 2. TOS Locations

	County	TOS Type	Direction	Approximate Postmile		County	TOS Type	Direction	Approximate Postmile
1	ALA	TMS	EB	26.44	34	ALA	CCTV	EB	3.39
2	ALA	CCTV	EB	26.24	35	ALA	CCTV	WB	3.37
3	ALA	TMS	WB	26.02	36	ALA	TMS	EB	3.00
4	ALA	CCTV	WB	25.45	37	ALA	TMS	WB	3.00
5	ALA	TMS	WB	25.05	38	ALA	TMS	EB	2.50
6	ALA	TMS	EB	24.75	39	ALA	TMS	WB	2.50
7	ALA	CCTV	WB	24.73	40	ALA	CCTV	WB	2.45
8	ALA	TMS	WB	24.25	41	ALA	CCTV	EB	2.41
9	ALA	CCTV	EB	23.92	42	ALA	TMS	EB	2.00
10	ALA	TMS	EB	23.84	43	ALA	TMS	WB	2.00
11	ALA	TMS	WB	23.45	44	ALA	CCTV	EB	1.81
12	ALA	CCTV	EB	23.09	45	ALA	CMS	EB	1.77
13	ALA	TMS	EB	22.90	46	ALA	TMS	EB	1.52
14	ALA	TMS	WB	22.50	47	ALA	CCTV	WB	1.40
15	ALA	CCTV	WB	22.09	48	ALA	TMS	WB	1.25
16	ALA	TMS	EB	8.06	49	ALA	TMS	EB	0.96
17	ALA	CCTV	WB	7.34	50	ALA	TMS	WB	0.96
18	ALA	TMS	EB	5.94	51	ALA	CCTV	WB	0.76
19	ALA	TMS	WB	5.88	52	ALA	TMS	EB	0.60
20	ALA	CCTV	EB	5.87	53	ALA	TMS	WB	0.60
21	ALA	TMS	WB	5.50	54	ALA	CCTV	WB	0.40
22	ALA	CCTV	WB	5.22	55	ALA	CCTV	EB	0.28
23	ALA	CCTV	EB	5.16	56	ALA	TMS	EB	0.10
24	ALA	TMS	EB	5.00	57	ALA	TMS	WB	0.10
25	ALA	TMS	WB	5.00	58	ALA	Roadway sign (2)	WB	0.50
26	ALA	CCTV	WB	4.54	59	ALA	Roadway sign (2)	WB	0.40
27	ALA	TMS	EB	4.50	60	ALA	Roadway sign	WB	0.30
28	ALA	TMS	WB	4.50	61	ALA	EMS (2)	WB	0.20
29	ALA	CCTV	EB	4.43	62	ALA	EMS (Overhead)	WB	0.00
30	ALA	TMS	EB	4.05	63	SJ	Roadway sign (2)	WB	15.10
31	ALA	TMS	WB	4.00	64	SJ	Roadway sign	WB	14.90
	County	TOS Type	Direction	Approximate Postmile		County	TOS Type	Direction	Approximate Postmile
32	ALA	TMS	EB	3.50	65	SJ	TMS	WB	14.30
33	ALA	TMS	WB	3.50	66	SJ	EMS	WB	14.30

* ALA=Alameda, SJ=San Joaquin, WB=westbound, EB=eastbound.

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Other than the roadway signs, TOS installations will be installed on poles and will include associated electrical and communications connects as well as a foundation and cabinet below. The electrical conduits will be placed in trenches on the outside edge of road shoulder. Conduit trenching will include a 1-foot wide linear path of permanent effects between the utility tie-ins and the TOS element as well as a 6-foot wide temporary work area.

Overhead EMS and cabinets for TMS will be located off the road shoulder within Caltrans's ROW. These will be installed within the clear recovery zone, which is within 30 feet from the edge of the roadway, and will require protection with MBGR. The MBGR permanent impact area consists of the area between the guard rail and the roadway and varies from 2 to 25 feet in width. The temporary work area will include an additional 5-foot buffer.

Installation of the TMSs will involve placement of sensor loops within the existing paved roadway.

Maintenance Vehicle Pullouts

Twenty MVPs, measuring approximately 85 feet in length and 12 feet in width, will be constructed along both the eastbound and westbound lanes, primarily at locations where TOS elements will be installed. The temporary work area will include an additional 15-foot buffer. The MVP locations are listed in Table 3:

Table 3. MVP locations.

	County	Location/Direction	Approximate Postmile		County	Location/Direction	Approximate Postmile
1	ALA	Strobridge Avenue EB on-ramp	30.16	15	ALA	WB	5.22
2	ALA	SB Crow Canyon Road/Grove Way EB on-ramp	28.55	16	ALA	WB	4.54
3	ALA	NB Crow Canyon Road/Grove Way EB on-ramp	28.27	17	ALA	EB	3.39
4	ALA	Eden Canyon Road WB on-ramp	26.27	18	ALA	WB	3.37
5	ALA	Eden Canyon Road EB on-ramp	26.27	19	ALA	WB	2.45
6	ALA	EB	26.24	20	ALA	EB	2.41
7	ALA	WB	25.45	21	ALA	EB	1.81
8	ALA	WB	24.73	22	ALA	EB	1.77
9	ALA	EB	23.92	23	ALA	WB	1.40
10	ALA	EB	23.09	24	ALA	Grant Line Road WB on-ramp	1.40
11	ALA	EB	22.09	25	ALA	WB	0.76
12	ALA	WB	7.34	26	ALA	WB	0.40
13	ALA	North Flynn Road WB on-ramp	6.10	27	ALA	EB	0.28
14	ALA	EB	5.87	28	ALA	WB	0.00

* ALA=Alameda, WB=westbound, EB=eastbound.

Equipment

Most activities will include similar equipment, including backhoe for potholing, excavator and mini excavator for excavating and trenching, bulldozer and compactor for earthwork, grinder for repaving, cast-in-place drill for installation of piles as retaining wall supports, jack hammer for demolition of existing concrete, and a paver for repaving.

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Conservation Measures

Caltrans proposes to reduce adverse effects to the California tiger salamander, California red-legged frog, and Alameda whipsnake by implementing the following measures:

1. Caltrans will include a copy of the BO within the construction bid package. The Resident Engineer or their designee will be responsible for implementing the *Conservation Measures and Terms and Conditions* of the BO.
2. Caltrans will submit the names and qualifications of the biological monitor(s) for Service approval prior to initiating construction activities.
3. The Service-approved biologist(s) will be on site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in the BO. The biologist(s) will keep copies of the BO in their possession when on site. Through the Resident Engineer or their designee, the Service-approved biologist(s) will be given the authority to communicate either verbally or by telephone, e-mail, or hardcopy with all project personnel to ensure that take of listed species is avoided or minimized and permit requirements are fully implemented. Through the Resident Engineer or their designee, the Service-approved biologist(s) will have the authority to stop project activities to avoid and minimize take of listed species or if they determine that any permit requirements are not fully implemented. If the Service-approved biologist(s) exercises this authority, the Service will be notified by telephone and e-mail within 48 hours.
4. All construction personnel will attend a mandatory environmental education program delivered by a Service-approved biologist prior to working in the construction footprint.
5. All work within suitable habitat for California tiger salamander will occur between April 15 and October 15, if practicable; otherwise, wildlife exclusion fencing will be installed and then monitored following rain events.
6. Prior to initiation of construction activities that include ground disturbance, pre-construction surveys will be conducted by a Service-approved biologist for listed species. These surveys will consist of walking surveys of the action area and, if possible, accessible adjacent areas within at least 50 feet of the construction footprint. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, appropriately sized soil cracks, tree roots, and debris. Non-poisonous native vertebrates found in cover sites within the construction footprint will be documented and relocated to an adequate cover site in the vicinity.
7. San Joaquin kit fox surveys will identify kit fox habitat features on the project site, evaluate use by kit fox, and, if possible, assess the potential impacts to the kit fox by the proposed activity. If an occupied den is discovered within the action area, or within 100 feet of the project boundary, an exclusion zone of a minimum of 100 feet around the den will be established. If the minimum exclusion zone cannot be met, then Service will be contacted. If a natal/pupping den is discovered within the action area or within 200 feet of the action area boundary, the Service will be notified immediately.
8. Environmentally sensitive areas will be delineated with high visibility temporary fencing at least 4 feet in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside the action area described in the project description. The

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fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated construction footprint.

9. The construction footprint for ramp widening within suitable habitat for listed species will be delineated with high visibility wildlife exclusion fencing at least 4 feet in height to discourage wildlife from accessing the action area. The fencing will be removed only after all construction equipment is removed from the site. No project activities will occur outside the delineated construction footprint.
10. The Resident Engineer will immediately contact the Service-approved project biologist(s) in the event that a California tiger salamander, California red-legged frog, Alameda whipsnake, or San Joaquin kit fox is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established.
11. To prevent inadvertent entrapment of listed species during construction, excavated holes or trenches more than 1-foot deep with walls steeper than 30 degrees will be covered by plywood or similar materials at the close of each working day. Alternatively, an additional 4-foot high vertical barrier, independent of exclusionary fences, will be used to further discourage the entrapment of listed species. If it is not feasible to cover an excavation or provide an additional 4-foot high vertical barrier, independent of exclusionary fences, 1 or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape or the Service will be contacted by telephone for guidance. The Service will be notified of the incident by telephone and electronic mail within 48 hours.
12. All construction pipes, culverts, similar structures, construction equipment, or construction debris left overnight within the project footprint will be inspected for listed species by the Service-approved biological monitor prior to being moved.
13. To the extent practicable, nighttime construction will be minimized, although night work is expected to occur.
14. Except when necessary for construction, driver, or pedestrian safety, use of artificial lighting will be minimized to the maximum extent practicable.
15. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers.
16. No firearms will be allowed in the action area except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.
17. To prevent harassment, injury, or mortality of sensitive species, no pets will be permitted in the action area.
18. Project employees will be required to comply with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.

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19. The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the Caltrans' Standard Specifications. Caltrans erosion control BMPs will be used to minimize wind- or water-related erosion. The State Water Resources Control Board has issued a National Pollution Discharge Elimination System Statewide Storm Water Permit to Caltrans to regulate stormwater and non-stormwater discharges from Caltrans facilities. A SWPPP will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Caltrans Storm Water Management Plan (SWMP). The SWMP includes guidance for Caltrans design staff to incorporate provisions in construction contracts for measures to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges.

The SWPPP will reference the Caltrans *Construction Site BMPs Manual*. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be downloaded from the World Wide Web at: <http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>.

SWPPP measures will include but will not be limited to the following:

- a. There will be no discharge of pollutants from vehicle and equipment cleaning into storm drains or water courses;
 - b. Vehicle and equipment fueling and maintenance operations will be at least 50 feet away from water courses;
 - c. Concrete wastes will be collected in washouts and water from curing operations will be collected and disposed of and not allowed into water courses;
 - d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require;
 - e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydro-mulching will be applied to all unfinished disturbed and graded areas;
 - f. Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and re-seeded with a native seed mix;
 - g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate; and
 - h. A Revegetation Plan will be prepared for restoration of temporary work areas.
20. Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater BMPs are adequate.
21. Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because California tiger salamanders, California red-legged frogs, and

Alameda whipsnakes may become entangled or trapped in it. Alternative erosion control devices, such as coconut coir matting or tackified hydroseeding compounds, will be used.

22. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of listed species habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.
23. All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, and tree species. Invasive, exotic plants will be controlled within the action area to the maximum extent practicable, pursuant to Executive Order 13112.
24. Caltrans will provide off-site compensation for the permanent loss of California tiger salamander, California red-legged frog, and Alameda whipsnake habitat at 3:1. Habitat loss will be considered temporal when it can be successfully restored to baseline or better ecological function within 1 year of the initial ground disturbance. Listed species habitat subjected to temporal loss will be compensated at 1.1:1 ratio, with a 1:1 credit for onsite restoration. This would leave 0.1:1 to be satisfied off-site. Caltrans will provide in-perpetuity preservation of listed species habitat through purchase of an appropriate conservation easement and/or purchase of credits at a Service-approved species mitigation bank. Acquired compensation will be within the range of the San Joaquin kit fox. The quantification of the habitat loss and associated compensation is summarized in Table 4.

Table 4. Compensation.

Species	Temporary habitat loss (acres)		Permanent habitat loss (acres)		Total off-site compensation (acres)
	Amount lost	Compensation @ 0.1:1	Amount lost	Compensation @ 3:1	
California tiger salamander	7.624	0.7624	1.624	4.832	5.6
California red-legged frog	7.686	0.7686	1.644	4.932	5.7
Alameda whipsnake	2.125	0.2125	0.474	1.422	1.635

Action Area

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the purposes of the effects assessment, the action area encompasses the construction footprint that will be affected by ground disturbance and a 30-foot buffer area which will be affected by noise and visual disturbance. The action area is comprised of 484.96 acres of which 270.31 acres are occupied by existing pavement or hardscape. The project will include the loss of 9.33 acres of natural habitat (9.303 acres grassland + 0.027 acre riparian). As presented in Table 4, the loss includes 7.686 acres of temporal and 1.644 acres of permanent habitat loss.

Analytical Framework for the Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this BO relies on four components: (1) the *Status of the Species*, which evaluates the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox range-wide conditions, the factors responsible for that conditions, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the four listed species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the listed species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the

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Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the four listed species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox current status, taking into account any cumulative effects, to determine if implementation of the action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The jeopardy analysis in this BO places an emphasis on consideration of the range-wide survival and recovery needs of the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox and the role of the action area in the survival and recovery of these four listed species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Status of the Species

Central California Tiger Salamander

Refer to the Service's listing announcement for the Central California tiger salamander for the amphibian's status and life history information (Service 2004). This document can be downloaded from the World Wide Web at: http://ecos.fws.gov/docs/federal_register/fr4278.pdf.

California Red-Legged Frog

Listing Status

The California red-legged frog was listed as a threatened species on May 23, 1996 (Service 1996). Critical habitat was re-designated for this species on March 17, 2010 (Service 2010a). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

Description

The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. California red-legged frogs have paired vocal sacs and vocalize in air (Hayes and Krempels 1986). Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Distribution

The historic range of the red-legged frog extended coastally from the vicinity of Elk Creek in Mendocino County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985; Hayes and Krempels 1986; Fellers 2005). The red-legged frog was historically documented in 46 California counties but the taxon now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the Central Coast. Within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast Range, northern Transverse Ranges, southern Transverse Ranges, and Peninsular Ranges.

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Status and Natural History

California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and man-made ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, California red-legged frogs also have been found in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. California red-legged frogs also can be found in disturbed areas such as channelized creeks and drainage ditches in urban and agricultural areas. For example, an adult California red-legged frog was observed in a shallow isolated pool on North Slough Creek in the American Canyon area of Napa County (C. Gaber, PG&E, pers. comm., 2008). This frog location was surrounded by vineyard development. Another adult California red-legged frog was observed under debris in an unpaved parking lot in a heavily industrial area of Burlingame (P. Kobernus, Coast Ridge Ecology, pers. comm., 2008). This frog was likely utilizing a nearby drainage ditch. Caltrans also has discovered California red-legged frog adults, tadpoles, and egg masses within a storm drainage system within a major cloverleaf intersection of Millbrae Avenue and SR 101 in a heavily developed area of San Mateo County (Caltrans 2007). California red-legged frog has the potential to persist in disturbed areas as long as those locations provide at least one or more of their life history requirements.

California red-legged frogs typically breed between November and April in still or slow-moving water at least 2.5 feet in depth with emergent vegetation, such as cattails, tules or overhanging willows (Hayes and Jennings 1988). There are earlier breeding records from the southern portion of their range (Storer 1925). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984). Individuals occurring in coastal areas are active year-round (Jennings *et al.* 1992), whereas those found in interior sites are normally less active during the cold and dry seasons.

During other parts of the year, habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer (Fellers 2005). According to Fellers (2005), this can include vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees. Sometimes the non-breeding habitat used by California red-legged frogs is extremely limited in size. For example, non-breeding California red-legged frogs have been found in a 6-foot wide coyote brush thicket growing along a small intermittent creek surrounded by heavily grazed grassland (Fellers 2005). Sheltering habitat for California red-legged frogs is potentially all aquatic, riparian, and upland areas within the range of the species and includes any landscape features that provide cover, such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned structures, or hay stacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adult frogs are often associated with permanent bodies of water. Some frogs remain at breeding sites all year while others disperse. Dispersal distances are typically less than 0.5 mile, with other individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter

occurred over one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, *i.e.* California blackberry, poison oak and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25-mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area in eastern Contra Costa County stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. This study reported a peak of seasonal terrestrial movement occurring in the fall months, with movement commencing with the first 0.2 inch of precipitation. Movements away from the source pools tapered off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the bases of trees or rocks, logs, and a downed barn door; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1-4 days; however, an adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Uplands closer to aquatic sites were used more often and frog refugia were more commonly associated with areas exhibiting higher object cover (*e.g.*, woody debris, rocks, and vegetative cover). Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000-5,000 eggs are attached to vegetation below the surface and hatch after 6-14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand results in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5-7 months following hatching and reach sexual maturity at 2-3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). Sexual maturity normally is reached at 3-4 years of age (Storer 1925; Jennings and Hayes 1985). California red-legged frogs may live 8-10 years (Jennings *et al.* 1992). Populations of California red-legged frogs fluctuate from year to year. When conditions are favorable California red-legged frogs can experience extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, California red-legged frogs may temporarily disappear from an area when conditions are stressful (*e.g.*, drought).

California red-legged frogs have a diverse diet which changes as they mature. The diet of larval California red-legged frogs is not well studied, but is likely similar to that of other ranid frogs, which feed on algae, diatoms, and detritus by grazing on the surfaces of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific tree frogs, three-spined stickleback and to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less

frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination; feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

Metapopulation and Patch Dynamics

The direction and type of habitat used by dispersing animals is especially important in fragmented environments (Forys and Humphrey 1996). Models of habitat patch geometry predict that individual animals will exit patches at more "permeable" areas (Buechner 1987; Stamps *et al.* 1987). A landscape corridor may increase the patch-edge permeability by extending patch habitat (La Polla and Barrett 1993), and allow individuals to move from one patch to another. The geometric and habitat features that constitute a "corridor" must be determined from the perspective of the animal (Forys and Humphrey 1996).

Because their habitats have been fragmented, many endangered and threatened species exist as metapopulations (Verboom and Apeldoorn 1990; Verboom *et al.* 1991). A metapopulation is a collection of spatially discrete subpopulations that are connected by the dispersal movements of the individuals (Levins 1970; Hanski 1991). For metapopulations of listed species, a prerequisite to recovery is determining if unoccupied habitat patches are vacant due to the attributes of the habitat patch (food, cover, and patch area) or due to patch context (distance of the patch to other patches and distance of the patch to other features). Subpopulations of patches with higher quality food and cover are more likely to persist because they can support more individuals. Large populations have less of a chance of extinction due to stochastic events (Gilpin and Soule 1986). Similarly, small patches will support fewer individuals, increasing the rate of extinction. Patches that are near occupied patches are more likely to be recolonized when local extinction occurs and may benefit from emigration of individuals via the "rescue" effect (Hanski 1982; Fahrig and Merriam 1985; Gotelli 1991; Holt 1993). For the metapopulation to persist, the rate of patches being colonized must exceed the rate of patches going extinct (Levins 1970). If some subpopulations go extinct regardless of patch context, recovery actions should be placed on patch attributes. Patches could be managed to increase the availability of food and/or cover.

Movements and dispersal corridors likely are critical to California red-legged frog population dynamics, particularly because the animals likely currently persist as metapopulations with disjunct population centers. Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition, and also they are important for facilitating the recolonization of areas where the animal has been extirpated. Movement between population centers maintains gene flow and reduced genetic isolation. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects. The survival of wildlife species in fragmented habitats may ultimately depend on their ability to move among patches to access necessary resources, retain genetic diversity, and maintain reproductive capacity within populations (Petit *et al.* 1995; Buza *et al.* 2000; Hilty and Merenlender 2004).

Most metapopulation or metapopulation-like models of patchy populations do not directly include the effects of dispersal mortality on population dynamics (Hanski 1994; With and Crist 1995; Lindenmayer and Possingham 1996). Based on these models, it has become a widely held notion that more vagile species have a higher tolerance to habitat loss and fragmentation than less vagile species. But models that include dispersal mortality predict the opposite: more vagile species should be more vulnerable to habitat loss and fragmentation because they are more susceptible to

dispersal mortality (Fahrig 1998; Casagrandi and Gatto 1999). This prediction is supported by Gibbs (1998), who examined the presence-absence of five amphibian species across a gradient of habitat loss. He found that species with low dispersal rates are better able than more vagile species to persist in landscapes with low habitat cover. Gibbs (1998) postulated that the land between habitats serves as a demographic "drain" for many amphibians. Furthermore, Bonnet *et al.* (1999) found that snake species that use frequent long-distance movements have higher mortality rates than do sedentary species.

Threats

Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern California red-legged frogs (*Rana aurora*) in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976, Barry 1992, Hunt 1993, Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern California red-legged frogs, and suggested that bullfrogs could prey on subadult northern California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with red-legged frog reproduction. Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat. Both California and northern California red-legged frogs have also been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990; Jennings 1993; Twedt 1993).

The urbanization of land within and adjacent to red-legged frog habitat has also adversely affected California red-legged frogs. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks red-legged frog dispersal, and the introduction of predatory fishes and bullfrogs.

Diseases may also pose a significant threat though the specific effects of diseases on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat to the red-legged frog because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2003). Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2005). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (*i.e.*, contaminated boots or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease. Disease will likely become a growing threat because of the relatively small and fragmented remaining California red-legged frog breeding sites, the many stresses on these sites due to habitat losses and alterations, and the many other potential disease-enhancing anthropogenic changes that have occurred both inside and outside the species' range.

Negative effects to wildlife populations from roads and pavement may extend some distance from the actual road. The phenomenon can result from any of the effects already described in this BO, such as vehicle-related mortality, habitat degradation, and invasive exotic species. Forman and

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Deblinger (1998, 2000) described the area affected as the “road effect” zone. Along a 4-lane road in Massachusetts, they determined that this zone extend for an average of approximately 980 feet to either side of the road for an average total zone width of approximately 1,970 feet. They describe the boundaries of this zone as asymmetric and in some areas diminished wildlife use attributed to road effects was detected greater than 0.6 mile from Massachusetts Route 2. The “road-zone” effect can also be subtle. Van der Zande *et al.* (1980) reported that lapwings and black-tailed godwits feeding at 1,575-6,560 feet from roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of female bighorn sheep increase near roads (MacArthur *et al.* 1979). Trombulak and Frossell (2000) described another type of “road-zone” effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads, but elevated levels of metals in both soil and plants were detected at 660 feet of roads. The “road-zone” apparently varies with habitat type and traffic volume. Based on responses by birds, Forman (2000) estimated the effect zone along primary roads of 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The “road-zone” effect with regard to California red-legged frogs has not been adequately investigated.

The necessity of moving between multiple habitats and breeding ponds means that many amphibian species, such as the California red-legged frog, are especially vulnerable to roads and well-used large paved areas in the landscape. Van Gelder (1973) and Cooke (1995) have examined the effect of roads on amphibians and found that because of their activity patterns, population structure, and preferred habitats, aquatic breeding amphibians are more vulnerable to traffic mortality than some other species. Large, high-volume highways pose a nearly impenetrable barrier to amphibians and result in mortality to individual animals as well as significantly fragmenting habitat. Hels and Buchwald (2001) found that mortality rates for anurans on high traffic roads are higher than on low traffic roads. Vos and Chardon (1998) found a significant negative effect of road density on the occupation probability of ponds by the moor frog (*Rana arvalis*) in the Netherlands. In addition, incidents of very large numbers of road-killed frogs are well documented (e.g., Ashley and Robinson 1996), and studies have shown strong population level effects of traffic density (Carr and Fahrig 2001) and high traffic roads on these amphibians (Van Gelder 1973; Vos and Chardon 1998). Most studies regularly count road kills from slow moving vehicles (Hansen 1982; Rosen and Lowe 1994; Drews 1995; Mallick *et al.* 1998) or by foot (Munguira and Thomas 1992). These studies assume that every victim is observed, which may be true for large conspicuous mammals, but it certainly is not true for small animals, such as the California red-legged frog. Amphibians appear especially vulnerable to traffic mortality because they readily attempt to cross roads, are slow-moving and small, and thus cannot easily be avoided by drivers (Carr and Fahrig 2001).

Alameda Whipsnake

Refer to the Alameda Whipsnake 5-Year Review: Summary and Evaluation (Service 2011) for the snake’s status and life history information. This document can be downloaded from the World Wide Web at: http://ecos.fws.gov/docs/five_year_review/doc3886.pdf.

San Joaquin Kit Fox

Refer to the San Joaquin Kit Fox 5-Year Review for the mammal’s status and life history information (Service 2010b). This document can be downloaded from the World Wide Web at: http://www.fws.gov/ecos/ajax/docs/five_year_review/doc3222.pdf. Critical habitat has not been designated for the San Joaquin kit fox.

Environmental Baseline in the Action Area

The proposed project is located in rural stretches of rolling grasslands between major urban centers in Alameda County. The project area is contained within the existing I-580 ROW, and the land adjacent to the roadway is influenced by this heavily used transportation corridor. The ROW includes several associated features such as steep road cuts, concrete median barriers, vehicle pullouts, overhead utilities, road signs, and a road shoulder that is subject to annual vegetation maintenance. These physical features along with high traffic volume, traffic noise, night-time lighting, exhaust, invasive vegetation, and the threat of animal-vehicle collision have an adverse effect on the function of the neighboring habitat for both common and listed wildlife. This parallel band of disturbance is referred to as a "road effects zone". The outward extent of this zone can vary with factors such as topography and the sensitivity of a given species to those effects. A spectrum of typical road effects are likely to negatively influence the suitability of the California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox habitat in and adjacent to the project footprint as well as the behavior of these species within their respective road effects zone.

The habitat and species utilizing it is less influenced by I-580 with distance from the edge of the road shoulder. The outside of the ROW is less influenced by maintenance activities and the adjacent land beyond the Caltrans ROW fence is overwhelmingly used for grazing. The I-580 corridor is also adjacent to occasional ranches, isolated industrial uses, and wind farms. Despite the roads and isolated development, the action area is part of a large expanse of relatively contiguous habitat for the California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox. The California Essential Habitat Connectivity Project continues to model a full spectrum of permeability potential across the Altamont Pass and Castro Valley Segments of the proposed project (CDFW 2014b).

Central California Tiger Salamander

Although the action area is not within critical habitat for the Central California tiger salamander, it is located within the species' range and contains the upland grassland habitat associated with its life history. There are numerous California tiger salamander occurrences in the California Natural Diversity Database (CNDDDB) north and south of the Altamont Pass Segment (CDFW 2014a & 2014b). Caltrans noted 21 of these occurrences as being within 2 miles of the action area (Caltrans 2013). The species is known to be capable of traveling at least 1.3 miles (Sweet 1998) and at least 90 percent of the Altamont Pass Segment is located within 1.3 miles of known California tiger salamander observations. One recorded observation (Occurrence 330) includes salamanders found in a stockpond approximately 550 feet south of the Altamont Pass Segment project footprint. The extent of grassland habitat for the species on either side of the I-580 project corridor is relatively large with widely distributed stockponds as documented or potential breeding habitat.

Based on the presence of appropriate upland grassland and aquatic breeding habitat in the project vicinity, species observations, and analysis conducted for the East Alameda Conservation Strategy (EACCS) the coastal range bisected by the Castro Valley Segment is also considered to be within the range of the California tiger salamander. The closest California tiger salamander CNDDDB recorded is located approximately 2.8 miles south of the Castro Valley Segment. According to East Bay Regional Parks (EBRP), there are additional historical and recent California tiger salamander records in the coastal range north and south of the Castro Valley Segment (S. Bobzien, EBRP, pers. comm., 2014). These records include salamanders observed in the Las Trampas Regional Wilderness, approximately 7 miles north of the Castro Valley Segment and salamanders found west of the Pleasanton Ridge Regional Park, south of I-580. The 6-mile length of Dublin Canyon Road is located immediately south of the Castro Valley Segment and runs parallel to I-580. This frontage

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road includes vertical curbs that are a likely movement barrier for the California tiger salamander. Therefore the listed amphibian is unlikely to occupy the narrow band of habitat in the Caltrans ROW between I-580 and Dublin Canyon Road. Such barriers do not exist on the north side of the Castro Valley Segment. The California tiger salamander has potential to be encountered north of I-580 in the Castro Valley Segment as modeled in the EACCS (ICF International 2010). The EBRP manages several properties within the coastal range north and south of the Castro Valley Segment and are a partner in the EACCS modeling analysis. According to EBRP, the California tiger salamander analysis in the EACCS is appropriate for the habitat north of I-580, which includes the northern half of the proposed project area in the Castro Valley Segment (S. Bobzien, EBRP, pers. comm., 2014).

The action area includes suitable upland habitat for California tiger salamander dispersal, foraging, and refuge. California ground squirrel and other animal burrows are abundant along both project segments as are cover items such as debris associated with grazing operations and the transportation corridor. The road effects zone applies to the California tiger salamander and in this case, I-580 is a significant barrier to north and south movement due to road mortality and obstructions such as concrete medians, road curbs, and steep road cuts. There are a few road and culvert crossings under I-580 that may provide a small measure of connectivity between the otherwise fragmented habitat.

The Service believes that the Central California tiger salamander is reasonably certain to occur within the action area because: (1) the project is located within the species' range and current distribution; (2) the project area is modeled as potential habitat for the species' presence in the East Alameda County Conservation Strategy; (3) there is suitable upland habitat within the action area and potential breeding habitat nearby; (4) the habitat within the action area is similar to that which is found in nearby areas with confirmed Central California tiger salamander occupancy; (5) there are larval and adult Central California tiger salamander observations less than 1 mile from the action area in the Altamont Pass Segment; (6) nearby observations are well within the known travel distance of a Central California tiger salamander in the Altamont Pass Segment; (7) there are no significant barriers to California tiger salamander movement between confirmed occupied areas and the action area; (8) the lack of significant disturbance or history of significant threats to the species in the general vicinity; and (9) the biology and ecology of the animal.

California Red-Legged Frog

The action area is located with the range of the California red-legged frog and is immediately adjacent to 4 units of the species' critical habitat. The Caltrans ROW was exempted from critical habitat designations and was used as a physical feature to define the unit boundaries. Therefore, within the action area, the Caltrans ROW fence defines the north and south boundaries of the units it bisects. The Altamont Pass Segment bisects the CCS-2b critical habitat unit to the north and the ALA-2 to the south of I-580. The Castro Valley Segment bisects the ALA-1A unit to the north and ALA-1B south of I-580. The action area is within the California red-legged frog's South and East San Francisco Bay Recovery Area (Area 5) and both project segments are within the East San Francisco Bay Core Recovery Unit (Unit 16).

The California red-legged frog is found throughout the rolling grassland through which the project passes. The surrounding upland habitat includes numerous underground burrows and debris for refuge as well as connectivity between resource areas such as riparian corridors and aquatic habitat. Caltrans noted 49 red-legged frog CNDDB occurrences within 2 miles of the action area (Caltrans 2013). Two miles is the distance that we know the species is capable of traveling (Fellers 2005, Bulger *et al.* 2003) and this 2-mile buffer from the project footprint includes occupied aquatic breeding and upland habitat. The stockpond location referenced for the salamander (Occurrence 330), approximately 550 feet from the Altamont Pass Segment, is also the source of a California

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red-legged frog occurrence (Occurrence 131) (CDFW 2014a & 2014b). However, there are closer records including California red-legged frog larvae in Mountain House Creek, approximately 100 feet from the I-580 road shoulder in the Altamont Pass Segment. California red-legged frogs have been recorded as close as 470 feet of the Castro Valley Segment (Occurrence 364) (CDFW 2014a & 2014b).

The Service believes that the California red-legged frog is reasonably certain to occur within the action area because: (1) the project is located within the species' range and current distribution; (2) there is suitable upland habitat within the action area and documented breeding habitat nearby; (3) the habitat within the action area is similar to that which is found in nearby areas with confirmed California red-legged frog occupancy; (4) nearby observations are well within the known travel distance of a California red-legged frog; (5) there are no significant barriers to frog movement between confirmed occupied areas and the action area; (6) the lack of significant disturbance or history of significant threats to the species in the general vicinity; and (7) the biology and ecology of the animal.

Alameda Whipsnake

The 6-mile length of the Castro Valley Segment is within the range of the Alameda whipsnake and is immediately adjacent to the species' critical habitat and a recovery unit. Caltrans' I-580 ROW defines the northern boundary of the snake's Hayward-Pleasanton Ridge critical habitat unit (Unit 3) (Service 2006) and the southern boundary of the Oakland-Las Trampas Recovery Unit (Unit 2) (Service 2003).

The Alameda whipsnake is typically associated with areas of scrub vegetation and rocky outcrops within its range. However, it will also travel into adjacent grassland and riparian communities. The action area north and south of the 6-mile length of the Castro Valley Segment includes the scrub and grassland habitat. The construction footprint is limited to grassland vegetation where the snake could be encountered. There are 4 Alameda whipsnake CNDDB occurrences within 2 miles of the action area (Occurrences 41, 136, 38, and 39) (CDFW 2014a & 2014b). These observations are located in a large area of contiguous habitat south of the Castro Valley Segment and range between 0.86 to 1.6 miles from the construction footprint.

The Service believes that the Alameda whipsnake is reasonably certain to occur within the action area because: (1) the project is located within the species' range and current distribution; (2) there is suitable habitat within the action area; (3) the habitat within the action area is similar to that which is found in nearby areas with confirmed Alameda whipsnake occupancy; (4) there are nearby observations of the species; (5) there are no significant barriers to snake movement between confirmed occupied areas and the action area; (6) the lack of significant disturbance or history of significant threats to the species in the general vicinity; and (7) the biology and ecology of the animal.

San Joaquin Kit Fox

The Altamont Pass Segment is within the northern range of the San Joaquin kit fox and is within one of the species' satellite areas (Service 2010b). Although not often seen in this, the northern part of their range, the San Joaquin kit fox is well documented in the Altamont Hills. The CNDDB includes at least 9 observations of the listed fox within 2 miles of the proposed project footprint for the Altamont Pass Segment. These include an adult with pups found denning in the bank of an aqueduct, less than 200 feet from the proposed project footprint (Occurrence 35) (CDFW 2014a & 2014b). Occurrence 35 is located in a narrow strip of disturbed grassland sandwiched between the California Aqueduct and I-580. Other occurrences, north and south of the proposed project

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footprint are located in more open rolling and contiguous grassland habitat which is more conducive to the fox's life history.

The Service believes that the San Joaquin kit fox is reasonably certain to occur within the action area because: (1) the project is located within the species' range and current distribution; (2) there is suitable grassland habitat with abundant small mammal prey within the action area; (3) there are nearby occurrences of kit fox; (4) all the elements needed to support the species' life history are located in the action area; (5) the ability of the kit fox to move a considerable distance; and (6) the biology and ecology of the animal.

Effects of the Action

Direct effects of the proposed project are effects occurring within the action area during construction of the proposed project. Direct effects may be temporary (lasting less than 1 year) or permanent (lasting more than 1 year). Indirect effects are the effects of the proposed project generally occurring later in time after construction has been completed (e.g., degradation of habitat due to the spread of invasive plant species; barriers to dispersal due to the installation of retaining walls). An interrelated activity is an activity that is part of the proposed project and depends on the proposed project for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification.

The action area provides suitable habitat for the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox. As quantified in the September 2013 BA, the project, including staging and access, will be contained within a 23.397-acre activity footprint. Ground disturbing activities will include excavation, contouring, and drilling holes as well as the work space needed to complete the activities. The project will result in the conversion of 1.64 acres of grassland and riparian habitat to hardscape. The 7.69 acres of work space needed within grassland and riparian habitat will be restored to baseline habitat values at the end of the project. Construction access is provided by I-580 road shoulder.

Caltrans proposes to minimize adverse effects related to the proposed project by implementing the *Conservation Measures* included in the *Description of the Proposed Action* section of this BO. Effective implementation of the *Conservation Measures* will likely minimize but not prevent adverse effects to the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox during project construction.

As shown in Table 5, Caltrans quantified the area of disturbance resulting from the project by land cover type (Caltrans 2013).

Table 5. Area of disturbance by land cover type.

Land Cover Type	Disturbance Type		Total (Acres)
	Temporary (Acres)	Permanent (Acres)	
Grassland	7.662	1.641	9.303
Riparian Woodland	0.024	0.003	0.027
Urbanized/Landscaped	2.898	0.838	3.735
Barren Ground	7.779	2.553	10.332
Total	18.363	5.034	23.397

Central California Tiger Salamander, California Red-Legged Frog, and Alameda Whipsnake

The activities associated with the ground-disturbing activities may result in similar adverse effects to the Central California tiger salamander, California red-legged frog, and Alameda whipsnake. Project activities are limited to upland habitat. Therefore, adverse effects will be limited to juvenile and

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adult life stages of the Central California tiger salamander and California red-legged frog. The Service concludes that the California red-legged frog could be encountered throughout the 23,397-acre construction footprint. The Central California tiger salamander could be encountered throughout the construction footprint other than south side of the Castro Valley Segment. Encounters with the Alameda whipsnake will likely be limited to the Castro Valley Segment.

The proposed project will result in temporary and permanent loss of 9.25 acres of Central California tiger salamander habitat, 9.33 acres of California red-legged frog habitat (grassland + adjacent riparian), and 2.56 acres of Alameda whipsnake habitat.

The habitat loss will take place adjacent to the I-580 road shoulder in areas that are subject to the elevated levels of baseline road effects. The widened ramps, installed TOS features, and MVPs are unlikely to significantly add to the baseline noise and visual effects or the habitat fragmentation and road mortality risks for these three listed animals. The permanent and temporary habitat loss for each species is distributed throughout multiple work locations and is small at any given location.

Access by construction equipment and personnel and excavation of the project site could result in the disturbance and potential death of individual salamanders, frogs, and snakes. It will be important that Service-approved monitors "clear" sites to avoid crushing or otherwise harming salamanders, frogs, or snakes above ground, below ground, or under cover sites such as boards or debris. The project does not include permanent or temporary ground disturbance to scrub vegetation, the whipsnake's primary habitat. Snakes entering the construction footprint vicinity would likely be utilizing the area for above-ground activity such as movement and foraging. It is less likely that whipsnakes would be killed or injured by construction given adequate onsite biological monitoring.

Biological monitoring will include pre-construction surveys as well as an active presence during construction. Salamanders and frogs may be actively moving around, through, or within the work area during the evening as well as when work is taking place. This places greater emphasis on thorough biological clearance of work areas and under staged equipment and materials prior to the start of each day's activities.

If unrestricted, biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus, may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (e.g., water pH) that reduce normal immune response capabilities (Bosch *et al.* 2001, Weldon *et al.* 2004).

Discovery, capture, and relocation of individual Central California tiger salamanders, California red-legged frogs, or Alameda whipsnakes may avoid injury or mortality; however, capturing and handling animals may result in stress and/or inadvertent injury during handling, containment, and transport. Although survivorship for translocated animals has not been estimated, survivorship of translocated wildlife, in general, is lower because of intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, and increased risk of predation.

Backhoe noise, vibration, increased human activity, and artificial lighting during the project may interfere with normal behaviors such as feeding, sheltering, movement between refugia and foraging grounds, and other essential behaviors. This can result in avoidance of areas that have suitable habitat but intolerable levels of disturbance. If left exposed overnight, animals can become trapped

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in excavated pits. The installation of ramps should provide a means of exit but trapped salamanders, frogs, or snakes risk being directly killed or may be unable to escape and be killed due to desiccation, entombment, or starvation. Proper trash disposal is often difficult to enforce and is a common non-compliance issue. Improperly disposed edible trash could attract predators, such as raccoons, crows, and ravens, to the site, which could subsequently prey on the listed herpetofauna.

Caltrans' commitment to use erosion control devices other than mono-filament should be effective in avoiding the associated risk of entrapment that can result in death by predation, starvation, or desiccation (Stuart *et al.* 2001).

If unrestricted, the proposed construction activities could result in the introduction of chemical contaminants to salamander, frog, and snake habitat. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. However, Caltrans proposes to minimize these risks by implementing BMPs which will consist of refueling, oiling, or cleaning of vehicles and equipment a minimum of 50 feet from riparian and aquatic areas; installing coir rolls, straw wattles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the aquatic habitat; and locating staging, storage and parking areas away from aquatic habitat.

Adequate restoration of temporary work areas within the project footprint to baseline or better habitat values will reduce the adverse effects of the project. Acquisition of in-perpetuity preserved and managed habitat occupied by the Central California tiger salamander, California red-legged frog, and Alameda whipsnake will reduce the effects of permanent and temporal habitat loss. The extent to which the preservation of offsite habitat offsets the effects of the project will depend on various factors such as the proximity to the action area, its function in offsetting baseline road effects, and relation to the recovery of each species.

San Joaquin Kit Fox

Effects to the San Joaquin kit fox are expected to be limited to the construction of the Alamo Pass Segment. Within this segment the proposed project will result in temporary and permanent loss of 6,732 acres of habitat associated with the listed fox. Given the area of work will be distributed over numerous small construction sites adjacent to the road shoulder, it is likely that effects to the San Joaquin kit fox will be limited to non-lethal disturbance.

Construction activities, human presence, noise, and lack of dens for shelter could disrupt movement of San Joaquin kit fox through the project area and are likely to add to the baseline road effects that may cause the fox to avoid the I-580 corridor. Trash from construction could attract other predators (red fox, coyote) to the work site, which could, in turn, prey on San Joaquin kit fox. Excavation and recontouring could destroy any dens within the project area, if present. However, implementation of the conservation measures, including preconstruction surveys and monitoring, observance of no work buffers from dens, construction monitoring, construction personnel training, and use of Service-approved biologists during surveys and monitoring, will minimize the potential for disturbance of San Joaquin kit fox. Acquisition of Central California tiger salamander, California red-legged frog, and Alameda whipsnake habitat compensation within the range of San Joaquin kit fox is likely to partially offset the temporary effects associated with disturbance and the permanent and temporal loss of kit fox habitat.

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Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the I-580 FPI Project are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of specific projects that might affect the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox in the action area that are currently under review by State, county, or local authorities.

Conclusion

After reviewing the current status of the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox the environmental baseline for the action area, and the effects of the proposed action, and the cumulative effects on the species, it is the Service's biological opinion that the I-580 FPI Project, as described herein, is not likely to jeopardize the continued existence of these four species. We base this conclusion on the following: (1) the project is a combination of several small work locations distributed along a major transportation corridor; (2) the activity period in any one work locations will be relatively short; (3) successful implementation of the described *Conservation Measures* is likely to reduce the potential for proposed construction activities to result in disruption of normal behavior or risk of injury; (4) the habitat that will be lost and otherwise adversely affected is subject to elevated baseline road effects; (5) habitat disturbed for temporary work access will be restored to baseline levels within 1 year of the initial disturbance; and (6) Caltrans will partially offset habitat loss with offsite, in-perpetuity habitat preservation and management.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this *Incidental Take Statement*.

The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to Caltrans as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this *Incidental Take Statement*. If Caltrans (1) fails to assume and implement the *Terms and Conditions* or (2) fails to adhere to the *Terms and Conditions* of the *Incidental Take Statement* through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the *Incidental Take Statement* [50 CFR §402.14(i)(3)].

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Amount or Extent of Take*Central California Tiger Salamander*

The Service anticipates that incidental take of the Central California tiger salamander will be difficult to detect because when this amphibian is not in their breeding ponds, or foraging, migrating, or conducting other surface activity, it inhabits burrows or other cover sites; these cover sites may be located a distance from the breeding ponds; and the migrations occur on a limited period during rainy nights in the fall, winter, or spring. Finding an injured or dead Central California tiger salamander is unlikely due to their relatively small body size, rapid carcass deterioration, and likelihood that the remains will be removed by a scavenger. Losses of this species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent and temporary loss/degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as: (1) the injury and mortality of one adult or juvenile Central California tiger salamander; and (2) the capture, harm and harassment of all Central California tiger salamanders within the Altamont Pass and Castro Valley Segments.

California Red-Legged Frog

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect due to their small size, wariness, and cryptic nature. When California red-legged frogs are not in their aquatic breeding sites, they may be taking cover in burrows, dense vegetation, or other cover sites a distance from the breeding habitat. Finding an injured or dead California red-legged frog is unlikely due to their relatively small body size, rapid carcass deterioration, and likelihood that the remains will be removed by a scavenger. Losses of this species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent and temporary loss/degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as: (1) the injury and mortality of one adult or juvenile California red-legged frog; and (2) the capture, harm and harassment of all California red-legged frogs within the Altamont Pass and Castro Valley Segments.

Alameda Whipsnake

The Service expects that incidental take of the Alameda whipsnake will be difficult to detect or quantify because this animal may range over a large territory and the finding of an injured or dead individual is unlikely because of their relatively small body size and cryptic appearance. Losses of this species also may be difficult to quantify due to seasonal fluctuations in their numbers. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent and temporary loss/degradation of suitable habitat; however, proper implementation of avoidance measures should be effective in preventing incidental take due harm, injury, or mortality. Therefore, the Service is authorizing take incidental to the proposed action as the harassment of all Alameda whipsnakes inhabiting or utilizing the Castro Valley Segment.

San Joaquin Kit Fox

The Service anticipates that incidental take of the San Joaquin kit fox will be difficult to detect or quantify because this mammal inhabits dens or burrows when it is not foraging, mating, or conducting other surface activity; the animal may range over a large territory; it is primarily active at night, and it is a highly intelligent animal that often is extremely shy around humans. Losses of this species also may be difficult to quantify due to seasonal fluctuations in their numbers. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the

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permanent and temporary loss/degradation of suitable habitat; however, proper implementation of avoidance measures should be effective in preventing incidental take due harm, injury, or mortality. Therefore, the Service is authorizing take incidental to the proposed action as the harassment of all San Joaquin kit fox inhabiting or utilizing the Altamont Pass Segment.

Upon implementation of the following *Reasonable and Prudent Measures*, Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox within the action area in proportion to the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

The Service has determined that this level of anticipated take for the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox is not likely to jeopardize the continued existence of these species.

Reasonable and Prudent Measure

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effect of the action on the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox. Caltrans will be responsible for the implementation and compliance with this measure:

1. Minimize the adverse effects to the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox and their habitats in the action area by implementing their proposed project, including the conservation measures as described, with the following terms and conditions.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. The following *Terms and Conditions* implement *Reasonable and Prudent Measure* one (1):
 - a. Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of the project footprint identified in this BO, including vehicle parking, staging, laydown areas, and access.
 - b. At least 15 days prior to the onset of any construction-related activities, Caltrans shall submit to the Service, for approval, the name(s) and credentials of biologists it wishes to conduct activities specified for this project. Information included in a request for authorization should include, at a minimum: (1) relevant education; (2) relevant training on Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized for such activities by the Service; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of BOs under which they were authorized to work with the

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Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox and at what level (such as construction monitoring versus handling), this should also include the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) A list of Federal Recovery Permits [10(a)1(A)] held or under which are authorized to work with the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox (to include permit number, authorized activities, and name of permit holder); (6) any relevant professional references with contact information. No project construction shall begin until Caltrans has received written Service approval for biologists to conduct specified activities.

- c. The Worker Environmental Awareness Training Program shall include a summary of the conservation measures that are relevant to employees' personal responsibility and shall include an explanation as how to best avoid disturbance and injury of the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox. The program shall include an explanation of Federal laws protecting these species as well as the importance of compliance with the BO. As needed, training shall be conducted in Spanish for Spanish language speakers. Documentation of the training, including sign-in sheets, shall be kept on file and be available on request.
- d. Safety permitting, the Service-approved biologist shall investigate areas of disturbed ground for signs of listed animals within 30 minutes following the initial disturbance of that given area.
- e. Each Central California tiger salamander and California red-legged frog encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured animal if it is not in danger or (2) move the salamander or frog to a nearby location if it is in danger.

These two options are further described as follows:

- 1) When a Central California tiger salamander or California red-legged frog is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the monitor needs to assess the situation in order to select a course of action that will minimize adverse effects to the individual. Contact the Service once the site is secure. The contacts for this situation are Ryan Olah (ryan_olah@fws.gov) or John Cleckler (john_cleckler@fws.gov). They can also be reached at (916) 414-6600. If you get voicemail messages for these contacts then contact John Cleckler on his cell phone at (916) 712-6784. Contact the Service prior to the start of construction to confirm the status of this contact information.

The first priority is to avoid contact with the animal and allow it to move out of the action area and hazardous situation on its own to a safe location. The animal should not be picked up and moved because it is not moving fast enough or it is inconvenient for the construction schedule. This guidance only applies to situations where a Central California tiger salamander or California red-legged frog is encountered on the move during conditions that make their upland travel feasible. This does not apply to animals that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history

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of the Central California tiger salamander or California red-legged frog should they move outside the construction footprint.

Avoidance is the preferred option if the animal is not moving and is using aquatic habitat or is within some sort of burrow or other refugia. The area should be well marked for avoidance by construction and a Service-approved biological monitor should be assigned to the area when work is taking place nearby.

- 2) The animal should be captured and moved when it is the only option to prevent its death or injury.

If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the frog should not be moved outside of the area it would have traveled on its own. Under no circumstances should a salamander or frog be relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission.

The release must be coordinated with the Service and will depend on where the individual was found and the opportunities for nearby release. In most situations the release location is likely to be into the mouth of a small burrow or other suitable refugia and in certain circumstances pools without non-native predators may be suitable.

Only Service-approved biologists for the project can capture Central California tiger salamanders or California red-legged frogs. Nets or bare hands may be used to capture Central California tiger salamanders and California red-legged frogs. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within 2 hours before and during periods when they are capturing and relocating Central California tiger salamanders or California red-legged frogs. To avoid transferring disease or pathogens between sites during the course of surveys or handling of amphibians, Service-approved biologists must use the following guidance for disinfecting equipment and clothing. These recommendations are adapted from the *Declining Amphibian Population Task Force's Code* (<http://www.open.ac.uk/daptf/>).

- i. All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, must be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water and/or an amphibian. Cleaned items should be rinsed with fresh water before leaving each site.
- ii. Boots, nets, traps, etc., must then be scrubbed with either a 70 percent ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6 percent sodium hypochlorite 3 solution and rinsed clean with water between sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland. All traces of the disinfectant must be removed before entering the next aquatic habitat.

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- iii. Used cleaning materials (liquids, etc.) must be disposed of safely, and if necessary, taken back to the lab for proper disposal.
- iv. Service-approved biologists must limit the duration of handling and captivity. While in captivity, Central California tiger salamanders and California red-legged frogs shall be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. Containers used for holding or transporting should not contain any standing water.

The Service believes that all the Central California tiger salamanders, California red-legged frogs, Alameda whipsnakes, and San Joaquin kit foxes in the action area will be incidentally taken due to harassment, but no more than one (1) Central California tiger salamander and one (1) California red-legged frog will be incidentally taken due to harm as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. Caltrans must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Reporting Requirements

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5-minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the following *Disposition of Individuals Taken* section.
2. Sightings of any listed or sensitive animal species should be reported to the CNDDDB (<http://www.dfg.ca.gov/biogeodata/cnddb/>).
3. Caltrans shall submit an annual construction compliance report prepared by the on-site biologist to the Service within forty (40) working days following the end of the year and/or project completion or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days. This report will detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on listed species, if any; (v) occurrences of incidental take of any listed species; and (vi) other pertinent information. The report(s) will be addressed to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office.

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Disposition of Individuals Taken

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Office of Law Enforcement, 5622 Price Way, McClellan, California 95562, at (916) 569-8444.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.
2. Caltrans should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California Red-legged Frog* (Service 2002), the *Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California* (Service 2003), and the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (Service 1998).
3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the Central California tiger salamander, California red-legged frog, Alameda whipsnake, San Joaquin kit fox, other listed species, and sensitive species.
4. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the Central California tiger salamander, California red-legged frog, Alameda whipsnake, and San Joaquin kit fox. Such banking systems also could possibly be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.
5. Roadways can constitute a major barrier to critical wildlife movement. Therefore, Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by the Central California tiger salamander, California red-legged frog, Alameda whipsnake, San Joaquin kit fox, other listed animals, and wildlife. Photographs, plans, and other information into the BAs if "wildlife friendly" crossings are incorporated into projects. Efforts should be made to establish upland culverts designed specifically for wildlife movement rather than accommodations for hydrology. Transportation agencies should also acknowledge the value of enhancing human safety by providing safe passage for wildlife in their early project design.

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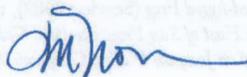
In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the I-580 FPI Project. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this BO, including work outside of the project footprint analyzed in this BO and including vehicle parking, staging, lay down areas, and access roads; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this BO including use of rodenticides or herbicides; relocation of utilities; and use of vehicle parking, staging, lay down areas, and access roads; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 of the Act, pending reinitiation.

If you have questions concerning this BO, please contact John Cleckler, Caltrans Liaison (john_cleckler@fws.gov) or Ryan Olah, Coast-Bay/Forest Foothills Division Chief (ryan_olah@fws.gov), at the letterhead address, (916) 414-6600, or by electronic mail.

Sincerely,



Jennifer M. Norris
Field Supervisor

cc:

Melissa Escaron, California Department of Fish and Wildlife, Napa, California
Christopher States and Denis Coghlan, Caltrans District 4, Oakland, California

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Personal Communication

Bobzien, Steve. 2014. Wildlife Biologist, East Bay Regional Parks, Oakland, California. Personal communication with John Cleckler, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, on June 11, 2014.

Gaber, Christine. 2008. Senior Wildlife Biologist, Pacific Gas and Electric, Walnut Creek, California. Personal communication with Chris Nagano, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, on October 22, 2008.

Kobernus, Patrick. 2008. Wildlife Biologist, Coast Ridge Ecology, San Francisco, California. Personal communication with Michelle Havens, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, on October 16, 2008.

Appendix F

Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION

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March 2013

**NON-DISCRIMINATION
POLICY STATEMENT**

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

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

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

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"

Appendix G - Distribution List**Elected Officials****U.S. Senate**

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

The Honorable Barbara Boxer
United States Senate
70 Washington Street, Suite 203
Oakland, CA 94607

U.S. House of Representatives

Eric Swalwell
5075 Hopyard Rd. Suite 220
Pleasanton, CA 94588

Jeff Denham
4701 Sisk Road, Suite 202
Modesto, CA 95356

California State Assembly

Joan Buchanan
2694 Bishop Drive, Ste. 275
San Ramon, CA 94583

Bill Quirk
22320 Foothill Blvd, Suite 540
Hayward, CA 94541

Susan Talamantes Eggman
31 East Channel Street, Suite 306
Stockton, CA 95202

California State Senate

Loni Hancock
1515 Clay Street #2202
Oakland, CA 94612

Ellen Corbett
1057 MacArthur Blvd, Suite 206
San Leandro, CA 94577

Cathleen Galgiani
31 E. Channel Ste 440
Stockton, CA 95202

Mark DeSaulnier
1350 Treat Blvd, Suite 240
Walnut Creek, CA 94596

Local Officials

Mayor John Marchand
City of Livermore
1052 S. Livermore Ave
Livermore, CA 94550

Federal Agencies

Environmental Protection Agency, Region IX
Federal Activities Office, CMD-2
75 Hawthorne Street
San Francisco, CA 94105-3901

Natural Resources Conservation Service
Area I
1345 Main Street
Red Bluff, CA 96080

US Army Corps of Engineers, Sacramento District
ATTN: Regulatory Branch
1325 J Street, Room 1480
Sacramento, CA 95814

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

State Agencies

State Clearinghouse, Executive Officer
1400 Tenth Street, Room 156
P.O. Box 3044
Sacramento, CA 95812-3044

Bay Area Air Quality Management District
Jack Broadbent
Chief Executive Officer
939 Ellis Street
San Francisco, CA 94109

California Air Resources Board
Executive Officer Richard Corey
1001 I Street
Sacramento, CA 95812

California Department of Conservation
 Director Mark Nechodom
 801 K Street, MS 24-01
 Sacramento, CA 95814

California Department of Fish & Wildlife
 Region 3*
 Regional Manager Scott Wilson
 7329 Silverado Trail
 Napa, CA 94558

California Highway Patrol,
 Special Projects Section*
 P.O. Box 942898
 Sacramento, CA 92298

California Office of Historic Preservation*
 1416 Ninth Street, Room 1442
 Sacramento, CA 95814

California Public Utilities Commission*
 Executive Director Paul Clanon
 505 Van Ness Avenue
 San Francisco, CA 94102

Department of Toxic Substances Control*
 1001 I Street
 Sacramento, CA 95814-2828

Native American Heritage Commission*
 Executive Secretary
 1550 Harbor Blvd, Suite 100
 West Sacramento, CA 95691

Regional Water Quality Control Board
 District 2*
 1515 Clay Street, Suite 1400
 Oakland, CA 94612

California Department of Housing and
 Community Development*
 Director
 2020 West El Camino
 Sacramento, CA 95833

Alameda County Planning Commission
 224 W. Winton, Room 111
 Hayward, CA 94544

Regional Agencies

Association of Bay Area Governments
 Kenneth Kirkey
 Planning Director
 101 Eighth Street
 Oakland, CA 94604-2050

Metropolitan Transportation Commission
 Doug Kimsey
 Planning Director
 101 Eighth Street – Metrocenter
 Oakland, CA 94607

East Bay Regional Park District
 Chris Barton, Senior Planner
 2950 Peralta Oaks Court
 Oakland, CA 94605

County Agencies

Alameda County
 Clerk of the Board of Supervisors
 1221 Oak Street, Suite 536
 Oakland, CA 94612

Alameda County
 Public Works Agency Director
 Daniel Woldensenbet
 399 Elmhurst Street
 Hayward, CA 94544

San Joaquin County
 Clerk of the Board of Supervisors
 44 N. San Joaquin Street
 Stockton, CA 95202

San Joaquin County
 Public Works Agency Director
 Thomas M. Gau
 1810 East Hazelton Avenue
 Stockton, CA 95205

Local Agencies

Cheri Sheets, City Engineer
 City of Livermore
 1052 South Livermore Avenue
 Livermore, CA 94550

Businesses/Organizations

Sierra Club
San Francisco Bay Chapter
2530 San Pablo Avenue, Suite I
Berkeley, CA 94702

Professional Organizations

Strom Club
San Francisco Bay Chapter
2550 San Pablo Avenue, Suite 1
Berkeley, CA 94704

San Francisco Bay Chapter

2550