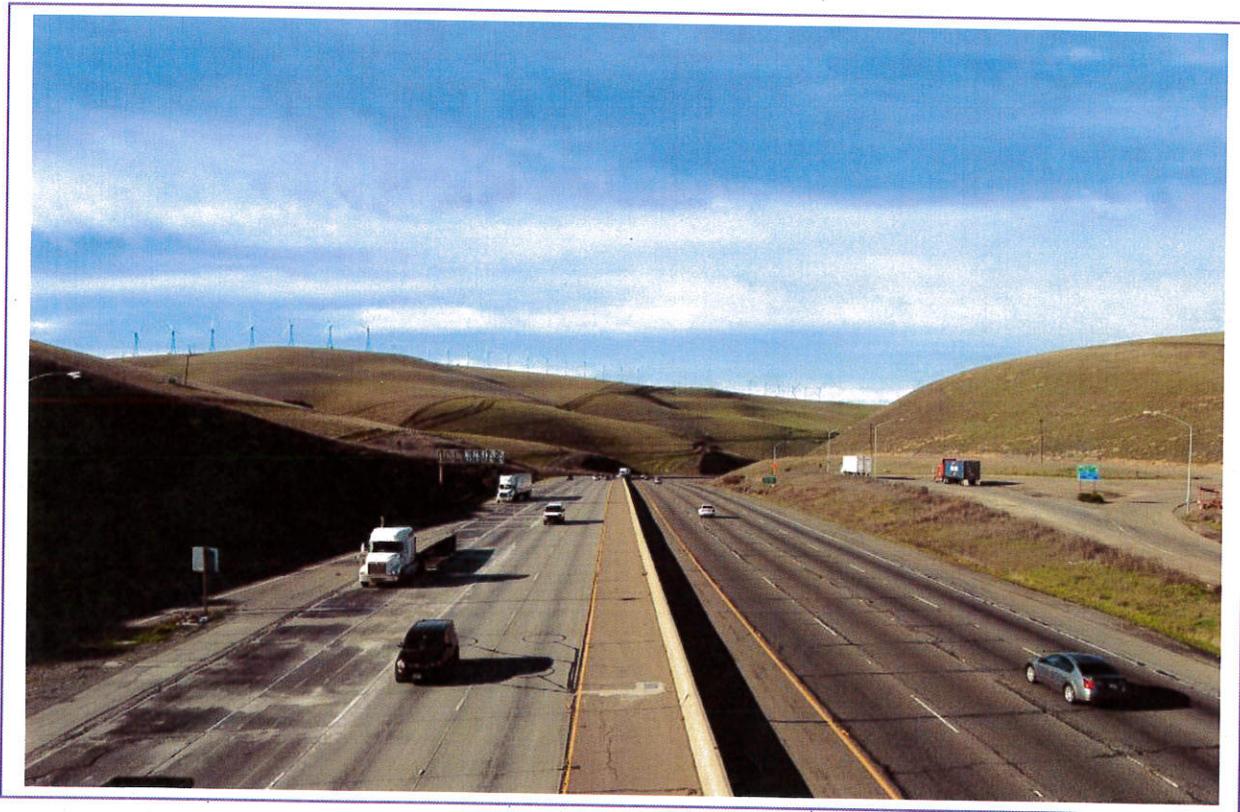


# Interstate 580 Roadway Rehabilitation Project

Alameda County, California  
DISTRICT 4 – ALA – 580 (PM0.0/8.0)  
DISTRICT 4 – ALA – 205 (PM0.0/1.0)  
3G590

EFIS #0412000115

## Initial Study with Mitigated Negative Declaration



Prepared by the

State of California Department of Transportation



August 2014

**INTENTIONALLY LEFT BLANK**

SCH#2013112047  
04-ALA-580-PM0.0/8.0  
04-ALA-205-PM0.0/1.0  
3G590  
0412000115

Rehabilitate the mainline roadway, and on- and off-ramps on Interstate 580 from one mile east of North Flynn Road in Alameda County near the City of Livermore to the San Joaquin County line in the eastbound direction, and from the San Joaquin County line to 0.2 mile east of Greenville Road Overhead in Alameda County in and near the City of Livermore in the westbound direction.

**INITIAL STUDY with Mitigated Negative Declaration**

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

THE STATE OF CALIFORNIA

Department of Transportation

8/27/14  
Date of Approval

  
MELANIE BRENT  
Deputy District Director  
District 4  
California Department of Transportation  
CEQA Lead Agency

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 510-286-5611, or use the California Relay Service TTY number, 711.

## Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

### **Project Description**

The California Department of Transportation (Caltrans) proposes to rehabilitate the mainline roadway, and on and off-ramps on Interstate 580 (I-580) from one mile east of North Flynn Road (PM 4.9) in Alameda County near the City of Livermore to the San Joaquin County line (PM 0.0) in the eastbound direction, and from the San Joaquin County line (PM 0.0) to 0.2 mile east of Greenville Road Overhead in Alameda County in and near the City of Livermore (PM 8.0) in the westbound direction. A portion of Interstate 205 (I-205) in both the eastbound (PM 0.0/1.0) and westbound directions (PM 0.0/1.0) is proposed to be rehabilitated. The project also proposes to install additional highway safety features within the project limits.

### **Determination**

Caltrans 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 and Forest Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology/Water Quality, Mineral Resources, Land Use/Planning, Noise, Paleontological Resources, Population and Housing, Public Services, Recreation, Transportation/Traffic, and Utilities/Service Systems.

With the following mitigation measures incorporated, the proposed project would have less than significant effects to biological resources:

- 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 undertaken
- 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

**THIS PAGE INTENTIONALLY LEFT BLANK**

**Table of Contents**

**Initial Study with Proposed Negative Declaration..... iii**

Proposed Negative Declaration ..... v

Chapter 1 PROPOSED PROJECT ..... 1

Project Description ..... 1

Purpose and Need ..... 4

Permits and Agreements Needed ..... 4

Environmental Factors Potentially Affected..... 5

Determination: ..... 5

Chapter 2 CEQA ENVIRONMENTAL CHECKLIST ..... 7

I. AESTHETICS: ..... 7

II. AGRICULTURE AND FOREST RESOURCES: ..... 8

III. AIR QUALITY: ..... 9

IV. BIOLOGICAL RESOURCES: ..... 9

V-1. CULTURAL RESOURCES: ..... 38

V-2. PALEONTOLOGY: ..... 38

VI. GEOLOGY AND SOILS: ..... 39

VII. GREENHOUSE GAS EMISSIONS ..... 39

VIII. HAZARDS AND HAZARDOUS MATERIALS: ..... 40

IX. HYDROLOGY AND WATER QUALITY: ..... 40

X. LAND USE AND PLANNING: ..... 44

XI. MINERAL RESOURCES: ..... 45

XII. NOISE: ..... 45

XIII. POPULATION AND HOUSING: ..... 46

XIV. PUBLIC SERVICES: .....	46
XV. RECREATION: .....	47
XVI. TRANSPORTATION/TRAFFIC: .....	47
XVII. UTILITIES AND SERVICE SYSTEMS:.....	48
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE .....	48
Chapter 3 CLIMATE CHANGE .....	51
Appendices .....	65

## Chapter 1 Proposed Project

### Project Description

The California Department of Transportation (Caltrans) proposes to rehabilitate the mainline roadway, and on and off-ramps on Interstate 580 (I-580) from one mile east of North Flynn Road (PM 4.9) in Alameda County near the City of Livermore to the San Joaquin County line (PM 0.0) in the eastbound direction, and from the San Joaquin County line (PM 0.0) to 0.2 mile east of Greenville Road Overhead in Alameda County in and near the City of Livermore (PM 8.0) in the westbound direction. A portion of Interstate 205 (I-205) in both the eastbound (PM 0.0/1.0) and westbound directions (PM 0.0/1.0) is proposed to be rehabilitated (See Figure 1). The project also proposes to install additional highway safety features within the project limits.

### Alternatives

#### Build

The proposed build alternative is comprised of the following components:

- **Pavement Rehabilitation**

This project proposes to remove surface Asphalt Concrete (AC), where present, and to replace underlying slabs along westbound (WB) and eastbound (EB) portions of I-580 and I-205. A new surface layer (of up to 10 inches) will be installed through crack, seat, and overlay (CSOL) method using a layer of hot mix asphalt-type A (HMA-A), geosynthetic pavement interlayer (GPI), rubberized hot mix asphalt (gap graded) (RHMA-G) and an open-graded friction course<sup>1</sup> (OGFC). Existing AC shoulders in the project area will be replaced with hot mix asphalt (HMA) plus shoulder backing, which involves the laying of a thin course of granular material to protect the outside edge of the pavement. This action prevents edge cracking and pavement edge loss. Shoulder backing requires an additional footprint of 4 to 8 feet from the edge of pavement wherever it is used.

**Eastbound I-580 (PM 0.0 to PM 4.9):** Proposed Slab Replacement: Proposed CSOL (up to 10 inches) of 0.1-foot HMA-A, GPI, 0.4-foot HMA-A, 0.20-foot RHMA-G, and 0.1-foot OGFC. Existing AC shoulders will be replaced with HMA-A plus shoulder backing.

**Westbound I-580 (PM 1.65 to PM 6.9):** Proposed Removal of Existing AC and Slab Replacement: Proposed CSOL (up to 10 inches) of 0.1-foot HMA-A, GPI, 0.4-foot HMA-A, 0.20-foot RHMA-G, and 0.1-foot OGFC. Existing AC shoulders will be replaced with HMA-A plus shoulder backing.

**Westbound I-580 (PM 0.0 to PM 1.65) and I-205 (PM 0.0 to PM 1.0):** Proposed removal of existing 0.1-foot AC, stress absorption membrane-rubberized (SAMI-R), 0.3-foot HMA-A, 0.2-foot RHMA-G, and 0.1-foot OGFC. Existing AC shoulders will be replaced with HMA-A plus shoulder backing.

---

<sup>1</sup> OGFCs typically are constructed with high quality, polish resistant aggregates and provide good frictional characteristics for vehicles traveling at typical highway speeds (U.S. Department of Transportation [USDOT] 1990).

**Westbound I-580 (PM 6.9 to PM 8.0):** Proposed Slab Replacement: Proposed CSOL (up to 10 inches) of 0.1-foot HMA-A, GPI, 0.4-foot HMA-A, 0.20-foot RHMA-G, and 0.1-foot OGFC. Existing AC shoulders will be replaced with HMA-A plus shoulder backing.

- **On and Off-Ramp Pavement Rehabilitation**

This project proposes to remove and replace surface layers from seven ramps within the project area and to replace them with a combination of HMA-A, RHMA-G. The proposed design features and specific locations for all of the activities are listed below:

**Eastbound Grant Line Road On and Off-Ramps:** Removal of existing AC to CTB layer and place 0.1-foot HMA, place pavement reinforcing fabric, replacement with 0.4-foot HMA-A, 0.2-foot RHMA-G, and 0.1-foot OGFC.

**Westbound Grant Line Road On and Off-Ramps:** Removal of existing AC to AB layer, replacement with 0.4-foot HMA-A, 0.2-foot RHMA-G, and 0.1-foot OGFC.

**Eastbound North Flynn Road Off-Ramp:** Removal of existing AC to AB layer, replacement with 0.4-foot HMA-A, 0.2-foot RHMA-G, and 0.1-foot OGFC.

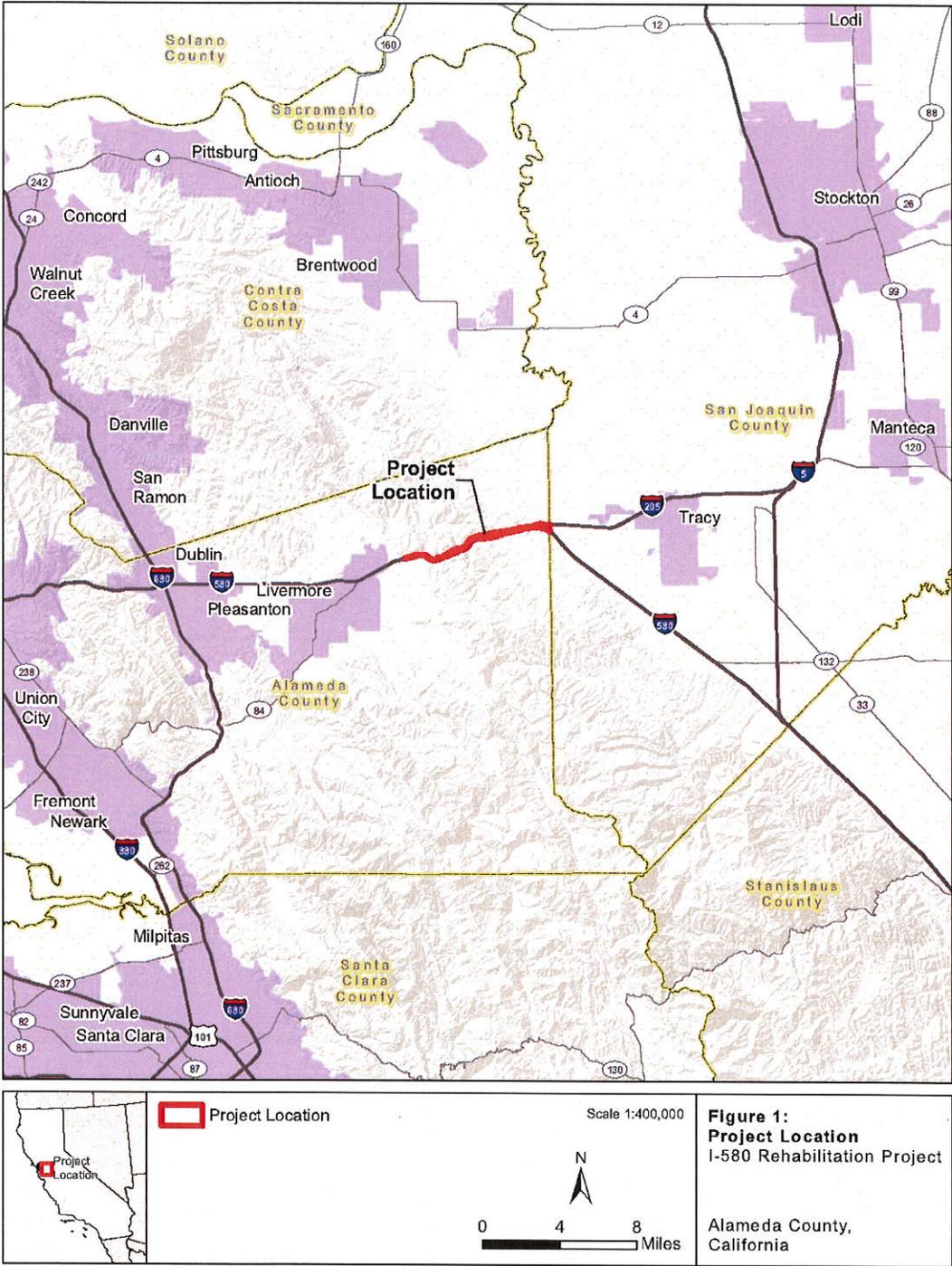
**Westbound North Flynn Road On and Off-Ramps:** Removal of existing AC to CTB layer and place 0.1-foot HMA, place pavement reinforcing fabric, replacement with 0.4-foot HMA-A, 0.2-foot RHMA-G, and 0.1-foot OGFC.

- **Other Rehabilitation Activities**

The installation of additional highway safety features are proposed for this project. These activities include the installation of rumble strips, installation of metal beam guard rails (MBGRs) and concrete barriers (Type 60/60C), adjust drainage inlets and replacement of hot mix asphalt (HMA) dikes and concrete curbs. Installation of overhead signage, lighting, flashing beacons, barrier markers, roadside delineators, and guard rail delineators also will occur.

No-Build

Under the No-Build Alternative, the existing highway will remain as is.



**Purpose and Need**

*Need*

The San Francisco Bay Area is heavily vested in the growing international and domestic trade, as well as local distribution of overseas and domestic product. Tens of billions of dollars’ worth of cargo that depart and arrive at the Bay Area’s seaports and airports demonstrate the scale of the activities. A substantial share of the Bay Area domestic trade is with Southern California, the San Joaquin Valley, and other West Coast destinations. The I-580 corridor plays a key role in connecting these trade regions together. Trucks account for 12.5 percent of the vehicle traffic on I-580 through Altamont Summit, indicating that this corridor is a significant component of the State’s and the Bay Area’s economy.

The I-580 corridor between the San Joaquin County line and the Greenville Road Overhead was originally built in 1966 and has had several improvements over the years, including the 2005 widening project to add a fifth lane to the WB direction between the Midway Road Undercrossing (PM 1.04) and west Grant Line Road (PM 2.5). According to the 2008 Pavement Condition Survey Inventory, there are numerous incidents of cracking and faulting in this stretch of the I-580 corridor. Some of the on-ramps, off-ramps, and AC shoulder widths (both inside and outside) do not meet the current design standards in both directions. Some of the existing MBGRs in both directions are in poor condition where they were hit in traffic accidents. There is a critical need to improve the existing condition of I-580 and to enhance traffic safety.

*Purpose*

The purpose of the proposed project is to rehabilitate and reconstruct the existing pavement on the mainline and ramps as well as to improve traffic safety by upgrading and/or replacing the MBGRs with concrete barriers.

**Permits and Agreements Needed**

<b>Permit</b>	<b>Agency</b>	<b>Acquired</b>
Incidental Take Permit	California Department of Fish and Wildlife	Will be obtained during the design phase of the project.
Biological Opinion	US Fish and Wildlife Service	Permit Number:

**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 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

**THIS PAGE INTENTIONALLY LEFT BLANK**

**Chapter 2 CEQA ENVIRONMENTAL CHECKLIST**

**04-A1a-580**  
**04-A1a-205**

**0.0/8.0**  
**0.0/1.0**

**3G590**

Dist.-Co.-Rte.

P.M/P.M.

E.A.

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

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

**I. AESTHETICS:**

Would the project:

- |   |                          |                          |                                     |                                     |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Have a substantial adverse effect on a scenic vista  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input 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 project will have minimal impact to existing planting and outward views from the freeway. The following measures have been identified to minimize visual impacts:

- During construction, any grassland areas removed should be re-hydroseeded with an erosion control/natural grass seed mix to help stabilize the slope and/or return impacted areas to their current conditions.
- Overhead signage, lighting, and flashing beacons should be kept to a minimum so as not to create cumulative negative visual impacts throughout the corridor.
- Concrete barriers should be treated with a medium to heavy sand blast finish to reduce glare and incidence of graffiti.

**II. AGRICULTURE AND FOREST RESOURCES:**

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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

The project is exempt from air quality conformity determination. No avoidance, minimization and/or mitigation measures have been identified.

**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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

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

***Affected Environment***

A *Natural Environment Study Interstate 580 Roadway Rehabilitation Project* (NES) (October 2013) was prepared for the project. The field delineation identified 0.908 acres of potential waters of the U.S. including wetlands within the Biological Study Area (BSA). The BSA is located in the area between the San Joaquin County line and the city of Livermore in Alameda County. The BSA includes the entire area within the eastbound (EB) side of Interstate 580 (I-580) from the San Joaquin County line (PM 0.0) to PM 4.9 and the westbound (WB) side of I-580 from the San Joaquin County line to 0.1 mile east of Greenville Road (PM 8.0) in Livermore, including the EB and WB on and off-ramps at North Flynn Road. The BSA also includes I-205 from the San Joaquin County line to the intersection with I-580 (PM 1.0). Features of interest include one wetland type, freshwater marsh, and two other water features, intermittent stream and aqueduct (canal). The preliminary delineation indicated that a total of 0.908 acres in the BSA, including 0.103 acres of wetlands and 0.805 acres of other waters, are likely to be jurisdictional. These areas could change following verification by the US Army Corps of Engineers (USACE). No wetland or other water features are located within the construction area. The construction area is the area that includes the permanent and temporary impact areas associated with construction. No jurisdictional features are anticipated to be impacted by the proposed project.

***Environmental Consequences***

There are no wetland or water features located within permanent or temporary impact zones. No impacts to jurisdictional features will occur as a result of this project.

***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 waters of the U.S., including wetlands, during project construction. Specific water quality protection measures include water quality inspections (Measure #24), proper treatment of concrete waste (Measure #26), and Caltrans best management practices (BMPs) (Measure #23).

## Special Status Animal Species Occurrences

A *Natural Environment Study Interstate 580 Roadway Rehabilitation Project* (NES) (October 2013) was prepared for the project.

### *Affected Environment*

Based on literature, database searches, and familiarity with the region, a total of 52 wildlife species were initially assessed to determine the potential to occur within the BSA. A wildlife habitat assessment was conducted within the BSA in December 2012 and July 2013, and 32 of these species were removed from consideration based on a low probability of occurring within the BSA. Other than vernal pool species (branchiopods), for which there is a high level of concern by regulatory agencies, species that have a low potential or which are not expected to occur within the BSA are not discussed further. The following special-status species have some potential to occur within the BSA and are addressed in more detail in this section:

#### *Federal and State-listed Species with Potential to Occur*

- California tiger salamander (*Ambystoma californiense*) – Federal Threatened, State Threatened
- California red-legged frog (*Rana draytonii*) – Federal Threatened, State Species of Special Concern
- San Joaquin kit fox (*Vulpes macrotis mutica*) – Federal Endangered, State Threatened
- Longhorn fairy shrimp (*Branchinecta longiantenna*) – Federal Endangered, State Special Animals List
- Vernal pool fairy shrimp (*Branchinecta lynchi*) – Federal Threatened, State Special Animals List
- Vernal pool tadpole shrimp (*Lepidurus packardii*) – Federal Endangered, State Special Animals List

#### *Special-status and Locally Rare Species with Potential to Occur*

- American badger (*Taxidea taxus*) – State Species of Special Concern
- Pallid bat (*Antrozous pallidus*) – State Species of Special Concern
- Townsend’s big-eared bat (*Corynorhinus townsendii*) – State Species of Special Concern
- Hoary bat (*Lasiurus cinereus*) – State Special Animals List
- Western pond turtle (*Actinemys marmorata*) – State Species of Special Concern
- San Joaquin whipsnake (*Masticophis flagellum ruddocki*) – State Species of Special Concern
- Western burrowing owl (*Athene cunicularia hypugaea*) – State Species of Special Concern
- Tricolored blackbird (*Agelaius tricolor*) – 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
- Golden eagle (*Aquila chrysaetos*) – Protected under the Bald and Golden Eagle Protection Act, Fully Protected Species under California Fish and Game Code
- Loggerhead shrike (*Lanius ludovicianus*) – State Species of Special Concern
- Midvalley fairy shrimp (*Branchinecta mesovallensis*) – State Special Animals List

### California Tiger Salamander

The Central California Distinct Population Segment of California tiger salamander was listed as federally threatened in 2004 (USFWS 2004), and as threatened under the California Endangered Species Act, on May 20, 2010.

#### *Affected Environment*

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

Suitable upland habitat for aestivation is present as grassland habitat within the BSA. California ground squirrel burrows are relatively abundant on the grassy hillsides within and adjacent to the Caltrans right-of-way (ROW) along I-580 and these could be utilized as upland refugia. There are numerous documented occurrences in ponds within 2 miles of the BSA (CDFW 2013) and there are numerous ponds visible on aerial imagery that could contain suitable breeding habitat and are within the known 1.3-mile dispersal range, and one California Natural Diversity Database (CNDDDB) record does indicate a breeding pond within 0.05 miles. The majority of salamanders around a breeding pond will aestivate within 0.4 miles (600 meters) of the pond (Trenham and Shaffer 2005), but adults and juveniles originating from ponds as far as 1.3-miles away may use the BSA for upland refuge. We can conclude that California tiger salamanders have a relatively low potential to occur in grassland habitats within the BSA because most of the BSA is not within 0.4 miles of a pond, but the BSA is generally within the range of migration of several [at least one] ponds that occur in the Altamont Hills.

I-580 represents a major barrier to dispersal of California tiger salamanders. The paved surface of I-580 is not considered to be a viable dispersal corridor for California tiger salamanders because heavy traffic likely causes mortality of almost all individuals attempting to cross. However, there are several natural and artificial wildlife crossings within the BSA that could potentially be used by dispersing California tiger salamanders to cross under I-580, including road underpasses and culverts carrying streams under the freeway.

#### *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, rehabilitation of roadway, rehabilitation of shoulder backing, installation of rumble strips, installation of metal beam guard rails (MBGRs) and concrete barriers, adjusting of inlets, replacement of curbs and dikes, as well as installation of overhead signage, lighting, flashing beacons, barrier markers, roadside delineators, and guard rail delineators. The avoidance and minimization measures outlined below and detailed in the General Avoidance and Minimization Measures section below are intended to reduce the likelihood of direct take during project activities.

The proposed concrete barriers may impede the movement of individual California tiger salamanders travelling parallel to I-580. Individuals attempting to travel across the concrete barriers may have their routes blocked by these vertical structures and will have to travel along the roadway until finding an area where they may exit. This will increase the amount of time when they are exposed to being struck by vehicles or captured by a predator and may direct them

onto the paved surface of I-580. The total length of concrete barriers on the project will be approximately 2.34 miles.

California tiger salamanders, although they may only occur at a low density, may be exposed to direct injury or mortality during earthwork within the construction area. Excavation, fill, and other construction activities will impact a total of 35.420 acres of grassland habitat in the BSA that provides potential aestivation, foraging, and dispersal habitat for California tiger salamanders. Temporary impacts will total 29.892 acres and permanent impacts will total 5.528 acres (See Table 1).

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. However, construction of the project will push this zone of roadside disturbance further outward into less disturbed habitat, causing further degradation of habitat due to edge effects. A conclusion may be drawn that the proposed modifications to California tiger salamander 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. There will be no adverse impact to breeding behavior because no breeding habitat is located within the construction area.

**Table 1. Summary of Impacts to California Tiger Salamander Habitat**

<b>Land Cover Type</b>	<b>Temporary Impacts (Acres)</b>	<b>Permanent Impacts (Acres)</b>	<b>Total Impacts (Acres)</b>
Grassland	29.892	5.528	<b>35.420</b>
<b>Total</b>	<b>29.892</b>	<b>5.528</b>	<b>35.420</b>

Taking into consideration that the Caltrans I-580 Freeway Performance Initiative (FPI) Project will be developed in the same segment of I-580 as the I-580 Rehabilitation Project, that the I-580 FPI Project will be initiated first, and that some areas of the construction area for these two projects overlap, both temporary and permanent impacts for the I-580 Rehabilitation Project to California tiger salamander habitat are reduced by the I-580 FPI Project’s permanent impacts. Habitat impacts for the I-580 Rehabilitation Project that account for the I-580 FPI Project’s impacts are shown in Table 2.

**Table 2. Summary of Impacts (Accounting for Impacts from the I-580 FPI Project) to California Tiger Salamander Habitat**

<b>Project Name</b>	<b>Land Cover Type</b>	<b>Temporary Impacts (Acres)</b>	<b>Permanent Impacts (Acres)</b>	<b>Total Impacts (Acres)</b>
I-580 Rehab Project (Proposed project)	Grassland	29.892	5.528	<b>35.420</b>
I-580 FPI Project (Construction area overlap)	Grassland	0.363	.0163	.3793
<b>Proposed Project’s Net Impacts</b>	<b>Grassland</b>	<b>29.529</b>	<b>5.365</b>	<b>34.894</b>

*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 California tiger salamander during project construction. Species-specific measures include biological monitoring (Measure # 4), April 15 to October 15 work window for activity in suitable habitat (Measure # 6), pre-construction surveys (Measure # 7), notification of listed species on site (Measure # 14), prevention of wildlife entrapment (Measure # 15), proper materials storage (Measure # 16), and the prohibition of mono-filament netting (Measure # 25).

Caltrans proposes that the project's net temporary impacts of 29.53 acres will be mitigated through on-site restoration at a ratio of 1:1 and 5.37 acres of permanent impacts will be mitigated at a ratio of 3:1 for 16.11 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 Incidental Take Permit. 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 Federal Endangered Species Act (FESA), CESA, and the California Environmental Quality Act (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*

*Affected Environment*

Critical habitat was designated for the California red-legged frog in 2010 (USFWS 2010). Critical habitat is located adjacent to the BSA, to the north and south of I-580 (Unit ALA-2, Arroyo Valle) from PM 1.0 to PM 8.2. Critical habitat (Unit ALA-2, Arroyo Valle) in two locations is located within the BSA (Figure 2), including at the Grant Line Road exit (PM 1.5) on the westbound (WB) side of I-580 and between PM 2.65 and PM 3.6 on the eastbound (EB) side of I-580.

There are 19 documented occurrences in ponds within 1 mile of the BSA (CDFW 2013), as well as numerous ponds and streams visible on aerial imagery within 1 mile of the BSA that could contain suitable breeding habitat. Adults and juveniles originating from these ponds and streams may potentially use the BSA for upland refuge. As such, California red-legged frogs have potential to occur in grassland, freshwater marsh, and creek channel habitats within 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. However, there are natural and artificial wildlife crossings within the BSA that could potentially be used by dispersing California red-legged frogs to cross under I-580, including underpasses for lightly-used railroads or roads such as the one at Midway Road and culverts carrying streams (e.g. Mountain House Creek, Arroyo Las Positas) under the freeway.

*Environmental Consequences*

California red-legged frogs within the construction area may experience 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, rehabilitation of roadways, rehabilitation of shoulder backing, installation of rumble strips, installation of MBGRs and concrete barriers, adjusting of inlets, replacement of curbs and dikes, and installation of overhead signage, lighting, flashing beacons, barrier markers, roadside delineators, and guard rail delineators. The avoidance and minimization measures outlined below and detailed in the General Avoidance and Minimization Measures section below are intended to reduce the likelihood of direct take during project activities.

The proposed concrete barriers may impede the movement of individual California red-legged frogs travelling parallel to I-580. Individuals attempting to travel across the concrete barriers may have their routes blocked by these vertical structures and will have to travel along the roadway until finding an area where they may exit. This will increase the amount of time when they are exposed to being struck by vehicles or captured by a predator and may direct them onto the paved surface of I-580. The total length of concrete barriers on the project will be approximately 2.34 miles.

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 35.420 acres of grassland habitat in the construction area that provides potential aestivation, foraging, and dispersal habitat for California red-legged frog. Temporary impacts will total 29.892 acres and permanent impacts will total 5.528 acres (Table 3). 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. However, construction of the project will push this zone of roadside disturbance further outward into less disturbed habitat, causing further degradation of habitat due to edge effects. A conclusion may be drawn that the proposed modifications to California red-legged 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. There is no adverse impact to breeding behavior because no breeding habitat is located within the construction area.

**Table 3. Summary of Impacts to California Red-legged Frog Habitat**

<b>Land Cover Type</b>	<b>Temporary Impacts (Acres)</b>	<b>Permanent Impacts (Acres)</b>	<b>Total Impacts (Acres)</b>
Grassland	29.892	5.528	35.420
<b>Total</b>	<b>29.892</b>	<b>5.528</b>	<b>35.420</b>

Because the I-580 FPI Project will be developed in the same segment of I-580 as the I-580 Rehabilitation Project, the I-580 FPI Project will be initiated first, and some areas of the construction area for these two projects overlap, both temporary and permanent impacts for the I-580 Rehabilitation Project to California red-legged frog habitat are reduced by the I-580 FPI Project's permanent impacts. Habitat impacts for the I-580 Rehabilitation Project that account for the I-580 FPI Project's impacts are shown in Table 4.

**Table 4. Summary of Impacts (Accounting for Impacts from the FPI Project) to California Red-legged Frog Habitat**

<b>Project Name</b>	<b>Land Cover Type</b>	<b>Temporary Impacts (Acres)</b>	<b>Permanent Impacts (Acres)</b>	<b>Total Impacts (Acres)</b>
I-580 Rehab Project (Proposed project)	Grassland	29.892	5.528	35.420
I-580 FPI Project (Construction area overlap)	Grassland	.363	.163	.526
<b>Proposed Project's Net Impacts</b>	<b>Grassland</b>	<b>29.529</b>	<b>5.365</b>	<b>34.894</b>

A total of 4.75 acres of critical habitat is located within the BSA at two locations in the Altamont Pass (Unit ALA-2, Arroyo Valle), including the north side of the WB on and off-ramps at the Grant Line Road exit (PM 1.5) and between PM 2.65 and PM 3.6 on the south side of the EB lanes of I-580. Temporary impacts will total 1.29 acres, and permanent impacts will total 0.48 acres within the construction area, for a total of 1.77 acres.

An impact to critical habitat must not adversely modify the critical habitat to the point that it will no longer aid in the species' recovery. The acreage impact of the proposed project is minor compared to the entire area of critical habitat. 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, no aquatic breeding habitat or non-breeding aquatic habitat occurs within the critical habitat mapped within the BSA.

#### *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), notification of listed species on site (Measure # 14), prevention of wildlife entrapment (Measure # 15), proper materials storage (Measure # 16), and the prohibition of mono-filament netting (Measure # 25).

Caltrans proposes that the project's net temporary impacts of 29.53 acres will be mitigated through on-site restoration at a ratio of 1:1 and 5.37 acres of permanent impacts will be mitigated at a ratio of 3:1 for 16.11 acres of off-site compensation. 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.

San Joaquin Kit Fox

The San Joaquin kit fox was listed as an endangered species by the USFWS in 1967 (USFWS 1967) and by the State of California in 1971. No critical habitat has been designated for San Joaquin kit fox.

*Affected Environment*

There are eight recorded occurrences of San Joaquin kit fox within 2 miles of the BSA (CDFW 2013) (Figure 2). Two are located adjacent to the eastern end of the BSA, the first within 0.50 miles of Grant Line Road (CNDDDB occurrence # 1034), and the other within 0.50 miles of the I-580/I-205 interchange (CNDDDB occurrence # 585). These occurrences were recorded in 1975 and 1986, respectively. All of the occurrences were recorded prior to 2000.

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. However, 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. However, San Joaquin kit foxes may use grassland within 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.

*Environmental Consequences*

Since this project will occur on the margins of the known current range of San Joaquin kit fox, and because minimization and avoidance 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 negligible. The limited number of observations of San Joaquin kit fox reported in the area, and a general consensus that the BSA is outside the typical range of the species, supports a 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 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. Indirect impacts will be avoided through buffers outlined in the avoidance and minimization measures.

The proposed concrete barriers may impede the movement of individual San Joaquin kit foxes travelling parallel to I-580. Individuals attempting to travel across the concrete barriers may have their routes blocked by these vertical structures and will have to travel along the roadway until finding an area where they may exit. This will increase the amount of time when they are exposed to being struck by vehicles or captured by a predator and may direct them onto the paved surface of I-580. The total length of concrete barriers on the project will be approximately 2.34 miles.

*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), notification of listed species on site (Measure # 14), and proper materials storage (Measure # 16).

*Longhorn Fairy Shrimp*

*Affected Environment*

Critical habitat was designated for the longhorn fairy shrimp in 2006 (USFWS 2006b). There is no designated critical habitat within the BSA. The nearest critical habitat for longhorn fairy shrimp is Unit 1B, located 2.0 miles to the north of the BSA (north of PM 7.1).

There is an American bulrush-dominated wetland, located under the I-580/I-205 connector ramps, that may be suitable habitat. However, no wetlands occur within the construction area. A reconnaissance level survey for vernal pool habitats in the BSA noted the potential for development of suitable habitat in the form of scrapes and borrow pits, but there were no apparent suitable habitat features currently existing. A few scrapes were observed 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 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 because longhorn fairy shrimp eggs can lay dormant until suitable conditions occur or be spread via wind or wildlife.

*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. If habitat features for longhorn fairy shrimp were present within the construction area, and if that habitat was impacted, the species may experience 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, rehabilitation of roadways, rehabilitation of shoulder backing, installation of rumble strips, installation of metal beam guard rails (MBGRs) and concrete barriers, adjusting of inlets, replacement of curbs and dikes, and installation of overhead signage, lighting, flashing beacons, barrier markers, roadside delineators, and guard rail delineators. The avoidance and minimization measures in the section below are intended to reduce the likelihood of impacts during project activities.

*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 longhorn fairy shrimp during

project construction by reducing potential impacts outside the construction area through implementation of BMPs.

Vernal Pool Fairy Shrimp

*Affected Environment*

Critical habitat was designated for vernal pool fairy shrimp in 2006 (USFWS 2006b). There is no designated critical habitat within the BSA. The nearest critical habitat for vernal pool fairy shrimp is Unit 19C, located 0.40 miles to the northwest of the BSA (northwest of PM 7.9).

There is an American bulrush-dominated wetland, located under the I-580/I-205 connector ramps, that may be suitable habitat. However, no wetlands occur within the construction area. A reconnaissance level survey for vernal pool habitats in the BSA noted the potential for development of suitable habitat in the form of scrapes and borrow pits, but there were no apparent suitable habitat features currently existing. A few scrapes were observed 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 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 because vernal pool fairy shrimp eggs can lay dormant until suitable conditions occur or be spread via wind or wildlife.

*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. If habitat features for vernal pool fairy shrimp were present within the construction area, and if that habitat was impacted, the species may experience 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, rehabilitation of roadways, rehabilitation of shoulder backing, installation of rumble strips, installation of metal beam guard rails (MBGRs) and concrete barriers, adjusting of inlets, replacement of curbs and dikes, and installation of overhead signage, lighting, flashing beacons, barrier markers, roadside delineators, and guard rail delineators. The avoidance and minimization measures in the General Avoidance and Minimization Measures section below are intended to reduce the likelihood of impacts during project activities.

*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 vernal pool fairy shrimp during project construction by reducing potential impacts outside the construction area through implementation of BMPs.

### Vernal Pool Tadpole Shrimp

#### *Affected Environment*

Critical habitat was designated for vernal pool tadpole shrimp in 2006 (USFWS 2006b). There is no designated critical habitat within the BSA. The nearest critical habitat for vernal pool tadpole shrimp is Unit 14B, located over 20 miles southwest of the BSA.

There is an American bulrush-dominated wetland, located under the I-580/I-205 connector ramps, that may be suitable habitat. However, no wetlands occur within the construction area. A reconnaissance level survey for vernal pool habitats in the BSA noted the potential for development of suitable habitat in the form of scrapes and borrow pits, but there were no apparent suitable habitat features currently existing. A few scrapes were observed 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 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 because vernal pool tadpole shrimp eggs can lay dormant until suitable conditions occur or be spread via wind or wildlife.

#### *Environmental Consequences*

The avoidance and minimization measures listed in General Avoidance and Minimization Measures section below will reduce the potential for effects to vernal pool tadpole shrimp during project construction by reducing potential impacts outside the construction area through implementation of BMPs.

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

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. If habitat features for vernal pool tadpole shrimp were present within the construction area, and if that habitat was impacted, the species may experience 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, rehabilitation of roadways, rehabilitation of shoulder backing, installation of rumble strips, installation of metal beam guard rails (MBGRs) and concrete barriers, adjusting of inlets, replacement of curbs and dikes, and installation of overhead signage, lighting, flashing beacons, barrier markers, roadside delineators, and guard rail delineators. The avoidance and minimization measures in General Avoidance and Minimization Measures section below are intended to reduce the likelihood of impacts during project activities.

### San Joaquin Whipsnake

#### *Affected Environment*

Caltrans has identified suitable grassland and shrubland habitat within 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 construction area provides potential habitat for the San Joaquin whipsnake. However, 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 below and detailed in the General Avoidance and Minimization Measures 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), notification of listed and other special-status species on site (Measure # 14), prevention of wildlife entrapment (Measure # 15), proper materials storage (Measure # 16), and the prohibition of mono-filament netting (Measure # 25). In the event that individuals are found during pre-construction surveys, they will be relocated to suitable habitat outside of the BSA.

### Western Pond Turtle

#### *Affected Environment*

Aquatic habitat is present within the BSA at Mountain House Creek. The portion of the creek that is within the BSA may be too shallow to harbor resident populations of western pond turtles. Streams within the BSA could be used as a movement corridor 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 or shrubland within the BSA. Western pond turtles may occur within these habitats in the BSA.

#### *Environmental Consequences*

Direct impacts to the western pond turtle may result from earth-moving activities within 350 feet of Mountain House Creek, and indirect impacts from construction activities near this creek may include water quality degradation from erosion or sediment loading. However, impacts from

earth-moving activities and water quality impacts are unlikely, given the proposed avoidance and minimization measures 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 the western pond turtle 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 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 # 14). In the event that individuals are found, they will be relocated to suitable habitat outside of the BSA.

*American Badger*

*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 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 proposed project. Any active badger burrows detected during initial pre-construction surveys within the construction area will be avoided. American badgers 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. Caltrans concludes that the proposed project would not affect the persistence of local populations of American badgers 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 American badgers during project construction. Species-specific measures include pre-construction surveys (Measure # 7) and notification of listed and other special-status species on site (Measure # 14). If an individual is found during pre-construction surveys, work will not commence until the individual leaves the work area of its own volition.

*Bat Species*

*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.

*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, crevasses, 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).

Affected Environment

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 four road/railroad crossings (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 of the bridges.

Although live bats were observed or heard at only one bridge, 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 one bridge, as evidenced by guano deposits, echolocation calls, and individuals observed; 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, although no evidence of night roost use was observed.

### 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 the railroad crossing (PM 8.0), Grant Line Road (PM 1.5), and Midway Road (PM 1.0). Avoidance and minimization measures outlined below 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 region.

### Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in 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 # 14), and the Caltrans Bats and Bridges Technical Bulletin (Erickson et al. 2002) procedures for construction activities around bat roosts (Measure # 8).

### Western Burrowing Owl

#### *Affected Environment*

Suitable habitat for burrowing owl is present within the BSA in grassland habitats and landscaped areas. Numerous California ground squirrels and their burrows were observed in close proximity to the BSA 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 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 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 # 14).

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

#### *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. 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 below 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 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 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), and, 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 # 14).

### Midvalley Fairy Shrimp

#### *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). 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 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 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 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. 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 by reducing potential impacts outside the construction area through implementation of BMPs.

### ***General Avoidance and Minimization Measures***

To avoid and minimize effects to federally and/or State-listed or other special-status-species and their habitats and jurisdictional wetland and water features within the Biological Study Area (BSA)(See Figure 2), Caltrans will implement the following 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 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).** Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of the California red-legged frog and Central California tiger salamander, and their habitat within the action area; an explanation of the status of these species and protection under state and federal laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the ESAs and WEF and the importance of maintaining these structures. A fact sheet conveying this information will be prepared and distributed to all construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the Act.

**6. Work Window for Listed Species:** All work within suitable habitat for California tiger salamander will occur between April 15 and October 15, when the species is unlikely to be active and there is less potential for an individual to enter the work area, if practicable; otherwise, wildlife exclusion fencing (WEF) will be installed and the WEF will be 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 area. 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 area 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 must be consulted. If a natal/pupping den is discovered, 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 nondisturbance 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).** Prior to start of construction, ESAs – defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed – will be clearly delineated using high visibility orange fencing. Construction work areas include the active construction site and all areas providing support for the proposed action including areas used for vehicle parking, equipment and material storage and staging, access roads, etc. The ESA fencing will remain in place throughout the duration of the proposed action, while construction activities are ongoing, and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and will provide installation specifications. The Plans, Specifications, and Estimates package will clearly describe acceptable fencing material and prohibited construction-related activities including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs.

**14. 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, 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.

**15. Avoidance of Entrapment.** To prevent inadvertent entrapment of animals during construction, all excavated holes, steep-walled holes or trenches more than 1 foot deep will be covered by plywood or similar materials at the close of each working day or provided with one or

more escape ramps constructed of earth fill or wooden planks. The Service-approved biologist shall inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a listed species is discovered, the Resident Engineer and Service-approved biologist will be notified immediately and the Service-approved biologist shall implement the species observation and handling protocol outlined in the biological opinion.

16. **Materials Storage:** California tiger salamanders, California red-legged frogs, San Joaquin kit foxes, and other special-status species, including San Joaquin whipsnake, are attracted to cavity-like structures such as pipes and may seek refuge under construction equipment or debris. They may become trapped or injured if such materials are moved. All construction pipes, culverts, or similar structures, or construction equipment or construction debris left overnight within the construction area will be inspected by the agency-approved biological monitor prior to being moved.

17. **Night Work.** To the extent practicable, nighttime construction will be minimized, to avoid effects to nocturnally active listed species. When utilized in areas adjacent to California red-legged frog and Central California tiger salamander habitat, work lights will be directed away from adjacent habitat areas.

18. **Night Lighting.** Except when necessary for construction, driver, or pedestrian safety, lighting of the construction area by artificial lighting during night time hours will be minimized to the maximum extent practicable.

19. **Trash Control.** All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the construction area.

20. **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.

21. **Pets.** To prevent harassment, injury, or mortality of sensitive species, no pets will be permitted in the construction area.

22. **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.

23. **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 and will be in compliance with the requirements of the Regional Water Quality Control Board. 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 nonstormwater 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 include 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>. Protective measures will be included in the contract, including, at a minimum:

- a. No discharge of pollutants from vehicle and equipment cleaning are allowed into storm drains or watercourses.
- b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from watercourses, except as established commercial gas stations or established vehicle maintenance facility.
- c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of. Neither will be allowed into watercourses.
- d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
- e. Dust control measures including use of water trucks and dust palliatives to control dust in excavation and fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.
- f. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction to capture sediment.
- g. Protection of graded areas from erosion using a combination of silt fences, fiber rolls, etc. along toes of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine, or other similar fibers.
- h. Permanent erosion control measures such as bio-filtration strips and swales to receive storm water discharges from the highway, or other impervious surfaces will be incorporated to the maximum extent possible.
- i. 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.

**24. 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.

**25. 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 and California red-legged frogs, as well as San Joaquin whipsnakes, may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

**26. 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.

**27. Replant, Reseed, and Restore Disturbed Areas.** All slopes or unpaved areas that are temporarily affected by the proposed action will be revegetated with an assemblage of native grasses and shrubs characteristic of the floristic region and native local habitats to stabilize soils and prevent erosion. Where disturbance includes the removal of trees or plants, native species will be replanted and maintained until they become established. A revegetation plan with success criteria will be submitted to the Service for review and approval. Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent.

**28. Construction Site Management Practices.** The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:

- a. A speed limit of 15 miles per hour (mph) in the project footprint in unpaved areas will be enforced to reduce dust and excessive soil disturbance.
- b. Construction access, staging, storage, and parking areas, will be located within the project Caltrans ROW outside of any designated ESA or outside of the Caltrans right of way in areas environmentally cleared by the contractor. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the ProP9sed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
- c. To the maximum extent practicable, any borrow material will be certified to be nontoxic and weed free.
- d. All food and food-related trash items will be enclosed in sealed trash containers and properly disposed of off-site.
- e. No pets from project personnel will be allowed anywhere in the action area during construction.
- f. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
- g. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from hydrologic features.
- h. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 50 feet from any hydrologic features unless it is an existing gas station.

**29. Vegetation Removal.** Any vegetation that is within the cut and fill line or growing in locations where permanent structures will be placed (e.g., road alignment, shoulder widening, soil nail walls, etc.) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or using light construction equipment such as backhoes. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist(s) will

survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 100 feet for passerines and 500 feet for raptors before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5 will be observed. All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. A Service-approved biologist will be present during all vegetation clearing and grubbing activities. Prior to vegetation removal, the Service-approved biologist shall thoroughly survey the area for California red-legged frogs and Central California tiger salamanders. Once the Service-approved biologist has thoroughly surveyed the area, clearing and grubbing may continue without further restrictions on equipment; however, the Service-approved biologist shall remain onsite to monitor for California red-legged frogs and Central California tiger salamanders until all clearing and grubbing activities are complete. After project completion, all temporarily affected areas shall be returned to original grade and contours to the maximum extent practicable, protected with proper erosion control materials, and revegetated with native species appropriate for the region and habitat communities on site.

**30. Reduce Spread of Invasive Species.** To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.

**31. Wildlife Exclusion Fencing (WEF).** Prior to the start of construction, WEF will be installed at the edge of the project footprint in all areas where California red-legged frogs or Central California tiger salamanders could enter the construction area. The location of the fencing shall be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service prior to the start of staging or surface disturbing activities. The location, fencing materials, installation specifications, and monitoring and repair criteria shall be approved by the Service prior to start of construction. Caltrans shall include the WEF specifications on the final project plans. Caltrans shall include the WEF specifications including installation and maintenance criteria in the bid solicitation package special provisions. The WEF shall remain in place throughout the duration of the project and shall be regularly inspected and fully maintained. Repairs to the WEF shall be made within 24 hours of discovery. Upon project completion the WEF shall be completely removed, the area cleaned of debris and trash, and returned to natural conditions.

**32. Biological Opinion 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 and outline required reporting/monitoring requirements. These Terms and Conditions are nondiscretionary. The following Terms and Conditions implement the Reasonable and Prudent Measure number 1:

- a. **Compliance with Biological Opinion.** Caltrans shall include Special Provisions that include the Conservation Measures and the Terms and Conditions of the biological opinion in the solicitation for bid information for all contracts for the project that are issued by them to all contractors. Caltrans shall require all contractors and subcontractors

- to comply with the Act in the performance of the proposed action and shall perform the action as outlined in the Project Description of the biological opinion as provided by Caltrans in the Biological Assessment dated September 2013, and all other supporting documentation submitted to the Service in support of the action. Changes to the Project Description or performance of work outside the scope of the biological opinion are subject to the requirements of reinitiation of formal consultation.
- b. **Implementation of Biological Opinion.** Caltrans shall ensure the Resident Engineer or their designee shall have full authority to implement and enforce all Conservation Measures and Terms and Conditions of the biological opinion. The Resident Engineer or their designee shall maintain a copy of the biological opinion onsite whenever construction is in progress. Their name(s) and telephone number(s) shall be provided to the Service at least 30 calendar days prior to groundbreaking at the project.
  - c. **Proposed Compensation.** The compensation measures proposed by Caltrans and outlined in Table 1 of the Biological Opinion will minimize the effects of harm on the California red-legged frog and Central California tiger salamander. Habitat considered for compensation shall comprise high quality breeding, foraging, sheltering, migration, and/or dispersal habitat. Caltrans shall comply with all applicable CDFW regulations pertaining to mitigation for species designated as fully protected and/or listed by the State. Compensation shall be implemented in accordance with the Selected Review Criteria for section 7 Off-Site Compensation provided in Appendix A of the Biological Opinion. If conservation banking credits are to be purchased, Caltrans shall submit a conceptual compensation plan to the Service for review and approval prior to the purchase of credits. If the proposed compensation scheme is not fully implemented, Caltrans shall provide an alternative compensation scheme to be reviewed and approved by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio if it is restored within one calendar year following project completion and the conditions are verified by the Service. All compensation will be acquired prior to the beginning of earthmoving for the project.
  - d. **Biological Monitor Approval and Stop Work Authority.** The qualifications of all proposed Service-approved biological monitors shall be presented to the Service for review and written approval at least 30 calendar days prior to project initiation. The Service-approved biological monitors shall keep a copy of the biological opinion in his/her possession when onsite. The Service-approved biological monitors shall communicate through the Resident Engineer or their designee, verbally, by telephone, email, or hardcopy with Caltrans personnel, construction personnel or any other person(s) at the project site or otherwise associated with the project to ensure that the terms and conditions of the biological opinion are met. The Service-approved biologist(s) through communication with the Resident Engineer shall have oversight over implementation of the Terms and Conditions in the biological opinion, and shall have the authority to stop project activities if they determine any of the requirements associated with these Terms and Conditions are not being fulfilled. If the Service-approved biologist(s) exercises this authority, the Service shall be notified by telephone and email within 24 hours. The Service contact is Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program, Sacramento Fish and Wildlife Office at telephone (916) 414-6600.
  - e. **Biological Monitoring Records.** The Service-approved biologist(s) shall maintain monitoring records that include: (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the listed species encountered, including the time and location of the observation; (3) the time the specimen was identified and by whom and its condition; and (4) a description of any actions taken. The Service-approved biologist(s) shall maintain complete records in their possession while conducting monitoring activities and shall immediately surrender records to the Service, CDFW,

- and/or their designated agent upon request. If requested, all monitoring records shall be provided to the Service within 30 days of the completion of monitoring work.
- f. **Agency Access.** If verbally requested through the Resident Engineer or Construction Inspector, before, during, or upon completion of ground breaking and construction activities, Caltrans shall ensure the Service or their designated agents can immediately and without delay, access and inspect the project site for compliance with the proposed project description, conservation measures, and terms and conditions of the biological opinion, and to evaluate project effects to the California red-legged frog and Central California tiger salamander and their habitat.
  - g. **Inclement Weather Restrictions.** No work shall occur during or within 24 hours following a rain event exceeding 0.2-inch as measured by the NOAA National Weather Service for the Livermore, CA (KLVK) base station available at: <http://www.wrh.noaa.gov/mesowest/getobext.php?wfo=mtr&sid=KLVK&num=72&raw=0>. Service-approval to continue work during or within 24 hours of a rain event shall be considered on a case-by-case basis.
  - h. **Proper Use of Erosion Control Devices.** To prevent California red-legged frogs and Central California tiger salamanders from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.
  - i. **Biological Monitoring.** A Service-approved biologist(s) shall be onsite during all activities that may result in take of California red-legged frogs or Central California tiger salamanders as determined by the Service. A minimum of one Service-approved biologist shall be on-site throughout the project duration. However, an adequate number of Service-approved biologists to monitor the effects of the project on the California red-legged frog and Central California tiger salamander. The Service will consider the implementation of specific project activities without the oversight of an on-site Service-approved biologist on a case-by-case basis.
  - j. **Preconstruction and Daily Surveys.** Preconstruction surveys shall be conducted by a Service-approved biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing that may result in take of California red-legged frogs and Central California tiger salamanders as determined by the Service. All suitable aquatic and upland habitat including refugia habitat such as dense vegetation, small woody debris, refuse, burrows, etc., shall be thoroughly inspected. The Service-approved biologist(s) shall conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of California red-legged frogs and Central California tiger salamanders as determined by the Service. If a California red-legged frog and Central California tiger salamander is observed, the Service-approved biologist shall implement the species observation and handling protocol outlined below.
  - k. **Protocol for Species Observation and Handling.** If a California red-legged frog or Central California tiger salamander is encountered in the action area, work activities within 50 feet of the individual shall cease immediately and the Resident Engineer and Service-approved biologist shall be notified. Based on the professional judgment of the Service-approved biologist, if project activities can be conducted without harming or injuring the California red-legged frog or Central California tiger salamander, it may be left at the location of discovery and monitored by the Service-approved biologist. All project personnel will be notified of the finding and at no time shall work occur within 50 feet of the California red-legged frog or Central California tiger salamander without a

Service-approved biologist present. If it is determined by the Service-approved biologist that relocating the California red-legged frog or Central California tiger salamander is necessary, the following steps shall be followed:

- i. Prior to handling and relocation, the Service-approved biologist will take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog* (Service 2005) and *Interim Guidance on Site Assessment and Filed Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (Service 2003). Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle amphibians after working in other aquatic habitats.
- ii. California red-legged frogs and Central California tiger salamanders shall be captured by hand, dipnet or other Service-approved methodology, transported by hand, dipnet or temporary holding container, and released as soon as practicable the same day of capture. Handling of California red-legged frogs and Central California tiger salamanders shall be captured by hand, dipnet, or other Service-approved methodology, transported will be minimized to the maximum extent practicable. Holding/transporting containers and dipnets shall be thoroughly cleaned, disinfected, and rinsed with freshwater prior to use within the action area.
- iii. California red-legged frogs and Central California tiger salamanders shall be captured by hand, dipnet, or other Service-approved methodology, transported and relocated to nearby suitable habitat outside of the work area and released in a safe area on the same side of 1-580 or 1-205 where it was discovered. The individual(s) shall be released within the Caltrans right-of-way only if suitable habitat exists and would not pose a risk to the animal's survival or well-being. Otherwise, they shall be released at a location subject to the approval of the property owner. If suitable habitat cannot be identified, the Service shall be contacted to determine an acceptable alternative. The Service shall be notified within 24 hours of all capture, handling, and relocation efforts.

**33. 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 Disposition of Individuals Taken section below.
- b. Other pertinent reporting information such as monitoring reports (if not included as a term and condition), notification of project completion/implementation, etc. including when this information is due to the Service.

**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 type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Two historical resources have been identified in the project area. No work touching the Stone Cut Underpass or the Delta-Mendota Canal and/or Bridge other than overlay will occur. The proposed project is determined to have no impact on 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.

**V-2. PALEONTOLOGY:**

Would the project:	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 type="checkbox"/>	<input checked="" type="checkbox"/>

There will be no ground disturbances anticipated to extend beyond previously disturbed ground. No paleontological resources will be affected and therefore no minimization and/or mitigation measures will be required.

**VI. GEOLOGY AND SOILS:**

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Any proposed engineering design will be carried out in accordance with Caltrans Seismic Design Criteria and Standard Construction Practices.

**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:	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 proposed project will have no impact to hazardous waste or materials. No avoidance, minimization, and/or mitigation measures have been identified.

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

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input 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 type="checkbox"/> | <input checked="" 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"/> |

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

**IX-1. HYDROLOGY:**

The proposed project will not alter or change the current site conditions. No impacts are anticipated to surface water flows and drainage.

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 project is located within the Central Valley and San Francisco Bay Regional Water Quality Control Board (RWQCB) jurisdiction (Regions 5 and 2), which is responsible for implementation of State and Federal laws and regulations for water quality protection.

<b>• Regional Board</b>	<b>• Central Valley</b>
Hydrologic Sub-Area #	543.00
Hydrologic Region	San Joaquin
Hydrologic Unit	NORTH DIABLO RANGE
<b>• Regional Board</b>	<b>• San Francisco Bay</b>
Hydrologic Sub-Area #	204.30
Hydrologic Region	San Francisco Bay
Hydrologic Unit	SOUTH BAY
Hydrologic Area	Alameda Creek

The direct receiving water body of the project is Alameda Creek which eventually discharges to the Pacific Ocean. The project is within the area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods.

The project site is within the San Joaquin Valley Groundwater Basin and 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, Freshwater Habitat, Ground Water Recharge, Fish Migration, Water Contract Recreation, Noncontract Water Recreation, Fish Spawning, and Wildlife Habitat.

Under 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.

### **Topography & Soil Characteristics**

The topography of the area is rolling terrain, surrounded by the agricultural fields. The Hydrologic group is Group D, soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

### ***Environmental Consequences***

Caltrans has performed many studies to monitor and characterize stormwater runoff from highways 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.

The area of soil disturbance is approximately 1.8 acres. There are no additional impervious or re-worked areas. The existing impervious area is 35.2 acres.

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

#### 1) Clean Water Act (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.

#### 2) CWA Section 402

According to the Caltrans NPDES permit and the 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 disturbed soil area (DSA), this project is subject to the CGP.

In general, BMPs fall into three main categories:

- a. 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.
- b. 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:

- 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, and material and equipment use, structure demolition or removal over water; and
  - 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.
- c. 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:

- a. To prepare a Storm Water Pollution Prevention Plan (SWPPP) that has to be developed and certified by a Qualified SWPPP Developer (QSD);
- b. 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;
- c. 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
- d. 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"/>

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

Interstate 580 runs east and 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 Central Valley. In the vicinity of the project, I-580 is classified as a rural freeway that generally consists of rolling/mountainous terrain.

***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 measures are 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"/>

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

The proposed project will not increase capacity; therefore traffic noise is expected to remain the same. No avoidance, minimization, and/or mitigation measures are identified.

**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.

**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 (TMP) 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"/>

It is anticipated that no changes will occur in traffic patterns and thus will not likely increase the use of existing recreational facilities within the project area. The project will not affect 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project does not have any conflict with any plans, congestion management programs, or ordinances. 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 checked="" type="checkbox"/>	<input 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 impact to the following environmental factor does not contribute to cumulative effects with those projects:

- Special status species

	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 rehabilitate the existing roadways. The project's elements will not have any impacts which will cause any adverse effects on human beings either directly or indirectly.

**THIS PAGE INTENTIONALLY LEFT BLANK**

## Chapter 3 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. Research from such establishments as the Intergovernmental Panel on Climate Change (IPCC) are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF<sub>6</sub>), 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 (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO<sub>2</sub>, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order 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)<sup>2</sup>.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing growth of vehicle miles traveled (VMT), 3) transitioning to lower GHG emitting fuels, and 4) improving vehicle technologies. To be most effective all four strategies should be pursued collectively. The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

### ***Regulatory Setting***

#### *State*

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change. Relevant legislation include the following policies:

- Assembly Bill 1493 (AB 1493), Pavley.
- Executive Order (EO) S-3-05: (signed on June 1, 2005, by former Governor Arnold Schwarzenegger)
- AB 32, the Global Warming Solutions Act of 2006, Núñez and Pavley
- Executive Order S-20-06: (signed on October 18, 2006 by former Governor Arnold Schwarzenegger)
- Executive Order S-01-07: (signed on January 18, 2007 by former Governor Arnold Schwarzenegger)

---

<sup>2</sup> [http://climatechange.transportation.org/ghg\\_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)

- Senate Bill 97 (SB 97) Chapter 185, 2007
- Caltrans Director’s Policy 30 (DP-30) Climate Change (approved June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. This policy contributes to Caltrans’ stewardship goal to preserve and enhance California’s resources and assets.

### Federal

Although climate change and GHG reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has promulgated explicit guidance or methodology to conduct project-level GHG analysis. As stated on FHWA’s climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Despite the lack of Federal GHG regulations and legislation, FHWA as well as the National Highway Traffic Safety Administration (NHTSA) and U.S. EPA are taking steps to lessen climate change impacts by improving transportation system efficiency, creating cleaner fuels, reducing the growth of vehicle hours travelled, and enabling the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines.

### **Project Analysis**

The proposed project is not a capacity increasing project so it is not anticipated to have any increase in operational GHG emissions as a result.

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.<sup>3</sup> 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 in order to make this determination is a difficult, if not impossible, task.

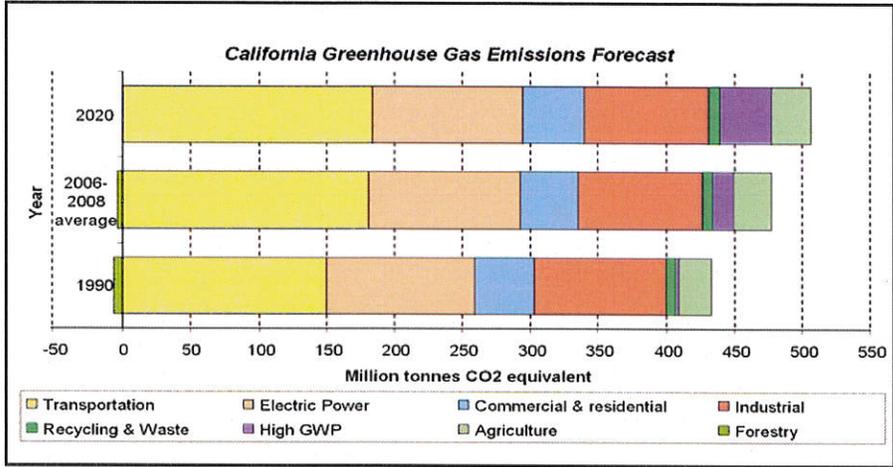
The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of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

---

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

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.<sup>4</sup>

The purpose of this project is to rehabilitate 14.7 miles of roadway and the underlying slabs and asphalt concrete, if present. The reconstruction of the roadway will prevent excess maintenance in the future and reduce roadway friction for vehicles travelling on the roadway. As discussed below, construction emissions will be unavoidable, but there will likely be long-term GHG benefits associated reduced maintenance and improved operation through smoother pavement surfaces.

**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 onsite 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.

<sup>4</sup> 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](http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf)

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***

Although construction emissions are unavoidable and are expected to be minimal, the proposed project will not increase capacity and is not expected to result in additional operational CO<sub>2</sub> emissions. However, it is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

### ***Greenhouse Gas Reduction Strategies***

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order 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)<sup>5</sup>.

### ***Greenhouse Gas Mitigation***

#### ***AB 32 Compliance***

Caltrans continues to be actively involved on the Governor's Climate Action Team as 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 the California Strategic Growth Plan, which is updated each year.

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

- 1) Landscaping reduces surface warming, and through photosynthesis, decreases CO<sub>2</sub>. The project proposes planting in the slopes and drainage improvements. Caltrans has committed to replace all removed trees based on replacement recommendations provided by the Caltrans landscape architect. These trees will help offset any potential CO<sub>2</sub> emissions increase. Based on a formula from the Canadian Tree Foundation<sup>6</sup>, it is anticipated that the planted trees will offset between 7-10 tons of CO<sub>2</sub> per year.
- 2) According to Caltrans' Standard Specifications, the contractor must comply with all of the Bay Area Air Quality Management District rules, ordinances, and regulations regarding to air quality restrictions.

---

<sup>5</sup> [http://climatechange.transportation.org/ghg\\_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)

<sup>6</sup> Canadian tree Foundation at [http://www.tcf-fca.ca/publications/pdf/english\\_reduceco2.pdf](http://www.tcf-fca.ca/publications/pdf/english_reduceco2.pdf). For rural areas the formula is: # of trees/360 x survival rate = tones of carbon/year removed for each of 80 years.

- 3) Compliance with Title 13, California Code of Regulations §2449(d)(3)—Adopted by the Air Resources Board on June 15, 2008, this regulation would restrict idling of construction vehicles to no longer than 5 consecutive minutes. The Contractor must comply with this regulation in order to reduce harmful emissions from diesel-powered construction vehicles.
- 4) Portland Cement – Use of lighter color surfaces such as Portland cement helps to reduce the albedo effect (measure of how much light a surface reflects) and cool the surface; in addition, Caltrans has been a leader in the effort to add fly ash to Portland cement mixes. Adding fly ash reduces the greenhouse gas emissions associated with cement production – it also can make the pavement stronger.
- 5) To the extent that it is feasible for the project, the use of reclaimed water may be used to reduce GHG emissions produced during construction. Currently 30 percent of the electricity used in California is used for the treatment and delivery of water. Use of reclaimed water helps conserve this energy, which reduces greenhouse gas emissions from electricity production.

### *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.

Interim guidance has been released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the States infrastructure due to projected sea level rise.

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

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level 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.

**THIS PAGE INTENTIONALLY LEFT BLANK**

## **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 F.

### ***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 in the section below.



**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](mailto: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](http://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](mailto: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.

Environmental Justice is a federal term that is associated with the National Environmental Policy Act. The Initial Study/Mitigated Negative Declaration document prepared for this project is a CEQA document. Chapter 2 of the Environmental Document analyzed whether the proposed project's potential impacts of physical change would result in economic or social change (as environmental justice is referred to in a CEQA context). 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 Figure 4).

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.

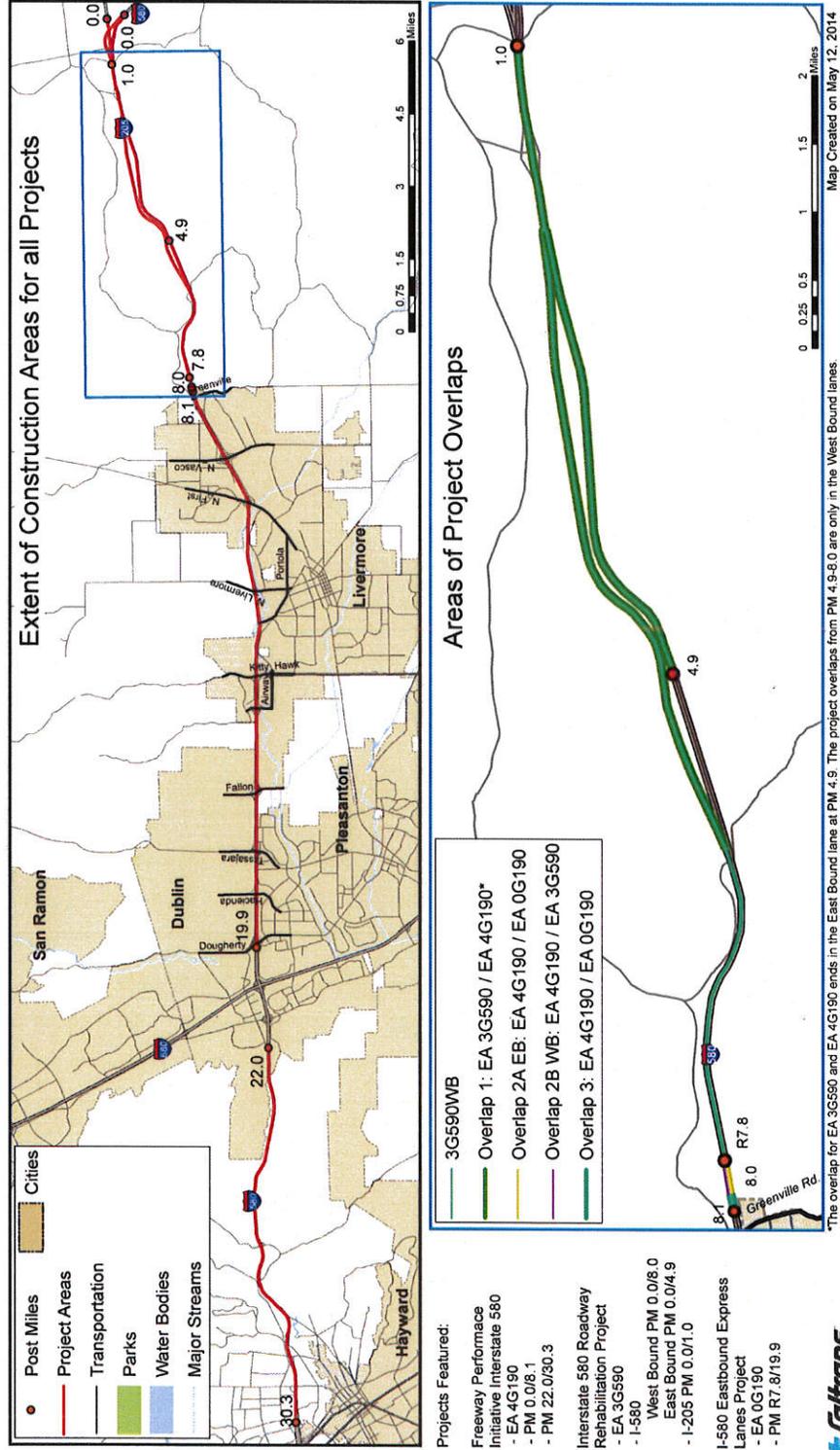
3– We apologize for the difficulties in contacting Sheryl M. Garcia with the number listed for Caltrans in the advertisement. While the telephone number listed was not Ms. Garcia's direct line, the newspaper advertisements you identified in your comment did include an email address and mailing address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

Figure 4: Project Overlap Areas for Three Caltrans Projects on Interstate 580





**Appendices**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**Appendix A*****Acronyms***

AB	Assembly Bill
AC	Asphalt Concrete
ALA	Alameda
BMP	Best Management Practice
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGP	Construction General Permit
CNDDB	California Natural Diversity Database
Co	County
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
Co-CAT	Coastal Ocean Climate Action Team
CSOL	Crack, Seal, and Overlay
CWA	Clean Water Act
DSA	Disturbed Soil Area
EA	Expenditure Authorization
EB	Eastbound
EO	Executive Order
ESA	Environmentally Sensitive Areas
FGC	Fish and Game Code
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
ft.	Feet
FPI	Freeway Performance Initiative
GHG	Greenhouse Gas
GPI	Geosynthetic Pavement Interlayer
H <sub>2</sub> S	Hydrogen Sulfide
HMA	Hot Mix Asphalt
HMA-A	Hot Mix Asphalt-Type A
I-580	Interstate 580
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of Service
MBGRs	Metal Beam Guard Rails
MEP	Maximum Extent Practicable

ND	Negative Declaration
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NHTSA	National Highway Traffic Safety Administration
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
N <sub>2</sub> O	Nitrous Oxide
NPDES	National Pollutant Discharge Elimination System
O <sub>3</sub>	Ozone
OGFC	Open-Graded Friction Course
Pb	Lead
PM	Post Mile
QSD	Qualified SWPPP Developer
RHMA-G	Rubberized Hot Mix Asphalt (gap graded)
RMS	Ramp Metering System
ROW	Right of Way
Rte	Route
RWQCB	Regional Water Quality Control Board
SF <sub>6</sub>	Sulfur Hexafluoride
SO <sub>2</sub>	Sulfur Dioxide
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWMP	Stormwater Management Plan
SWRCB	State Water Resource Control Board
TMP	Traffic Management Plan
USACE	United States Army Corps. Of Engineers
US DOT	United States Department of Transportation
US EPA	United States Environmental Protection Agency
USC	United States Code
USFWS	United States Fish and Wildlife Service
WB	Westbound
WDR	Waste Discharge Requirement
WEAT	Worker Environmental Awareness Training
WEF	Wildlife Exclusion Fencing
WPCP	Water Pollution Control Program

**Appendix B**

***Technical Studies prepared by Caltrans***

Visual Assessment Memo, State Route 580 Roadway Rehabilitation Project, District 4 Office of Landscape Architecture, October 2012

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

Natural Environment Study, Interstate 580 Roadway Rehabilitation Project, District 4 Office of Biological Science and Permits, October 2013

Location Hydraulic Study, Interstate 580 Roadway Rehabilitation Project, District 4 Office of Hydraulics, October 2013

Cultural Resources Review Memo, Pavement Rehabilitation Project Along I-580 in Alameda County, May 2013

**THIS PAGE INTENTIONALLY LEFT BLANK**

Appendix C

***List of Preparers***

Keith Suzuki, Project Landscape Architect, Office of Landscape Architecture

Sheryl Garcia, Associate Environmental Planner, Office of Environmental Analysis

Glenn Kinoshita, District Branch Chief, Office of Environmental Engineering

Chris Wilson, District Branch Chief, Office of Environmental Engineering

Chris Risdén, Branch Chief, Office of Geotechnical Design West

Craig Tomimatsu, District Branch Chief, Office of Hydraulics

Emily Darko, Archaeologist, Office of Cultural Resources

Frances Schierenbeck, Architectural Historian, Office of Cultural Resources

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

Matthew Gaffney, Engineering Geologist, Office of Geotechnical Design - West

Elizabeth White, Associate Environmental Planner, Office of Environmental Analysis

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

**THIS PAGE INTENTIONALLY LEFT BLANK**

**Appendix D**

***Environmental Commitments Record***

Last updated 8/26/2014

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Rehabilitate roadway between San Joaquin county line  
 ALA-580/205-0-8.0/0-1.0  
 Current Project Phase: 0,2,9,K

EP: Sheryl M Garcia  
 CL:  
 RE: TBD

<b>Permits</b>						
Permit	Agency	Date Submitted	Date Received	Expiration	Requirements Completed Date	Comments

2081 - Incidental Take Permit	California Department of Fish & Wildlife					
BO (FWS)	US Fish and Wildlife	10/2/13	8/8/14			

**Commitments**

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

**PS&E/Before RTL**

**Biology**

All slopes or unpaved areas that are temporarily affected by the proposed action will be revegetated with an assemblage of native grasses and shrubs characteristic of the floristic region and native local habitats to stabilize soils and prevent erosion. Where disturbance includes the removal of trees or plants, native species will be replanted and maintained until they become established. A revegetation plan with success criteria will be submitted to the Service for review and approval. Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent.

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	NES			Design			
--	-----	--	--	--------	--	--	--

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

EP: Sheryl M Garcia

ALA-580/205-0-8.0/0.0-1.0

CL:

Current Project Phase: 0,2,9,K

RE: TBD

Remarks/Due Date

Task Completed Date

Action to Comply

Responsible Staff

SSP/ N SSP

Source

Task and Brief Description

Conditions of the U.S. Fish and Wildlife Service (USFWS) Biological Opinion and the California Department of Fish and Wildlife (CDFW) Incidental Take Permit.

Caltrans will reintiate consultation if the project results in effects to listed species not considered in the USFWS Biological Opinion or CDFW Incidental Take Permit.

CTS and CRLF - Caltrans proposes that the project's net temporary impacts of 29.53 acres will be mitigated through on-site restoration at a ratio of 1:1 and 5.37 acres of permanent impacts will be mitigated at a ratio of 3:1 for 16.11 acres as off-site compensation.

Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because California tiger salamanders and California red-legged frogs, as well as San Joaquin whipsnakes, may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

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 and will be in compliance with the requirements of the Regional Water Quality Control Board. 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 nonstormwater 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 include 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

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

ALA-580/205-0-8.0/0-1-0

Current Project Phase: 0,2,9,K

EP: Sheryl M Garcia

CL:

RE: TBD

Remarks/Due Date

Task Completed Date

Action to Comply

Responsible Staff

SSP/ N SSP

Source

Task and Brief Description

discharges and can be found online at: <http://www.dot.ca.gov/hq/construct/stormwater/manuals.htm>. Protective measures will be included in the contract, including, at a minimum:

- a. No discharge of pollutants from vehicle and equipment cleaning are allowed into storm drains or watercourses.
- b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from watercourses, except as established commercial gas stations or established vehicle maintenance facility.
- c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of. Neither will be allowed into watercourses.
- d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
- e. Dust control measures including use of water trucks and dust palliatives to control dust in excavation and fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.
- f. Coir rolls or straw watties that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction to capture sediment.
- g. Protection of graded areas from erosion using a combination of silt fences, fiber rolls, etc. along toes of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which

**Visual Resources**

Concrete barriers should be treated with a medium to heavy sand blast finish to reduce glare and incidence of graffiti. Env Doc SSP Design

During construction, any grassland areas removed should be re-hydroseeded with an erosion control/natural grass seed mix to help stabilize the slope and/or return impacted areas to their current conditions. Env Doc SSP Design

Overhead signage, lighting, and flashing beacons should be Env Doc Design

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

ALA-580/205-0-8.0/0.0-1.0

Current Project Phase: 0,2,9,K

EP: Sheryl M Garcia

CL:

RE: TBD

Remarks/Due Date

Task Completed Name Date

Action to Comply

Responsible Staff

SSP/ NSSP

Source

Task and Brief Description

kept to a minimum so as not to create cumulative negative visual impacts throughout the corridor.

**Water Quality**

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:

- a. To prepare a Storm Water Pollution Prevention Plan (SWPPP) that has to be developed and certified by a Qualified SWPPP Developer (QSD);
- b. 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;
- c. 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
- d. 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.

Design

Env Doc

**Other**

A Traffic Management Plan (TMP) will be prepared during the design phase to ensure that public service vehicle access is not affected during construction.

Design

Env Doc

**Pre-Construction**

**Biology**

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.

Biologist

n/a

NES

Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the

Biologist

NES

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

**Rehabilitate roadway between San Joaquin county line**

EP: Sheryl M Garcia

ALA-580/205-0-8.0/0.0-1.0

CL:

Current Project Phase: 0,2,9,K

RE: TBD

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

start of construction for activities occurring during the breeding season (February 15 to August 31).

NES

Biologist

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 area. 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 area 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 must be consulted. If a natal/pupping den is discovered, the agencies will be notified immediately.

BO

Biologist

Prior to start of construction, ESAs – defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed – will be clearly delineated using high visibility orange fencing. Construction work areas include the active construction site and all areas providing support for the proposed action including areas used for vehicle parking, equipment and material storage and staging, access roads, etc. The ESA fencing will remain in place throughout the duration of the proposed action, while construction activities are ongoing, and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and will provide installation specifications. The Plans, Specifications, and Estimates package will clearly describe acceptable fencing

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

ALA-580/205-0-8.0/0.0-1.0

Current Project Phase: 0,2,9,K

EP: Sheryl M Garcia

CL:

RE: TBD

Remarks/Due Date

Task Completed Date

Action to Comply

Responsible Staff

SSP/ N SSP

Source

Task and Brief Description

material and prohibited construction-related activities including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs.

Biologist

BO

Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of the California red-legged frog and Central California tiger salamander, and their habitat within the action area; an explanation of the status of these species and protection under state and federal laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the ESAs and WEF and the importance of maintaining these structures. A fact sheet conveying this information will be prepared and distributed to all construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the Act.

BO

RE

Prior to the start of construction, WEF will be installed at the edge of the project footprint in all areas where California red-legged frogs or Central California tiger salamanders could enter the construction area. The location of the fencing shall be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service prior to the start of staging or surface disturbing activities. The location, fencing materials, installation specifications, and monitoring and repair criteria shall be approved by the Service prior to start of construction. Caltrans shall include the WEF specifications on the final project plans. Caltrans shall include the WEF specifications including installation and maintenance criteria in the bid solicitation package and special provisions. The WEF shall remain in place throughout the duration of the project and shall be regularly inspected and fully maintained. Repairs to the WEF shall be made within 24 hours of discovery. Upon project completion the WEF shall be completely removed, the area cleaned of debris and trash, and returned to natural conditions.

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

ALA-580/205-0-8.0/0.0-1.0

Current Project Phase: 0,2,9,K

EP: Sheryl M Garcia

CL:

RE: TBD

Task Completed Name Date

Action to Comply

Responsible Staff

SSP/ N SSP

Source

Task and Brief Description

Remarks/Due Date

**Construction**

**Biology**

All food-related trash items such as wrappers, cans, bottles, NES and food scraps will be disposed of in closed containers and removed at least once a day from the construction area.

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. NES

All work within suitable habitat for California tiger salamander BO will occur between April 15 and October 15, when the species is unlikely to be active and there is less potential for an individual to enter the work area. If practicable; otherwise, wildlife exclusion fencing (WEF) will be installed and the WEF will be monitored following rain events.

Any vegetation that is within the cut and fill line or growing in locations where permanent structures will be placed (e.g., road alignment, shoulder widening, soil nail walls, etc.) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or using light construction equipment such as backhoes. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 100 feet for passerines and 500 feet for raptors before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5 will be observed. All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. A Service-approved biologist will be present during all vegetation cleaning and grubbing activities. Prior to vegetation removal, the Service-approved

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

ALA-580/205-0-8.0/0.0-1.0

Current Project Phase: 0,2,9,K

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>biologist shall thoroughly survey the area for California red-legged frogs and Central California tiger salamanders. Once the Service-approved biologist has thoroughly surveyed the area, clearing and grubbing may continue without further restrictions on equipment; however, the Service-approved biologist shall remain onsite to monitor for California red-legged frogs and Central California tiger salamanders until all clearing and grubbing activities are complete. After project completion, all temporarily affected areas shall be returned to original grade and contours to the maximum extent practicable, protected with proper erosion control materials, and revegetated with native species appropriate for the region and habitat communities on site.</p>							

As stated in the Caltrans Bats and Bridges Technical Bulletin NES (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.

Biologist

BO	RE
<p>Biological Opinion 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 and outline required reporting/monitoring requirements. These Terms and Conditions are nondiscretionary. The following Terms and Conditions implement the Reasonable and Prudent Measure number 1:</p> <p>a. Compliance with Biological Opinion. Caltrans shall</p>	

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

ALA-580/205-0-8.0/0-1-1.0

Current Project Phase: 0,2,9,K

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>include Special Provisions that include the Conservation Measures and the Terms and Conditions of the biological opinion in the solicitation for bid information for all contracts for the project that are issued by them to all contractors. Caltrans shall require all contractors and subcontractors to comply with the Act in the performance of the proposed action and shall perform the action as outlined in the Project Description of the biological opinion as provided by Caltrans in the Biological Assessment dated September 2013, and all other supporting documentation submitted to the Service in support of the action. Changes to the Project Description or performance of work outside the scope of the biological opinion are subject to the requirements of reinstatement of formal consultation.</p> <p>b. Implementation of Biological Opinion. Caltrans shall ensure the Resident Engineer or their designee shall have full authority to implement and enforce all Conservation Measures and Terms and Conditions of the biological opinion. The Resident Engineer or their designee shall maintain a copy of the biological opinion onsite whenever construction is in progress. Their name(s) and telephone number(s) shall be provided to the Service at least 30 calendar days prior to groundbreaking at the project.</p> <p>c. Proposed Compensation. The compensation measures proposed by Caltrans and outlined in Table 1 of the Biological Opinion will minimize the effects of harm on the California red-legged frog and Central California tiger salamander. Habitat considered for compensation shall comprise high quality breeding, foraging, sheltering, migration, and/or dispersal habitat. Caltrans shall comply with all applicable CDFW regulations pertaining to mitigation for species designated as fully protected and/or listed by the State. Compensation shall be implemented in accordance with the Selected Review Criteria for section 7 Off-Site Compensation provided in Appendix A of the Biological Opinion. If conservation banking credits are to be purchased, Caltrans shall submit a conceptual compensation plan to the Service for review and approval prior to the purchase of credits. If the proposed compensation scheme is not fully implemented, Caltrans shall provide an alternative compensation scheme to be reviewed and approved by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio if it is restored</p>							

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

ALA-580/205-0-8.0/0.0-1.0

Current Project Phase: 0,2,9,K

EP: Sheryl M Garcia

CL:

RE: TBD

Remarks/Due Date

Task Completed Date

Action to Comply

Responsible Staff

SSP/ NSSP

Source

Task and Brief Description

within one calendar year following project completion and the conditions are verified by the Service. All compensation will

NES  
California tiger salamanders, California red-legged frogs, San Joaquin kit foxes, and other special-status species, including San Joaquin whipsnake, are attracted to cavity-like structures such as pipes and may seek refuge under construction equipment or debris. They may become trapped or injured if such materials are moved. All construction pipes, culverts, or similar structures, or construction equipment or construction debris left overnight within the construction area will be inspected by the agency-approved biological monitor prior to being moved.

NES  
Biologist  
Except when necessary for construction, driver, or pedestrian safety, lighting of the construction area by artificial lighting during night time hours will be minimized to the maximum extent practicable.

NES  
Biologist  
If work is to occur within 100 feet of active raptor nests or 50 feet of active passerine nests, a nondisturbance 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.

NES  
Biologist  
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.

NES  
Biologist  
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.

NES  
Biologist  
Project employees will be required to comply with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.

BO  
Biologist  
Reporting Requirements. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded,

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

**Rehabilitate roadway between San Joaquin county line**

ALA-580/205-0-8.0/0.0-1.0

Current Project Phase: 0,2,9,X

EP: Sheryl M Garcia

CL:

RE: TBD

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
<p>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.</p> <p>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 Disposition of Individuals Taken section below.</p> <p>b. Other pertinent reporting information such as monitoring reports (if not included as a term and condition), notification of project completion/implementation, etc. including when this information is due to the Service. Disposition of Individuals Taken</p> <p>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.</p>							

The following site restrictions will be implemented to avoid or BO minimize effects on listed species and their habitats:

a. A speed limit of 15 miles per hour (mph) in the

RE

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

EP: Sheryl M Garcia

ALA-580/205-0-8.0/0-0-1.0

CL:

Current Project Phase: 0,2,9,K

RE: TBD

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
<p>project footprint in unpaved areas will be enforced to reduce dust and excessive soil disturbance.</p> <p>b. Construction access, staging, storage, and parking areas, will be located within the project Caltrans ROW outside of any designated ESA or outside of the Caltrans right of way in areas environmentally cleared by the contractor. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the Prop'osed project. Routes and boundaries of roadway will be clearly marked prior to initiating construction or grading.</p> <p>c. To the maximum extent practicable, any borrow material will be certified to be nontoxic and weed free.</p> <p>d. All food and food-related trash items will be enclosed in sealed trash containers and properly disposed of off-site.</p> <p>e. No pets from project personnel will be allowed anywhere in the action area during construction.</p> <p>f. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.</p> <p>g. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from hydrologic features.</p> <p>h. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 50 feet from any hydrologic features unless it is an existing gas station.</p>							

Biologist

NES

The resident engineer will immediately contact the agency-approved project biologist(s) in the event that a California tiger salamander, California red-legged frog, 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.

Biologist

NES

To prevent harassment, injury, or mortality of sensitive species, no pets will be permitted in the construction area.

Last updated 8/26/2014

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Rehabilitate roadway between San Joaquin county line EP: Sheryl M Garcia

ALA-580/205-0-8,0/0-1.0 CL: RE: TBD

Current Project Phase: 0,2,9,K

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
<p>To prevent inadvertent entrapment of animals during construction, all excavated holes, steep-walled holes or trenches more than 1 foot deep will be covered by plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The Service-approved biologist shall inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a listed species is discovered, the Resident Engineer and Service-approved biologist will be notified immediately and the Service-approved biologist shall implement the species observation and handling protocol outlined in the biological opinion.</p>	BO		Biologist				
<p>To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.</p>	BO		RE				
<p>To the extent practicable, clearing and grubbing activities will be conducted during the non-nesting season between September 1 and February 15.</p>	NES		Biologist				
<p>To the extent practicable, nighttime construction will be</p>	BO		Biologist				

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

ALA-580/205-0-8.0/0.0-1.0

Current Project Phase: 0,2,9,K

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
minimized, to avoid effects to nocturnally active listed species. When utilized in areas adjacent to California red-legged frog and Central California tiger salamander habitat, work lights will be directed away from adjacent habitat areas.	NES		RE				
Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater best management practices (BMPs) are adequate.	Env Doc		RE				

**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.

**Pre-Construction / Construction**

**Biology**

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 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.

**Environmental Commitments Record for EA 04-3G590\_ / ID 0412000115**

Last updated 8/26/2014

Rehabilitate roadway between San Joaquin county line

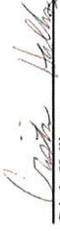
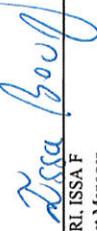
ALA-580/205-0-8.0/0-1.0

Current Project Phase: 0,2,9,K

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
 Cristin Hallissy Environmental Branch Chief		8/26/14 Date					
 Danny Kao Project Engineer		8/26/14 Date		 BOURI, ISSA F Project Manager		8/26/14 Date	
Resident Engineer							

**Appendix E**

***USFWS Biological Opinion***



## United States Department of the Interior



In Reply Refer to:  
08ESMF00-  
2014-F-0311-1

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

Ms. Melanie Brent, Office Chief  
Caltrans District 4 Environmental Analysis  
California Department of Transportation  
P.O. Box 23660  
Oakland, California 94623-0660

AUG 07 2014

Subject: Biological Opinion on the Effects of the Proposed Interstate 580 and Interstate 205  
Pavement Rehabilitation Project, Alameda County, California (Caltrans EA 3G590)

Dear Ms. Brent:

This letter responds to a letter from the California Department of Transportation (Caltrans), dated October 2, 2013, which requested formal consultation for the proposed Interstate 580 (I-580) and Interstate 205 (I-205) Pavement Rehabilitation Project in Alameda County, California. Your letter was received by the U.S. Fish and Wildlife Service (Service) on October 18, 2013 (Caltrans EA 3G590). This document represents the Service's response to your request for consultation on the effects of the project on the threatened California red-legged frog (*Rana draytonii*), threatened California tiger salamander (Central Valley Distinct Population Segment) (*Ambystoma californiense*), endangered San Joaquin kit fox (*Vulpes macrotis mutica*), endangered longhorn fairy shrimp (*Branchinecta longiantenna*), threatened vernal pool fairy shrimp (*Branchinecta lynchi*), endangered vernal pool tadpole shrimp (*Lepidurus packardii*), and designated critical habitat for the California red-legged frog. This letter issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act (NEPA) for environmental review, agency consultation and other action pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding (MOU) within the State of California ([http://www.dot.ca.gov/ser/downloads/MOUs/nepa\\_delegation/sec6005mou.pdf](http://www.dot.ca.gov/ser/downloads/MOUs/nepa_delegation/sec6005mou.pdf)).

The Service has reviewed the submitted project as described in the September 2013 biological assessment, the April 24, 2014 site visit, correspondence from Caltrans on October 2, 2013, supporting documentation, and evaluation of project effects, and concurs with the determination that the project as described is not likely to adversely affect the San Joaquin kit fox, longhorn fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp as the effects will be discountable. The Service concurs that the proposed action is not likely to adversely affect these species based on the following: (1) construction activities, including staging, laydown and vehicle parking, will predominately occur within paved areas and disturbed or ruderal areas immediately adjacent to I-580; (2) construction access, staging, storage and parking areas will be located within the right-of-

Ms. Melanie Brent

2

way and outside any designated environmentally sensitive areas; (3) Caltrans will implement construction and erosion control Best Management Practices (BMPs); (4) areas adjacent to sensitive habitat will be clearly demarked with temporary high-visibility fencing; (5) all on-site personnel will attend environmental awareness training prior to beginning project activities; and (6) Service-approved biological monitors will conduct preconstruction surveys prior to ground disturbing activities and remain on-site to monitor construction activities adjacent to San Joaquin kit fox, longhorn fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp habitat.

The remainder of this biological opinion is on the effects of the project on California red-legged frog, California tiger salamander, and designated critical habitat for the California red-legged frog. This biological opinion is based on: (1) the Interstate 580 Roadway Rehabilitation Project, Biological Assessment dated September 2013; (2) letter from Caltrans to the Service dated October 2, 2013; (3) email correspondence from Caltrans on October 2, 2013, and accompanying exhibits; (4) miscellaneous correspondence and electronic mail concerning the proposed action between Caltrans and the Service; and (5) other information available to the Service.

**Consultation History**

- October 2, 2013      The Service received a letter requesting the initiation of formal consultation dated October 2, 2013, and a Biological Assessment for the I-580 and I-205 Pavement Rehabilitation Project.
- April 24, 2014      The Service conducted a site visit to evaluate on-site habitat suitability for listed species and California red-legged frog critical habitat.
- June 26, 2014      The Service issued a draft biological opinion to Caltrans for their review.
- July 9, 2014        The Service received comments from Caltrans regarding the draft biological opinion.
- April 26, 2013 -      Electronic and phone correspondence between Caltrans and the Service.  
July 17, 2014

**BIOLOGICAL OPINION**

**Description of the Proposed Action**

The following project description, inclusive of the proposed compensation and proposed conservation measures, was provided by Caltrans and is an excerpt from the September 2013 Biological Assessment with minor modifications for reasons of clarity and accuracy provided by the Service.

Project History

The purpose of the proposed project is to rehabilitate and reconstruct the existing pavement on the mainline and ramps and to improve traffic safety by upgrading and/or replacing the metal beam guardrails (MBGR) with concrete barriers. The I-580 corridor between the San Joaquin County line and the Greenville Road overhead was originally built in 1966 and has had several improvements over the years, including the 2005 widening project to add another lane to the westbound direction between the Midway Road undercrossing (Post Mile [PM] 1.04) and West Grant Line Road (PM 2.5). According to the 2008 Pavement Condition Survey Inventory, there are numerous incidents of cracking and faulting in this stretch of the I-580 corridor. Some of the on-ramps, off-ramps, and asphalt concrete (AC) shoulder widths (both inside and outside) do not meet the current design

Ms. Melanie Brent

3

standards in both directions. Some of the existing MBGR in both directions are in poor condition where they were damaged by traffic accidents. There is a critical need to improve the existing condition of I-580 and to enhance traffic safety.

#### Project Description

This project proposes to remove surface AC, where present, and to replace underlying slabs along westbound and eastbound portions of I-580 and I-205. A new surface layer of up to 9 inches will be installed through crack, seat, and overlay (CSOL) using a layer of hot mix asphalt-type A (HMA-A), geosynthetic pavement interlayer (GPI), and an open-graded friction course (OGFC). Existing AC shoulders in the action area will be replaced with shoulder backing, which involves the laying of a thin course of granular material to protect the outside edge of the pavement. This action prevents edge cracking and pavement edge loss. Shoulder backing requires an additional footprint of 4 to 8 feet from the edge of pavement.

##### *Eastbound I-580 (PM 0.0 to PM 4.7)*

Proposed Slab Replacement: Proposed CSOL (up to 9 inches) of 0.1-foot HMA-A, GPI, 0.3-foot HMA-A, 0.25-foot HMA-A, and 0.1-foot OGFC. Existing AC shoulders will be replaced with HMA-A plus shoulder backing.

##### *Westbound I-580 (PM 0.0 to PM 6.9) and I-205 (PM 0.0 to PM 1.0)*

Proposed Removal of Existing AC and Slab Replacement: Proposed CSOL (up to 9 inches) of 0.1-foot HMA-A, GPI, 0.3-foot HMA-A, 0.25-foot HMA-A, and 0.1-foot OGFC. Existing AC shoulders will be replaced with HMA-A plus shoulder backing.

##### *Westbound I-580 (PM 6.9 to PM 7.8)*

Proposed Slab Replacement: Proposed CSOL (up to 9 inches) of 0.1-foot HMA-A, GPI, 0.3-foot HMA-A, 0.25-foot HMA-A, and 0.1-foot OGFC. Existing AC shoulders will be replaced with HMA-A plus shoulder backing.

#### *On- and Off-Ramp Rehabilitation*

This project proposes to remove and replace surface layers from seven ramps within the action area and to replace them with either, or a combination of, HMA-A or rubberized hot mix asphalt (gap graded) (RHMA-G). The proposed design features and specific locations for all of the activities are listed below:

##### *Eastbound Grant Line Road On- and Off-Ramps*

Remove current surface layer and replacement with 0.2-foot HMA-A and 0.2-foot RHMA-G.

##### *Westbound Grant Line Road On- and Off-Ramps*

Removal of current surface layer and replacement with 0.2-foot RHMA-G.

##### *Eastbound North Flynn Road Off-Ramp*

Removal of current surface layer and replacement with 0.2-foot RHMA-G.

##### *Westbound North Flynn Road On- and Off-Ramps*

Remove current surface layer and replacement with 0.2-foot HMA-A and 0.2-foot RHMA-G.

Ms. Melanie Brent

4

*Other Rehabilitation Activities*

The installation of additional highway safety features are proposed for this project. These activities include the installation of rumble strips, installation of MBGRs and concrete barriers (Type 60/60C), and replacement of hot mix asphalt (HMA) dikes and concrete curbs. Installation of overhead signage, lighting, flashing beacons, barrier markers, roadside delineators, and guardrail delineators also will occur.

Proposed Conservation Measures

*Proposed Compensation*

To offset permanent effects to California red-legged frog and Central California tiger salamander, suitable habitat for each species, or suitable multi-species habitat in coordination with the Service, will be created, restored, or set aside in perpetuity at a ratio of 3:1 for permanent effects and 1.1:1 for temporary effects (Table 1). Alternatively, credits will be purchased at a Service-approved conservation bank. Compensation plans will be subject to review and approval by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio once conditions are verified by the Service.

**Table 1: Proposed Compensation for Temporary and Permanent Effects**

Species	Effects						Total Compensation
	Temporary (acres)			Permanent (acres)			
	Impact	Compensation		Impact	Compensation		
	Ratio	Need		Ratio	Need		
California red-legged frog	29.53	1.1:1	32.48	5.37	3:1	16.11	48.59
California tiger salamander	29.53	1.1:1	32.48	5.37	3:1	16.11	48.59

*General Conservation Measures*

To reduce potential effects to sensitive biological resources, Caltrans proposes to incorporate construction Best Management Practices (BMPs) and avoidance and minimization measures into the proposed roadway construction project. These measures will be communicated to the contractor through the use of special provisions included in the contract bid solicitation package. These measures include the following:

1. **Seasonal Avoidance.** Construction actions will be scheduled to minimize effects on listed species and habitats. Except for limited vegetation clearing necessary to minimize effects to nesting birds, work will be conducted between April 15 and October 15.
2. **Minimize Nighttime Work.** To the extent practicable, nighttime construction will be minimized to avoid effects to nocturnally active listed species. When utilized in areas adjacent to California red-legged frog and Central California tiger salamander habitat, work lights will be directed away from adjacent habitat areas.
3. **Environmentally Sensitive Areas (ESA).** Prior to the start of construction, ESAs – defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed – will be clearly delineated using high visibility orange fencing. Construction work areas include the active construction site and all areas providing support for the proposed action including areas used for vehicle parking,

Ms. Melanie Brent

5

equipment and material storage and staging, access roads, etc. The ESA fencing will remain in place throughout the duration of the proposed action, while construction activities are ongoing, and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and will provide installation specifications. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs.

4. **Wildlife Exclusion Fencing (WEF).** Prior to the start of construction, WEF will be installed at the edge of the project footprint in all areas where California red-legged frogs or Central California tiger salamanders could enter the construction area. The location of the fencing shall be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service prior to the start of staging or surface disturbing activities. The location, fencing materials, installation specifications, and monitoring and repair criteria shall be approved by the Service prior to start of construction. Caltrans shall include the WEF specifications on the final project plans. Caltrans shall include the WEF specifications including installation and maintenance criteria in the bid solicitation package special provisions. The WEF shall remain in place throughout the duration of the project and shall be regularly inspected and fully maintained. Repairs to the WEF shall be made within 24 hours of discovery. Upon project completion the WEF shall be completely removed, the area cleaned of debris and trash, and returned to natural conditions.
5. **Environmental Awareness Training.** Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of the California red-legged frog and Central California tiger salamander, and their habitat within the action area; an explanation of the status of these species and protection under state and federal laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the ESAs and WEF and the importance of maintaining these structures. A fact sheet conveying this information will be prepared and distributed to all construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the Act.
6. **Avoidance of Entrapment.** To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1-foot deep will be covered with plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The Service-approved biologist shall inspect all holes and trenches at the beginning of each workday and before such holes or trenches are filled. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a listed species is discovered, the Resident Engineer and Service-approved biologist will be notified immediately and the Service-approved biologist shall implement the species observation and handling protocol outlined below.
7. **Best Management Practices.** Storm Water Pollution Prevention Plans (SWPPP) and erosion control BMPs will be developed and implemented to minimize any wind or water-

Ms. Melanie Brent

6

related erosion and will be in compliance with the requirements of the Regional Water Quality Control Board. 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>. Protective measures will include, at a minimum:

- a. No discharge of pollutants from vehicle and equipment cleaning is allowed into any storm drains or watercourses.
  - b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facility.
  - c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed. Neither will be allowed into watercourses.
  - d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
  - e. Dust control measures will include use of water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.
  - f. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction to capture sediment.
  - g. Protection of graded areas from erosion using a combination of silt fences, fiber rolls, etc. along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.
  - h. Permanent erosion control measures such as bio-filtration strips and swales to receive storm water discharges from the highway, or other impervious surfaces will be incorporated to the maximum extent practicable.
  - i. 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.
8. **Construction Site Management Practices.** The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:
- a. A speed limit of 15 miles per hour (mph) in the project footprint in unpaved areas will be enforced to reduce dust and excessive soil disturbance.
  - b. Construction access, staging, storage, and parking areas, will be located within the project Caltrans ROW outside of any designated ESA or outside of the Caltrans

Ms. Melanie Brent

7

- ROW in areas environmentally cleared by the contractor. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
- c. To the maximum extent practicable, any borrow material will be certified to be non-toxic and weed free.
  - d. All food and food-related trash items will be enclosed in sealed trash containers and properly disposed of off-site.
  - e. No pets from project personnel will be allowed anywhere in the action area during construction.
  - f. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
  - g. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from hydrologic features.
  - h. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 50 feet from any hydrologic features unless it is an existing gas station.
9. **Vegetation Removal.** Any vegetation that is within the cut and fill line or growing in locations where permanent structures will be placed (e.g., road alignment, shoulder widening, soil nail walls, etc.) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or using light construction equipment such as backhoes. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 100 feet for passerines and 500 feet for raptors before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5 will be observed. All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. A Service-approved biologist will be present during all vegetation clearing and grubbing activities. Prior to vegetation removal, the Service-approved biologist shall thoroughly survey the area for California red-legged frogs and Central California tiger salamanders. Once the Service-approved biologist has thoroughly surveyed the area, clearing and grubbing may continue without further restrictions on equipment; however, the Service-approved biologist shall remain onsite to monitor for California red-legged frogs and Central California tiger salamanders until all clearing and grubbing activities are complete. After project completion, all temporarily affected areas shall be returned to original grade and contours to the maximum extent practicable, protected with proper erosion control materials, and revegetated with native species appropriate for the region and habitat communities on site.
10. **Reduce Spread of Invasive Species.** To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species,

Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.

11. **Replant, Reseed, and Restore Disturbed Areas.** All slopes or unpaved areas that are temporarily affected by the proposed action will be revegetated with an assemblage of native grasses and shrubs characteristic of the floristic region and native local habitats to stabilize soils and prevent erosion. Where disturbance includes the removal of trees or plants, native species will be replanted and maintained until they become established. A revegetation plan with success criteria will be submitted to the Service for review and approval. Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent.

#### 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 269.20 acres extending 8.9 miles along the eastbound side of I-580 from the San Joaquin County line (PM 0.0) to PM 4.9, the westbound side of I-580 from the San Joaquin County Line to 0.1-mile east of Greenville Road (PM 7.9) in Livermore, including the eastbound and westbound on- and off-ramps at Grant Line Road, the eastbound off-ramp at North Flynn Road, and the westbound on- and off-ramps at North Flynn Road. The action area also includes I-205 from the San Joaquin County line to the intersection with I-580 (PM 1.0). Habitat within the action area comprises 133.37 acres of paved roadways, 94.8 acres of grassland, 1.4 acres of shrubland, 0.1-acre of freshwater marsh, 0.3-acre of creek channel, 0.5-acre of aqueduct, 11.4 acres of urbanized landscaped area, and 27.3 acres of bare ground.

#### Analytical Framework for the Jeopardy Determinations

##### *Jeopardy Determination*

In accordance with policy and regulation, the jeopardy analyses in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the California red-legged frog and Central California tiger salamander range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of

Ms. Melanic Brent

9

the California red-legged frog and Central California tiger salamander in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the California red-legged frog and Central California tiger salamander; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the California red-legged frog and Central California tiger salamander; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the California red-legged frog and Central California tiger salamander.

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

The jeopardy analyses in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and Central California tiger salamander and the role of the action area in the survival and recovery of the California red-legged frog and Central California tiger salamander 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.

#### *Adverse Modification Determination*

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this biological opinion relies on four components: (1) the *Status of Critical Habitat*, which evaluates the range-wide condition of critical habitat for the SPECIES in terms of primary constituent elements (PCE)s, the factors responsible for that condition, and the intended recovery function of the critical habitat at the provincial and range-wide scale; (2) the *Environmental Baseline*, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (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 PCEs and how that will influence the recovery role of affected critical habitat units and; (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the California red-legged frog critical habitat are evaluated in the context of the range-wide condition of the critical habitat at the provincial and range-wide scales, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the California red-legged frog.

The analysis in this biological opinion places an emphasis on using the intended range-wide recovery function of California red-legged frog critical habitat and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed

Ms. Melanic Brent

10

Federal action, taken together with cumulative effects, for purposes of making the adverse modification determination.

#### Status of the Species and Environmental Baseline

##### California Red-legged Frog

**Listing Status:** The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813) (Service 1996). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) (Service 2006) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

**Description:** The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. 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 California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). The species was historically documented in 46 counties but the taxa 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 California coast. Isolated populations have been documented in the Sierra Nevada, northern coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular Ranges, but is still present in Baja California, Mexico (CDFW 2014).

**Status and Natural History:** California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and manmade 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, they also inhabit ephemeral creeks, drainages, and ponds with minimal riparian and emergent vegetation. California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, tules, or overhanging willows (Storer 1925, Hayes and Jennings 1988). 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).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and includes any landscape feature that provides cover, such as 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 sheds, or haystacks may also be

Ms. Melanie Brent

11

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). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5 mile, with a few 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 from 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 in eastern Contra Costa County, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. Her study reported a peak seasonal terrestrial movement occurring in the fall months associated with the first 0.2 inch of precipitation and tapering 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 base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Upland refugia closer to aquatic sites were used more often and 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 resulted 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). California red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations can fluctuate from year to year; favorable conditions allow the

species to have 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, the animal may temporarily disappear from an area when conditions are stressful (e.g., during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable and changes with the life history stage. The diet of the larvae is not well studied, but is likely similar to that of other ranid frogs, feeding on algae, diatoms, and detritus by grazing on the surface 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 chorus frogs, threespine 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 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).

**Threats:** Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs 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 red-legged frogs, and suggested that bullfrogs could prey on subadult 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 California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990, Jennings 1993, Twedt 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease 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 because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2006). Mao *et al.* (1999 cited in Fellers

2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. 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.* 2006). 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, waders, 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.

**Recovery Plan:** The recovery plan for the California red-legged frog identifies eight recovery units (Service 2002). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog was considered within the small-scale recovery units as opposed to their overall range. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of its range. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long-term viability within existing populations. The management strategy identified within the Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

#### California Red-legged Frog Critical Habitat

The Service designated critical habitat for the California red-legged frog on April 13, 2006 (71 FR 19244) (Service 2006) and a revised designation to the critical habitat was published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). Critical habitat is defined in Section 3 of the Act as: (1) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. In determining which areas to designate as critical habitat, the Service considers those physical and biological features that are essential to a species' conservation and that may require special management considerations or protection (50 CFR 424.12(b)). The Service is required to list the known PCEs together with the critical habitat description. Such physical and biological features include, but are not limited to, the following:

1. Space for individual and population growth, and for normal behavior;
2. Food, water, air, light, minerals, or other nutritional or physiological requirements;
3. Cover or shelter;
4. Sites for breeding, reproduction, rearing of offspring, or dispersal; and
5. Generally, habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The PCEs defined for the California red-legged frog were derived from its biological needs. The area designated as revised critical habitat provides aquatic habitat for breeding and non-breeding

Ms. Melanic Brent

14

activities and upland habitat for shelter, foraging, predator avoidance, and dispersal across its range. The PCEs and, therefore, the resulting physical and biological features essential for the conservation of the species were determined from studies of California red-legged frog ecology. Based on the above needs and our current knowledge of the life history, biology, and ecology of the species, and the habitat requirements for sustaining the essential life-history functions of the species, the Service determined that the PCEs essential to the conservation of the California red-legged frog are:

1. *Aquatic Breeding Habitat.* Standing bodies of fresh water (with salinities less than 7.0 parts per thousand), including: natural and manmade (e.g., stock) 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.
2. *Non-Breeding Aquatic Habitat.* Freshwater and wetted riparian habitats, as described above, that may not hold water long enough for the species to hatch and complete its aquatic life cycle but that do provide for shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult California red-legged frogs. Other wetland habitats that would be considered to meet these elements include, but are not limited to: plunge pools within intermittent creeks; seeps; quiet water refugia during high water flows; and springs of sufficient flow to withstand the summer dry period.
3. *Upland Habitat.* Upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of 1 mile in most cases and comprised of various vegetational series such as grasslands, woodlands, wetland, or riparian plant species that provide the frog shelter, forage, and predator avoidance. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the wetland or riparian habitat. These upland features contribute to the filling and drying of the wetland or riparian habitat and are responsible for maintaining suitable periods of pool inundation for larval frogs and their food sources, and provide breeding, non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat should include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), as well as small mammal burrows and moist leaf litter.
4. *Dispersal Habitat.* Accessible upland or riparian dispersal habitat within designated units and between occupied locations within a minimum of 1 mile of each other that allow for movement between such sites. Dispersal habitat includes various natural habitats and altered habitats such as agricultural fields, which do not contain barriers (e.g., heavily traveled road without bridges or culverts) to dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large reservoirs over 50 acres in size, or other areas that do not contain those features identified in PCEs 1, 2, or 3 as essential to the conservation of the species.

With the revised designation of critical habitat, the Service intends to conserve the geographic areas containing the physical and biological features that are essential to the conservation of the species, through the identification of the appropriate quantity and spatial arrangement of the PCEs sufficient to support the life-history functions of the species. Because not all life-history functions require all the PCEs, not all areas designated as critical habitat will contain all the PCEs. Please refer to the

Ms. Melanic Brent

15

final designation of critical habitat for California red-legged frog for additional information (75 FR 12816).

#### Central California Tiger Salamander

**Listing Status:** On May 23, 2003, we proposed to list the Central California DPS of the tiger salamander as threatened. At that time, we also proposed reclassification of the Santa Barbara County DPS and Sonoma County DPS from endangered to threatened (Service 2003). In the same notice, we also proposed a special rule under section 4(d) of the Act to exempt take for routine ranching operations for the Central California DPS and, if reclassified to threatened, for the Santa Barbara and Sonoma County DPSs (Service 2003). On August 4, 2004, after determining that the listed Central California population of the California DPS of the Central California tiger salamander was threatened (Service 2004), we determined that the Santa Barbara and Sonoma County populations were threatened as well, and reclassified the Central California tiger salamander as threatened throughout its range (Service 2004), removing the Santa Barbara and Sonoma County populations as separately listed DPSs (Service 2004). In this notice, we also finalized the special rule to exempt take for routine ranching operations for the Central California tiger salamander throughout its range (Service 2004).

On August 18, 2005, as a result of litigation of the August 4, 2004, final rule on the reclassification of the California tiger salamander DPSs (*Center for Biological Diversity et al. v. United States Fish and Wildlife Service et al.*, C 04-04324 WHA (N.D. Cal. 2005), the District Court of Northern California sustained the portion of the 2004 rule pertaining to listing the Central California tiger salamander as threatened with a special rule, but vacated the portion of the 2004 rule that re-classified the Santa Barbara and Sonoma DPSs to threatened status thereby reinstating their status as endangered. On August 31, 2011, the List of Endangered and Threatened Wildlife in part 17, subchapter B of Chapter I, title 50 of the Code of Federal Regulations (CFR) was amended to reflect the vacatures contained in the 2005 court order, classifying the Santa Barbara DPS and the Sonoma DPS of the California tiger salamander as endangered, and the Central DPS of the California tiger salamander as threatened with a special rule to exempt routine ranching operations from take (Service 2011).

**Species Description:** The California tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Recorded adult measurements have been as much as 8.2 inches long (Petranka 1998; Stebbins 2003). California tiger salamanders exhibit sexual dimorphism (differences in body appearance based on gender) with males tending to be larger than females. The coloration of the adults generally consists of random white or yellowish markings against a black body. The markings tend to be more concentrated on the lateral sides of the body; whereas other salamander species tend to have brighter yellow spotting that is heaviest on the dorsal surface.

**Distribution:** The California tiger salamander is endemic to California and historically inhabited the low-elevation grassland and oak savanna plant communities of the Central Valley, adjacent foothills, and Inner Coast Ranges (Jennings and Hayes 1994; Storer 1925; Shaffer *et al.* 1993). The species has been recorded from near sea level to approximately 3,900 feet in the Coast Ranges and to approximately 1,600 feet in the Sierra Nevada foothills (Shaffer and Trenham 2004). Along the Coast Ranges, the species occurred from the Santa Rosa area of Sonoma County, south to the vicinity of Buellton in Santa Barbara County. The historic distribution in the Central Valley and surrounding foothills included northern Yolo County southward to northwestern Kern County and northern Tulare County.

The Central California tiger salamander occupies the Bay Area (central and southern Alameda, Santa Clara, western Stanislaus, western Merced, and the majority of San Benito counties), Central Valley (Yolo, Sacramento, Solano, eastern Contra Costa, northeastern Alameda, Calaveras, San Joaquin, Stanislaus, Merced, and northwestern Madera counties), southern San Joaquin Valley (portions of Madera, central Fresno, and northern Tulare and Kings Counties), and the Central Coast Range (southern Santa Cruz, Monterey, northern San Luis Obispo, and portions of western San Benito, Fresno, and Kern counties).

**Life History:** The California tiger salamander has an obligate biphasic life cycle (Shaffer *et al.* 2004). Although the larvae develop in the vernal pools and ponds in which they were born, the species is otherwise terrestrial and spend most of their post-metamorphic lives in widely dispersed underground retreats (Shaffer *et al.* 2004; Trenham *et al.* 2001). Because they spend most of their lives underground, the animals rarely are encountered even in areas where California tiger salamanders are abundant. Subadult and adult California tiger salamanders typically spend the dry summer and fall months in the burrows of small mammals, such as California ground squirrels and Botta's pocket gopher (Storer 1925; Loredo and Van Vuren 1996; Petraska 1998; Trenham 1998a). Although ground squirrels have been known to eat these amphibians, the relationship with their burrowing hosts is primarily commensal (an association that benefits one member while the other is not affected) (Loredo *et al.* 1996; Semonsen 1998).

California tiger salamanders may also use landscape features such as leaf litter or desiccation cracks in the soil for upland refugia. Burrows often harbor camel crickets and other invertebrates that provide likely prey for the amphibians. Underground refugia also provide protection from the sun and wind associated with the dry California climate that can cause excessive drying of amphibian skin. Although California tiger salamanders are members of a family of "burrowing" salamanders, they are not known to create their own burrows. This may be due to the hardness of soils in the California ecosystems in which they are found. California tiger salamanders depend on persistent small mammal activity to create, maintain, and sustain sufficient underground refugia for the species. Burrows are short lived without continued small mammal activity and typically collapse within approximately 18 months (Loredo *et al.* 1996).

Upland burrows inhabited by California tiger salamanders have often been referred to as aestivation-sites. However, "aestivation" implies a state of inactivity, while most evidence suggests that the animals remain active in their underground dwellings. One study has found that salamanders move, feed, and remain active in their burrows (Van Hattem 2004). Because the adults arrive at breeding ponds in good condition and are heavier when entering the pond than when leaving, researchers have long inferred that they are feeding while underground. A number of direct observations have confirmed this (Trenham 2001; Van Hattem 2004). Thus, "upland habitat" is a more accurate description of the terrestrial areas used by California tiger salamanders.

California tiger salamanders typically emerge from their underground refugia at night during the fall or winter rainy season (November-May) to migrate to their breeding ponds (Stebbins 2003; Shaffer *et al.* 1993; Trenham *et al.* 2000). The breeding period is closely associated with the rainfall patterns in any given year with less adults migrating and breeding in drought years (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Male California tiger salamander are typically first to arrive and generally remain in the ponds longer than females. Results from a 7-year study in Monterey County suggested that males remained in the breeding ponds for an average of 44.7 days while females remained for an average of only 11.8 days (Trenham *et al.* 2000). Historically, breeding ponds were likely limited to vernal pools, but now include livestock stock ponds. Ideal breeding ponds are typically fishless,

free of non-native predators, and seasonal or semi-permanent (Barry and Shaffer 1994; Petranka 1998).

While in the ponds, adult California tiger salamanders mate and then the females lay their eggs in the water (Twitty 1941; Shaffer *et al.* 1993; Petranka 1998). Egg laying typically reaches a peak in January (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Females attach their eggs singly, or in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris (Storer 1925; Twitty 1941). Eggs are often attached to objects, such as rocks and boards in ponds with no or limited vegetation (Jennings and Hayes 1994). Clutch sizes from a Monterey County study had an average of 814 eggs (Trenham *et al.* 2000). Seasonal pools may not exhibit sufficient depth, persistence, or other necessary parameters for adult breeding during times of drought (Barry and Shaffer 1994). After breeding and egg laying is complete, adults leave the pool and return to their upland refugia (Loredo *et al.* 1996; Trenham 1998a). Adult California tiger salamanders often continue to emerge nightly for approximately the next two weeks to feed amongst their upland habitat (Shaffer *et al.* 1993).

California tiger salamander larvae typically hatch within 10 to 24 days after eggs are laid (Storer 1925). The larvae are totally aquatic and range in length from approximately 0.45 to 0.56 inches (Petranka 1998). They have yellowish gray bodies, broad fat heads, large, feathery external gills, and broad dorsal fins that extend well up their back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about six weeks after hatching, after which they switch to larger prey (J. Anderson 1968). Larger larvae have been known to consume the tadpoles of Pacific tree frogs, western spadefoot toads, and California red-legged frogs (J. Anderson 1968; P. Anderson 1968). California tiger salamander larvae are among the top aquatic predators in seasonal pool ecosystems. When not feeding, they often rest on the bottom in shallow water but are also found throughout the water column in deeper water. Young California tiger salamanders are wary and typically escape into vegetation at the bottom of the pool when approached by potential predators (Storer 1925).

The California tiger salamander larval stage is typically completed in 3 to 6 months with most metamorphs entering upland habitat during the summer (Petranka 1998). In order to be successful, the aquatic phase of this species' life history must correspond with the persistence of its seasonal aquatic habitat. Most seasonal ponds and pools dry up completely during the summer. Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Larval development and metamorphosis can vary and is often site-dependent. Larvae collected near Stockton in the Central Valley during April varied between 1.88 to 2.32 inches in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left breeding pools 60 to 94 days after eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. Longer ponding duration typically results in larger larvae and metamorphosed juveniles that are more likely to survive and reproduce (Pechmann *et al.* 1989; Semlitsch *et al.* 1988; Morey 1998; Trenham 1998b). Larvae will perish if a breeding pond dries before metamorphosis is complete (P. Anderson 1968; Feaver 1971). Pechmann *et al.* (1989) found a strong positive correlation between ponding duration and total number of metamorphosing juveniles in five salamander species. In Madera County, Feaver (1971) found that only 11 of 30 sampled pools supported larval salamanders, and five of these dried before metamorphosis could occur. Therefore, out of the original 30 pools, only 6 (20 percent) provided suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch *et al.* 1988; Scott 1994; Morey 1998).

Following metamorphosis, juvenile California tiger salamanders leave their pools and move to upland habitat. This emigration can occur in both wet and dry conditions (Loredo and Van Vuren 1996; Loredo *et al.* 1996). Wet conditions are more favorable for upland travel but summer rain events seldom occur as metamorphosis is completed and ponds begin to dry. As a result, juveniles may be forced to leave their ponds on rainless nights. Under dry conditions, juveniles may be limited to seeking upland refugia in close proximity to their aquatic larval pool. These individuals often wait until the next winter's rains to move further into more suitable upland refugia. The peak emergence of these metamorphs in ponds is typically between mid-June and mid-July (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Juveniles remain active in their upland habitat, emerging from underground refugia during rainfall events to disperse or forage (Trenham and Shaffer 2005). Depending on location and other development factors, metamorphs will not return as adults to aquatic breeding habitat for 2 to 5 years (Loredo and Van Vuren 1996; Trenham *et al.* 2000).

Reproductive success for the California tiger salamander is low. Results from one study suggest that the average female bred 1.4 times over their lifespan and produced 8.5 young per reproductive effort that survived to metamorphosis (Trenham *et al.* 2000). This resulted in the output of roughly 11 metamorphic offspring over a breeding female's lifetime. The primary reason for low reproductive success may be that this relatively short-lived species requires two or more years to become sexually mature (Shaffer *et al.* 1993). Some individuals may not breed until they are 4 to 6 years old. While California tiger salamanders may survive for more than 10 years, many breed only once, and in one study, less than 5 percent of marked juveniles survived to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations are susceptible to unusual, randomly occurring natural events as well as human-caused factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools can quickly extirpate a population.

Dispersal and migration movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) interpond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. At a study in Monterey County, it was found that upon reaching sexual maturity, most individuals returned to their natal/birth pond to breed, while 20 percent dispersed to other ponds (Trenham *et al.* 2001). After breeding, adult California tiger salamanders return to upland habitats, where they may live for one or more years before attempting to breed again (Trenham *et al.* 2000).

California tiger salamanders are known to travel long distances between breeding ponds and their upland refugia. Generally it is difficult to establish the maximum distances traveled by any species, but salamanders in Santa Barbara County have been recorded dispersing up to 1.3 miles from their breeding ponds (Sweet 1998). As a result of a 5-year capture and relocation study in Contra Costa County, Orloff (2007) estimated that captured California tiger salamanders were traveling a minimum of 0.5 miles to the nearest breeding pond and that some individuals were likely traveling more than 1.3 miles to and from breeding ponds. California tiger salamanders are also known to travel between breeding ponds. One study found that 20 to 25 percent of the individuals captured at one pond were recaptured later at other ponds approximately 1,900 and 2,200 feet away (Trenham *et al.* 2001). In addition to traveling long distances during juvenile dispersal and adult migration, salamanders may reside in burrows far from their associated breeding ponds.

Although previously cited information indicates that California tiger salamanders can travel long distances, they typically remain close to their associated breeding ponds. A trapping study conducted in Solano County during the winter of 2002/2003 suggested that juveniles dispersed and

Ms. Melanie Brent

19

used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). More juvenile California tiger salamanders were captured at traps placed at 328, 656, and 1,312 feet from a breeding pond than at 164 feet. Approximately 20 percent of the captured juveniles were found at least 1,312 feet from the nearest breeding pond. The associated distribution curve suggested that 95 percent of juvenile California tiger salamanders were within 2,099 feet of the pond, with the remaining 5 percent being found at even greater distances. Preliminary results from the 2003-04 trapping efforts at the same study site detected juvenile California tiger salamanders at even further distances, with a large proportion of the captures at 2,297 feet from the breeding pond (Trenham 1998a). Surprisingly, most juveniles captured, even those at 2,100 feet, were still moving away from ponds. In Santa Barbara County, juvenile Santa Barbara County DPS California tiger salamanders have been trapped approximately 1,200 feet away while dispersing from their natal pond (Science Applications International Corporation, unpublished data). These data show that many California tiger salamanders travel far while still in the juvenile stage. Post-breeding movements away from breeding ponds by adults appear to be much smaller. During post-breeding emigration from aquatic habitat, radio-equipped adult California tiger salamanders were tracked to burrows between 62 to 813 feet from their breeding ponds (Trenham 2001). These reduced movements may be due to adult California tiger salamanders exiting the ponds with depleted physical reserves, or drier weather conditions typically associated with the post-breeding upland migration period.

California tiger salamanders are also known to use several successive burrows at increasing distances from an associated breeding pond. Although previously cited studies provide information regarding linear movement from breeding ponds, upland habitat features appear to have some influence on movement. Trenham (2001) found that radio-tracked adults were more abundant in grasslands with scattered large oaks, than in more densely wooded areas. Based on radio-tracked adults, there is no indication that certain habitat types are favored as terrestrial movement corridors (Trenham 2001). In addition, captures of arriving adults and dispersing new metamorphs were evenly distributed around two ponds completely encircled by drift fences and pitfall traps. Thus, it appears that dispersal into the terrestrial habitat occurs randomly with respect to direction and habitat types.

**Threats:** The Central California tiger salamander is imperiled throughout its range due to a variety of human activities (Service 2004). Current factors associated with declining Central California tiger salamander populations include continued habitat loss and degradation due to agriculture and urbanization; hybridization with the non-native eastern salamander (Fitzpatrick and Shaffer 2004; Riley *et al.* 2003); and predation by introduced species. Central California tiger salamander populations are likely threatened by multiple factors but continued habitat fragmentation and colonization of non-native salamanders may represent the most significant current threats. Habitat isolation and fragmentation within many watersheds have precluded dispersal between sub-populations. Other threats include predation and competition from introduced exotic species; possible commercial over-utilization; diseases; various chemical contaminants; road kill; and certain mosquito and rodent control operations. Currently, these various primary and secondary threats are largely not being offset by existing Federal, State, or local regulatory mechanisms. The Central California tiger salamander is also prone to chance environmental or demographic events to which small populations are particularly vulnerable.

Due to the extensive losses of vernal pool complexes and their limited distribution in the Bay Area region, many Central California tiger salamander breeding sites consist of artificial water bodies. Overall, 89 percent (124) of the identified water bodies are stock, farm, or berm ponds used by cattle grazing and/or as a temporary water source for small farm irrigation (CDFW 2014). This places the Central California tiger salamander at great risk of hybridization with non-native tiger salamanders, especially in Santa Clara and San Benito counties. Without long-term maintenance, the longevity of

Ms. Melanic Brent

20

artificial breeding habitats is uncertain relative to naturally occurring vernal pools that are dependent on the continuation of seasonal weather patterns (Shaffer in litt. 2003).

**Status of the Species:** Thirty-one percent (221 of 711 records and occurrences) of all California tiger salamander records and occurrences are located in Alameda, Santa Clara, San Benito (excluding the extreme western end of the County), southwestern San Joaquin, western Stanislaus, western Merced, and southeastern San Mateo counties. Of these counties, most of the records are from eastern Alameda and Santa Clara counties (Buckingham in litt. 2003; Service 2004; CDFW 2014). The California Department of Fish and Wildlife (2014) now considers 13 of these records from the Bay Area region as extirpated or likely to be extirpated.

Of the 140 reported California tiger salamander localities where wetland habitat was identified, only 7 percent were located in vernal pools (CDFW 2014). The Bay Area is located within the Central Coast and Livermore vernal pool regions (Keeler-Wolf et al. 1998). Vernal pools within the Coast Range are more sporadically distributed than vernal pools in the Central Valley (Holland 2003). This rate of loss suggests that vernal pools in these counties are disappearing faster than previously reported (Holland 2003). Most of the vernal pools in the Livermore Region in Alameda County have been destroyed or degraded by urban development, agriculture, water diversions, poor water quality, and long-term overgrazing (Keeler-Wolf et al. 1998). During the 1980s and 1990s, vernal pools were lost at a 1.1 percent annual rate in Alameda County (Holland 1998).

Due to the extensive losses of vernal pool complexes and their limited distribution in the Bay Area region, many California tiger salamander breeding sites consist of artificial water bodies. Overall, 89 percent (124) of the identified water bodies are stock, farm, or berm ponds used by cattle grazing and/or as a temporary water source for small farm irrigation (CDFW 2-14). This places the California tiger salamander at great risk of hybridization with non-native tiger salamanders, especially in Santa Clara and San Benito counties. Without long-term maintenance, the longevity of artificial breeding habitats is uncertain relative to naturally occurring vernal pools that are dependent on the continuation of seasonal weather patterns (Shaffer in litt. 2003).

#### Environmental Baseline

##### *California Red-legged Frog*

The action area is located within the East San Francisco Bay Core Area (Alameda Creek Hydrologic Sub-Area) and the Diablo Range and Salinas Valley Recovery Unit (Service 2002, 2006). The recovery action guidelines provide recommendations for minimizing the effects of various land and water uses, non-native species/predators, and air and water contamination in addition to outlining recommendations for habitat preservation. These recommendations assist in the conservation and recovery of the species, protect high quality habitat within core areas and priority watersheds, increase opportunities for dispersal, population expansion, and recolonization, and provide connectivity between core areas and occupied watersheds. The conservation needs for the East San Francisco Bay Core Area are: (1) protect existing populations; (2) control non-native predators; (3) study the effects of grazing in riparian corridors, ponds and uplands; (4) reduce impacts associated with livestock grazing; (5) protect habitat connectivity; (6) minimize effects of recreation and off-road vehicle use, e.g. Corral Hollow watershed; (7) avoid and reduce impacts of urbanization; and (8) protect habitat buffers from nearby urbanization.

The project is located within the known range of the California red-legged frog. The grazed Mediterranean California naturalized annual and perennial grasslands, coyotebrush scrub, and California buckwheat scrub vegetation communities within the action area are part of a larger mosaic

Ms. Melanic Brent

21

of essential habitat features sustaining a viable core population (i.e., sheltering, foraging, and dispersal) within the Livermore and Altamont foothills. Based on the biological assessment provided by Caltrans, the site visit conducted by the Service, and the evaluation performed by the Service no known or potential breeding habitat is present within the project footprint; however, a total of 19 ponds, stock ponds, reservoirs, and other water bodies are present within a one-mile radius of the BSA. Caltrans identified 19 reported breeding occurrences within ponds, stock ponds, and other water bodies present within a one-mile radius of the BSA and a total of 38 occurrences within two miles of the action area. The entire action area is within dispersal distance of known and potential breeding sites and all vegetation communities with the exception on paved roadways and road shoulders within the action area are considered suitable upland habitat. No focused frog or roadkill surveys were conducted in preparation of the biological assessment.

Interstate 580 poses a significant barrier to the safe north-south movement and dispersal of California red-legged frogs in the portion of core habitat within the action area. A vegetated median between the eastbound and westbound lanes extends up to 100 feet in some areas and provides similar, but highly disturbed, ruderal upland and dispersal habitat. However, there are natural and artificial wildlife crossings within the BSA that provide connectivity between habitat north and south of I-580 and I-205 for California red-legged frogs, including underpasses for lightly-used railroads or roads such the one at Midway Road and drainage culverts and stream crossings (e.g. Mountain House Creek, Arroyo Las Positas) under the freeway.

The proposed action occurs within Conservation Zone 5 (CZ-5) and Conservation Zone 6 (CZ-6) of the East Alameda County Conservation Strategy (EACCS) (ICF International 2010). The action area contains three of the Conservation Strategy land cover types: alkali wetland, seasonal wetland and California annual grassland (ICF International 2010). EACCS modeling analysis determined that CZ-5 contains 15 percent (127 acres) of the area's unprotected alkali wetland, 2 percent (8 acres) of the area's unprotected seasonal wetlands, and 7 percent (7,528 acres) of unprotected California annual grasslands. EACCS modeling analysis determined that CZ-6 contains 61 percent (380 acres) of the area's unprotected alkali wetland and 12 percent (12,245 acres) of unprotected California annual grasslands. Conservation priorities for CZ-5 applicable to the proposed action include: 1) enhance linkages across I-580 for San Joaquin kit fox and protect lands on the north side of the roadway; 2) protect seasonal wetlands along Arroyo Las Positas; and 3) protect annual grasslands in areas where it provides non-breeding habitat for California red-legged frogs and Central California tiger salamanders (ICF International 2010). Conservation priorities for CZ-6 applicable to the proposed action include: 1) protect of alkali wetlands; 2) protect and restore seasonal wetlands and ponds to provide protected dispersal corridors between ponds and to increase habitat for California red-legged frog and Central California tiger salamander; and 3) protect annual grasslands in areas where it provides non-breeding habitat for California red-legged frogs and Central California tiger salamanders (ICF International 2010). The proposed action is located within potential upland and movement habitat as modeled in Figure D-9 of EACCS (ICF International 2010).

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, and within the East San Francisco Bay Core Area; (2) the project area is modeled for the species' presence in the EACCS; (3) there is suitable upland, movement and dispersal 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 California red-legged frog occupancy; (5) there is a known breeding pond immediately adjacent to the action area; (6) there are no significant barriers to California red-legged frog movement between confirmed occupied areas and the action area; (7)

Ms. Melanie Brent

22

the lack of significant disturbance or history of significant threats to the species in the general vicinity; and (8) the biology and ecology of the animal.

#### *Critical Habitat*

Interstate 580 separates two designated critical habitat units: CCS-2B (Mount Diablo) north of I-580 and ALA-2 south of I-580. A total of 4.75 acres of ALA-2 (Arroyo Valle) falls within the action area at two locations: 1) at the Grant Line Road exit (PM 1.5) on the westbound side of I-580, and 2) between PM 2.65 and PM 3.6 on the eastbound side of I-580. This unit is approximately 153,624 acres; the portion within the action area and subject to ground disturbance totals approximately 1.77 acres, which represents less than one-tenth of one percent of the total unit acreage. This unit stretches from southwestern Alameda County from I-580 at the Altamont Pass southeast into San Joaquin County and southwest into Santa Clara County near Arroyo Hondo and Calaveras Reservoir (75 FR 12816). Unit STC-2 contains the features that are essential for the conservation of the species. The unit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2) and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). The unit contains high-quality permanent and ephemeral aquatic habitats suitable for breeding and upland areas for dispersal, shelter, and food. This unit provides for connectivity between populations farther north and south in the interior Coast Range. The designation of this unit is expected to prevent further habitat fragmentation, provide connectivity to populations farther north and south in the interior Coast Range, and protect the species against urbanization, alternation of aquatic and riparian habitats, and erosion and siltation of ponded habitat.

The portion of the action area within this unit contains two of the four PCE's: upland habitat (PCE 3) and dispersal habitat (PCE-4). The upland and dispersal habitat consists entirely of Mediterranean California naturalized annual and perennial grasslands. Critical habitat within the action area occurs along the southern edge of eastbound I-580 and represents a narrow, linear portion of critical habitat with weedy vegetation, human refuse from I-580 traffic and scattered ground squirrel burrows that provide a network of subterranean burrows for shelter. A total of 177 acres of designated critical habitat will be affected by the proposed action comprising 0.48-acre of permanent effects and 1.29 acres of temporary effects.

#### *Central California Tiger Salamander*

The project is located within the known range of the Central California tiger salamander population. Suitable upland and dispersal habitat are present in the action area within the grazed Mediterranean California naturalized annual and perennial grasslands, coyotebrush scrub, and California buckwheat scrub vegetation communities. Based on the biological assessment, no known or potential breeding habitat is present within the action area; however, one small perennial wetland area characterized as a cattail series, freshwater marsh is present 0.05-mile from the action area. No focused salamander or roadkill surveys were conducted in preparation of the biological assessment; however, CNDDDB records reported 20 occurrences within a two miles of the action area. Fourteen occurrences have been reported within 1.24 maximum-recorded dispersal distance of the action area. The entire action area is within dispersal distance of known and potential breeding sites and all annual grassland vegetation communities within the action area provide suitable upland and dispersal habitat.

Grassland habitat south of I-580 exhibits the characteristics of upland and dispersal habitat, and is largely undeveloped except for lands near Greenville Road and North Flynn Road. The majority of this land is actively grazed and is leased to wind turbine power generating companies. Fossorial mammal activity is scattered throughout this portion of the action area and provides subterranean habitat that may support salamander aestivation, refugia, and foraging. Movement among land

Ms. Melanie Brent

23

south of I-580 is relatively unrestricted. The Service anticipates undeveloped habitats south of I-580 to be inhabited with greater occupancy and abundance than habitat within the vegetated median due to the quality and accessibility of habitat within the action area.

Interstate 580 poses a significant barrier to the safe north-south movement and dispersal of Central California tiger salamanders within the action area. The proposed action will upgrade MBGA with concrete barriers, which will increase the barrier-effect I-580 and I-280 poses to the safe passage of Central California tiger salamanders across the road surface. A vegetated median between the eastbound and westbound lanes extends up to 100 feet in some areas and provides similar, but highly disturbed, ruderal upland and dispersal habitat. However, there are natural and artificial wildlife crossings within the BSA that provide connectivity between habitat north and south of I-580 and I-205 for Central California tiger salamanders, including underpasses for lightly-used railroads or roads such as the one at Midway Road and drainage culverts and stream crossings (e.g. Mountain House Creek, Arroyo Las Positas) under the freeway.

The proposed action occurs within Conservation Zone 5 (CZ-5) and Conservation Zone 6 (CZ-6) of the East Alameda County Conservation Strategy (EACCS) (ICF International 2010). The action area contains three of the Conservation Strategy land cover types: alkali wetland, seasonal wetland and California annual grassland (ICF International 2010). EACCS modeling analysis determined that CZ-5 contains 15 percent (127 acres) of the area's unprotected alkali wetland, 2 percent (8 acres) of the area's unprotected seasonal wetlands, and 7 percent (7,528 acres) of unprotected California annual grasslands. EACCS modeling analysis determined that CZ-6 contains 61 percent (380 acres) of the area's unprotected alkali wetland and 12 percent (12,245 acres) of unprotected California annual grasslands. Conservation priorities for CZ-5 applicable to the proposed action include: 1) enhance linkages across I-580 for San Joaquin kit fox and protect lands on the north side of the roadway; 2) protect seasonal wetlands along Arroyo Las Positas; and 3) protect annual grasslands in areas where it provides non-breeding habitat for California red-legged frogs and Central California tiger salamanders (ICF International 2010). Conservation priorities for CZ-6 applicable to the proposed action include: 1) protect of alkali wetlands; 2) protect and restore seasonal wetlands and ponds to provide protected dispersal corridors between ponds and to increase habitat for California red-legged frog and Central California tiger salamander; and 3) protect annual grasslands in areas where it provides non-breeding habitat for California red-legged frogs and Central California tiger salamanders (ICF International 2010). The proposed action is located within potential upland and movement habitat as modeled in Figure D-9 of EACCS (ICF International 2010).

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 for the species' presence in the EACCS; (3) there is suitable upland, movement and dispersal 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 immediately adjacent to the action area; (6) nearby observations are well within the known travel distance of a Central California tiger salamander; (7) there are no significant barriers to 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.

**Effects of the Action**California Red-legged Frog and Central California Tiger Salamander

The proposed project will likely adversely affect the threatened California red-legged frog and Central California tiger salamander by killing, injuring, harming, and/or harassing juveniles and adults inhabiting suitable upland and dispersal habitat within the action area. The aspects of the proposed action most likely to affect the California red-legged frog or Central California tiger salamander are largely confined to the construction phase of the project associated with the off ramp rehabilitation and work along the road shoulders at the following locations: 1) eastbound I-580 from PM 0.0 to PM 4.7; 2) westbound I-580 from PM 0.0 to PM 7.8; and 3) I-205 from PM 0.0 to PM 1.0. Additional effects may occur due to the replacement of MBGR with concrete barriers, which will act as a barrier to movement across I-580 and I-205. This may increase the amount of time a California red-legged frog or Central California tiger salamander is exposed on the road surface subjecting them to vehicle strikes or predation. The total length of concrete barriers within the action area will be approximately 2.34 miles.

Construction noise, vibration, and increased human activity may interfere with normal behaviors – feeding, sheltering, movement between refugia and foraging grounds, and other essential behaviors of the California red-legged frog and California tiger salamander – resulting in avoidance of areas that have suitable habitat but intolerable levels of disturbance. Short-term temporal effects will occur when vegetative cover and subterranean upland habitat is removed during project construction. Caltrans proposes to minimize these effects, in part, by locating construction staging, storage and parking areas outside of sensitive habitat; clearly marking construction work boundaries to prevent crews from affecting more habitat than is absolutely necessary, and revegetating all unpaved areas disturbed by project activities.

The proposed construction activities could result in the introduction of chemical contaminants to the site. Frogs and salamanders using these areas could be exposed to any contaminants that are present at the site. 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. Caltrans proposes to minimize these risks by implementing a Storm Water Pollution Prevention Plan (SWPPP), erosion control BMPs and a Spill Response Plan, which will consist of refueling, oiling or cleaning of vehicles and equipment a minimum of 100 feet from aquatic resources; installing coir rolls, straw wattles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the wetland; and locating staging, storage and parking areas away from aquatic habitats.

Preconstruction surveys and the relocation of individual California red-legged frogs and California tiger salamanders by a Service-approved biologist will minimize the likelihood of serious injury or mortality; however, capturing and handling frogs may result in stress and/or minor injury during handling, containment, and transport. Death and injury of individuals could occur at the time of relocation or later in time subsequent to their release. Although survivorship for translocated amphibians has not been estimated, survivorship of translocated wildlife, in general, is low because of intraspecific competition, lack of familiarity with the relocation site with regards to breeding, feeding, and sheltering habitats, risk of contracting disease in foreign environment, and increased risk of predation. Caltrans proposes to minimize these effects by using qualified Service-approved biologists, limiting the duration of handling, and relocating amphibians to suitable nearby habitat.

Ms. Melanie Brent

25

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 (*Batrachochytrium dendrobatidis*), 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). Implementing proper decontamination procedures prior to and following aquatic surveys and handling of frogs and salamanders will minimize the risk of transferring diseases through contaminated equipment or clothing.

Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent. Construction within upland habitat, e.g. pavement removal and resurfacing, shoulder backing, installation of rumble strips, MBGRs, concrete barriers, overhead signage, lighting, flashing beacons, barrier markers, roadside delineators, and guardrail delineators would result in the permanent loss and/or degradation of 5.37 acres of California red-legged frog and Central California tiger salamander upland and dispersal habitat; and the temporary loss and/or degradation of 29.53 acres of California red-legged frog and Central California tiger salamander upland and dispersal habitat. Caltrans has proposed a compensatory habitat conservation measure at a ratio of 3:1 (acres of compensation to acres of habitat loss) for permanent effects and 1.1:1 for temporary effects.

These effects will be further minimized by installing environmentally sensitive area fencing to keep workers from straying into otherwise undisturbed habitat; erecting wildlife exclusion fencing to deter frogs and salamanders from wandering onto the construction site; implementing storm water and erosion BMP's; educating workers about the presence of California red-legged frogs and California tiger salamanders, their habitat, identification, regulatory laws, and avoidance and minimization measures; and requiring a Service-approved biologist(s) to be present to monitor project activities within or adjacent to suitable habitat.

#### California Red-legged Frog Critical Habitat

The proposed action will result in the permanent loss and/or degradation of 0.48-acre of upland (PCE 3) and dispersal (PCE 3) habitat and the temporary loss and/or degradation of 1.29 acres of upland (PCE 3) and dispersal (PCE 3) habitat comprising mixed grazed Mediterranean California naturalized annual and perennial grasslands, coyotebrush scrub, and California buckwheat scrub vegetation communities. The proposed action will not affect California red-legged frog breeding or non-breeding aquatic habitat since neither habitat type is located within the action area. The portion of critical habitat falling within the project footprint comprises a narrow, linear portion along the northernmost extend of ALA-2 that abuts I-580 in southeastern Alameda County. Caltrans has minimized effects to critical habitat by incorporating design modifications that avoid or minimize disturbance or loss of designated critical habitat containing PCEs. The permanent loss and/or degradation of 0.48-acre and temporary loss and/or degradation of 1.29 acres of California red-legged frog critical habitat supporting PCEs 3 and 4 will not compromise the recovery of the species. Furthermore, the effects to habitat will not preclude the stated objectives of preventing

further habitat fragmentation, diminish connectivity to populations farther north and south in the interior Coast Range, or interfere with protecting the species against urbanization, alternation of aquatic and riparian habitats, and erosion and siltation of ponded habitat.

#### **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 biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. No other State, Tribal, local or private actions are anticipated in the action area within the foreseeable future.

The global average temperature has risen by approximately 0.6 degrees centigrade during the 20th Century (International Panel on Climate Change 2001, 2007; Adger et al 2007). There is an international scientific consensus that most of the warming observed has been caused by human activities (International Panel on Climate Change 2001, 2007; Adger et al. 2007), and that it is "very likely" that it is largely due to increasing concentrations of greenhouse gases (carbon dioxide, methane, nitrous oxide, and others) in the global atmosphere from burning fossil fuels and other human activities (Cayan 2005, EPA Global Warming webpage <http://yosemite.epa.gov>; Adger et al. 2007). Eleven of the twelve years between 1995 and 2006 rank among the twelve warmest years since global temperatures began in 1850 (Adger et al. 2007). The warming trend over the last fifty years is nearly twice that for the last 100 years (Adger et al. 2007). Looking forward, under a high emissions scenario, the International Panel on Climate Change estimates that global temperatures will rise another four degrees centigrade by the end of this Century; even under a low emissions growth scenario, the International Panel on Climate Change estimates that the global temperature will go up another 1.8 degrees centigrade (International Panel on Climate Change 2001). The increase in global average temperatures affects certain areas more than others. The western United States, in general, is experiencing more warming than the rest of the Nation, with the 11 western states averaging 1.7 degrees Fahrenheit warmer temperatures than this region's average over the 20th Century (Saunders et al. 2008). California, in particular, will suffer significant consequences as a result of global warming (California Climate Action Team 2006). In California, reduced snowpack will cause more winter flooding and summer drought, as well as higher temperatures in lakes and coastal areas. The incidence of wildfires in the Golden State also will increase and the amount of increase is highly dependent upon the extent of global warming. No less certain than the fact of global warming itself is the fact that global warming, unchecked, will harm biodiversity generally and cause the extinction of large numbers of species. If the global mean temperatures exceed a warming of two to three degrees centigrade above pre-industrial levels, twenty to thirty percent of plant and animal species will face an increasingly high risk of extinction (International Panel on Climate Change 2001, 2007). The mechanisms by which global warming may push already imperiled species closer or over the edge of extinction are multiple. Global warming increases the frequency of extreme weather events, such as heat waves, droughts, and storms (International Panel on Climate Change 2001, 2007; California Climate Action Team 2006; Lenihan et al. 2003). Extreme events, in turn may cause mass mortality of individuals and significantly contribute to determining which species will remain or occur in natural habitats. Ongoing global climate change (Anonymous 2007; Inkleby et al. 2004; Adger et al. 2007; Kanter 2007) likely imperils the California red-legged frog, California tiger salamander and the resources necessary for their survival. Since climate change threatens to disrupt annual weather patterns, it may result in a loss of their habitats and/or prey, and/or increased numbers of their predators, parasites, and diseases. Where populations are isolated, a changing climate may result in local extinction, with range shifts precluded by lack of habitat.

Ms. Melanie Brent

27

### Conclusion

After reviewing the current status of the California red-legged frog and Central California tiger salamander; the environmental baseline for the action area; the effects of the proposed I-580 and I-205 Pavement Rehabilitation Project and the cumulative effects; it is the Service's biological opinion that the project, as proposed, is likely to adversely affect both species, but is not likely to jeopardize their continued existence. This determination is based on our opinion that the magnitude of the effects of this action does not appreciably reduce the likelihood of both the survival and recovery of these species in the wild.

After reviewing the current status of designated critical habitat for the California red-legged frog, the environmental baseline for each critical habitat, effects of the proposed action, and cumulative effects, the Service finds that the project, as proposed, is not likely to destroy or adversely modify critical habitat for either species based upon the statutory provisions of the Act. The local effects resulting from the proposed action will not result in the inability of range-wide critical habitat to remain functional or serve its intended recovery role for these species based on the location of effected critical habitat along an existing roadway and minimal permanent loss of habitat.

### 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 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 require Caltrans to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

#### Amount or Extent of Take

##### California Red-Legged Frog

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect due to their cryptic nature and wariness of humans. 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. Due to the difficulty in quantifying the number of California red-legged frogs that will be taken as a result of the proposed action, the Service is

Ms. Melanie Brent

28

quantifying take incidental to the proposed action as the mortality/injury of no more than one and the harassment of all California red-legged frogs inhabiting or utilizing the 133.37-acre action area. The Service anticipates that take of juvenile and adult life history stages may be killed, harmed or harassed as a result of habitat loss/degradation, construction-related disturbance, or capture and relocation efforts. Upon implementation of the following Reasonable and Prudent Measures, all juvenile and adult California red-legged frogs within the action area in accordance with 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 authorized under this opinion.

#### Central California Tiger Salamander

The Service anticipates that incidental take of the California tiger salamander will be difficult to detect due to their cryptic nature, subterranean lifestyle, and predominately nocturnal behavior. Losses of this species may also be difficult to quantify due to seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. Due to the difficulty in quantifying the number of California tiger salamanders that will be taken as a result of the proposed action, the Service is quantifying take incidental to the proposed action as the mortality/injury of one and harassment of all California tiger salamanders inhabiting or utilizing the 133.37-acre action area. The Service anticipates that take of juvenile or adult California tiger salamanders may result from habitat loss/degradation, construction-related disturbance, or capture and relocation efforts. Upon implementation of the following Reasonable and Prudent Measures, all juvenile and adult California tiger salamanders within the action area in accordance with 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 authorized under this opinion.

#### **Effect of the Take**

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to result in jeopardy to the California red-legged frog or Central California tiger salamander.

#### **Reasonable and Prudent Measures**

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of California red-legged frog or Central California tiger salamander:

1. Minimize the effects to the California red-legged frog and Central California tiger salamander by implementing the project description as described and adhering to 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 and outline required reporting/monitoring requirements. These Terms and Conditions are nondiscretionary.

The following Terms and Conditions implement the Reasonable and Prudent Measure number 1:

1. **Compliance with Biological Opinion.** Caltrans shall include Special Provisions that include the Conservation Measures and the Terms and Conditions of this biological opinion

Ms. Melanie Brent

29

in the solicitation for bid information for all contracts for the project that are issued by them to all contractors. Caltrans shall require all contractors and subcontractors to comply with the Act in the performance of the proposed action and shall perform the action as outlined in the Project Description of this biological opinion as provided by Caltrans in the Biological Assessment dated September 2013, and all other supporting documentation submitted to the Service in support of the action. Changes to the Project Description or performance of work outside the scope of this biological opinion are subject to the requirements of reinstitution of formal consultation.

2. **Implementation of Biological Opinion.** Caltrans shall ensure the Resident Engineer or their designee shall have full authority to implement and enforce all Conservation Measures and Terms and Conditions of this biological opinion. The Resident Engineer or their designee shall maintain a copy of this biological opinion onsite whenever construction is in progress. Their name(s) and telephone number(s) shall be provided to the Service at least 30 calendar days prior to groundbreaking at the project.
3. **Proposed Compensation.** The compensation measures proposed by Caltrans and outlined in Table 1 will minimize the effects of harm on the California red-legged frog and Central California tiger salamander. Habitat considered for compensation shall comprise high quality breeding, foraging, sheltering, migration, and/or dispersal habitat. Caltrans shall comply with all applicable CDFW regulations pertaining to mitigation for species designated as fully protected and/or listed by the State. Compensation shall be implemented in accordance with the Selected Review Criteria for section 7 Off-Site Compensation provided in Appendix A. If conservation banking credits are to be purchased, Caltrans shall submit a conceptual compensation plan to the Service for review and approval prior to the purchase of credits. If the proposed compensation scheme is not fully implemented, Caltrans shall provide an alternative compensation scheme to be reviewed and approved by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio if it is restored within one calendar year following project completion and the conditions are verified by the Service. All compensation will be acquired prior to the beginning of earthmoving for the project.
4. **Biological Monitor Approval and Stop Work Authority.** The qualifications of all proposed Service-approved biological monitors shall be presented to the Service for review and written approval at least 30 calendar days prior to project initiation. The Service-approved biological monitors shall keep a copy of this biological opinion in his/her possession when onsite. The Service-approved biological monitors shall communicate through the Resident Engineer or their designee, verbally, by telephone, email, or hardcopy with Caltrans personnel, construction personnel or any other person(s) at the project site or otherwise associated with the project to ensure that the terms and conditions of this biological opinion are met. The Service-approved biologist(s) through communication with the Resident Engineer shall have oversight over implementation of the Terms and Conditions in this Biological Opinion, and shall have the authority to stop project activities if they determine any of the requirements associated with these Terms and Conditions are not being fulfilled. If the Service-approved biologist(s) exercises this authority, the Service shall be notified by telephone and email within 24 hours. The Service contact is Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program, Sacramento Fish and Wildlife Office at telephone (916) 414-6600.

Ms. Melanie Brent

30

5. **Biological Monitoring Records.** The Service-approved biologist(s) shall maintain monitoring records that include: (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the listed species encountered, including the time and location of the observation; (3) the time the specimen was identified and by whom and its condition; and (4) a description of any actions taken. The Service-approved biologist(s) shall maintain complete records in their possession while conducting monitoring activities and shall immediately surrender records to the Service, CDFW, and/or their designated agents upon request. If requested, all monitoring records shall be provided to the Service within 30 of the completion of monitoring work.
6. **Agency Access.** If verbally requested through the Resident Engineer or Construction Inspector, before, during, or upon completion of ground breaking and construction activities, Caltrans shall ensure the Service or their designated agents can immediately and without delay, access and inspect the project site for compliance with the proposed project description, conservation measures, and terms and conditions of this Biological Opinion, and to evaluate project effects to the California red-legged frog and Central California tiger salamander and their habitat.
7. **Inclement Weather Restrictions.** No work shall occur during or within 24 hours following a rain event exceeding 0.2-inch as measured by the NOAA National Weather Service for the Livermore, CA (KLVK) base station available at: <http://www.wrh.noaa.gov/mesowest/getobext.php?wfo=mtr&sid=KLVK&num=72&raw=0>. Service-approval to continue work during or within 24 hours of a rain event shall be considered on a case-by-case basis.
8. **Proper Use of Erosion Control Devices.** To prevent California red-legged frogs and Central California tiger salamanders from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.
9. **Biological Monitoring.** A Service-approved biologist(s) shall be onsite during all activities that may result in take of California red-legged frogs or Central California tiger salamanders as determined by the Service. A minimum of one Service-approved biologist shall be on-site throughout the project duration. However, an adequate number of Service-approved biologists to monitor the effects of the project on the California red-legged frog and Central California tiger salamander. The Service will consider the implementation of specific project activities without the oversight of an on-site Service-approved biologist on a case-by-case basis.
10. **Preconstruction and Daily Surveys.** Preconstruction surveys shall be conducted by a Service-approved biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing that may result in take of California red-legged frogs and Central California tiger salamanders as determined by the Service. All suitable aquatic and upland habitat including refugia habitat such as dense vegetation, small woody debris, refuse, burrows, etc., shall be thoroughly inspected. The Service-approved biologist(s) shall conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of California red-legged frogs and Central California tiger salamanders as determined by the Service. If a California red-legged

frog and Central California tiger salamander is observed, the Service-approved biologist shall implement the species observation and handling protocol outlined below.

11. **Protocol for Species Observation and Handling.** If a California red-legged frog or Central California tiger salamander is encountered in the action area, work activities within 50 feet of the individual shall cease immediately and the Resident Engineer and Service-approved biologist shall be notified. Based on the professional judgment of the Service-approved biologist, if project activities can be conducted without harming or injuring the California red-legged frog or Central California tiger salamander, it may be left at the location of discovery and monitored by the Service-approved biologist. All project personnel will be notified of the finding and at no time shall work occur within 50 feet of the California red-legged frog or Central California tiger salamander without a Service-approved biologist present. If it is determined by the Service-approved biologist that relocating the California red-legged frog or Central California tiger salamander is necessary, the following steps shall be followed:
  - a. Prior to handling and relocation, the Service-approved biologist will take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (Service 2005) and *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (Service 2003). Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle amphibians after working in other aquatic habitats.
  - b. California red-legged frogs and Central California tiger salamanders shall be captured by hand, dipnet or other Service-approved methodology, transported by hand, dipnet or temporary holding container, and released as soon as practicable the same day of capture. Handling of California red-legged frogs and Central California tiger salamanders shall be captured by hand, dipnet, or other Service-approved methodology, transported will be minimized to the maximum extent practicable. Holding/transporting containers and dipnets shall be thoroughly cleaned, disinfected, and rinsed with freshwater prior to use within the action area.
  - c. California red-legged frogs and Central California tiger salamanders shall be captured by hand, dipnet, or other Service-approved methodology, transported and relocated to nearby suitable habitat outside of the work area and released in a safe area on the same side of I-580 or I-205 where it was discovered. The individual(s) shall be released within the Caltrans right-of-way only if suitable habitat exists and would not pose a risk to the animal's survival or well-being. Otherwise, they shall be released at a location subject to the approval of the property owner. If suitable habitat cannot be identified, the Service shall be contacted to determine an acceptable alternative. The Service shall be notified within 24 hours of all capture, handling, and relocation efforts.

#### 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.

Ms. Melanie Brent

32

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 Disposition of Individuals Taken section below.
2. Other pertinent reporting information such as monitoring reports (if not included as a term and condition), notification of project completion/implementation, etc. including when this information is due to the Service.

*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 *Drift 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, 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 California red-legged frog, Central California

Ms. Melanie Brent

33

tiger salamander, and other appropriate species. 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.

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 and I-205 Pavement Rehabilitation 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 retained (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 opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; 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 any questions regarding this biological opinion on the proposed I-580 and I-205 Pavement Rehabilitation Project, Alameda County, California, contact Jerry Roe or Ryan Olah at the letterhead address or at (916) 414-6600.

Sincerely,



Jennifer M. Norris  
Field Supervisor

Enclosure

cc:

Melissa Escaron, California Department of Fish and Wildlife, Napa California

Ms. Melanic Brent

34

## LITERATURE CITED

- Adger, N., P. Aggarwal, S. Agrawala, J. Alcamo, A. Allali, O. Anisimov, N. Arnell, M. Boko, O. Canziani, T. Carter, G. Cassa, U. Confalonieri, R. Cruz, E. de Alba Alcaraz, W. Eastreling, C. Field, A. Fischlin, B. Fitzharris, C.G. Garcia, C. Hanson, H. Harasawa, K. Hennessy, S. Huq, R. Jones, L. K. Bogataj, D. Karoly, R. Klein, Z. Kundzewicz, M. Lal, R. Lasco, G. Love, X. Lu, G. Magrin, L.J. Mata, R. McLean, B. Menne, G. Midgley, N. Mimura, M.Q. Mirza, J. Moreno, L. Mortsch, I. Niang-Diop, R. Nichols, B. Novaky, L. Nurse, A. Nyong, M. Oppenheimer, J. Palutikof, M. Parry, A. Patwardhan, P. R. Lankao, C. Rosenzweig, S. Schneider, S. Semenov, J. Smith, J. Stone, J. van Ypersele, D. Vaughan, C. Vogel, T. Wilbanks, P. Wong, S. Wu, and G. Yohe. 2007. Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report. Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability. Brussels, Belgium.
- Anderson, J. D. 1968. Comparison of the Food Habits of *Ambystoma macrodactylum sigillatum*, *Ambystoma macrodactylum croceum*, and *Ambystoma tigrinum californiense*. *Herpetologica* 24(4): 273-284.
- Anderson, P. R. 1968. The Reproductive and Developmental History of the California Tiger Salamander. Masters thesis, Department of Biology, Fresno State College, Fresno, California. 82 pages.
- Anonymous. 2007. Global Warming is Changing the World. *Science* 316:188-190.
- Barry, S. 1992. Letter to Marvin L. Plenert, Regional Director, U.S. Fish and Wildlife Service, Portland, Oregon, regarding proposed listing.
- Barry, S. J. and H. B. Shaffer. 1994. The Status of the California Tiger Salamander (*Ambystoma californiense*) at Lagunita: A 50-year update. *Journal of Herpetology* 28(2): 159-164.
- Barry, S. J. and H. B. Shaffer. 1994. The Status of the California Tiger Salamander (*Ambystoma californiense*) at Lagunita: A 50-year update. *Journal of Herpetology* 28(2): 159-164.
- Bosch J, I. Martínez-Solano, M. García-París. 2001. Evidence of a Chytrid Fungus Infection Involved in the Decline of the Common Midwife Toad (*Alytes obstetricans*) in Protected Areas of Central Spain. *Biological Conservation* 97:331-337.
- Buckingham, J. 2003. Biological Resources Studies Conducted for Carnegie State Vehicle Recreation Area in 2003. In litt.
- Bulger, J. B., N. J. Scott Jr., and R. B. Seymour. 2003. Terrestrial Activity and Conservation of Adult California Red-Legged Frogs *Rana aurora draytonii* in Coastal Forests and Grasslands. *Biological Conservation* 110:85-95.
- Bury, R.B and J.A. Whelan. 1984. Ecology and Management of the Bullfrog. Fish and Wildlife Service/Resource Publication 155.
- California Climate Action Team. 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. California Environmental Protection Agency, Sacramento, California.
- California Department of Fish and Wildlife (CDFW). 2014. RAREFIND. California Natural Diversity Data Base, Natural Heritage Division, Sacramento, California.
- California Department of Transportation (Caltrans). 2013. Interstate 580 Roadway Rehabilitation Project, Caltrans District 4, Alameda County, California. September.
- Cayan, D. 2005. Northern Hemisphere Spring Warming During the Past Five Decades: Links to Snow Cover Losses. Presented at 16th Conference on Climate Variability and Change.

Ms. Melanie Brent

36

- Scripps Institute of Oceanography, University of California, San Diego.  
January 13, 2005.
- Davidson, E. W., M. Parris, J. P. Collins, J. E. Longcore, A. P. Pessier, J. Brunner. 2003. Pathogenicity and transmission of *Chytridiomycosis* in tiger salamanders (*Ambystoma tigrinum*). *Copeia* 2003(3):601-607.
- Emlen, S. T. 1977. "Double Clutching" and its Possible Significance in the Bullfrog. *Copeia* 1977(4):749-751.
- Feaver, P. E. 1971. Breeding Pool Selection and Larval Mortality of Three California Amphibians: *Ambystoma tigrinum californiense* Gray, *Hyla regilla* Baird and Girard and *Scaphiopus hammondi hammondi* Girard. Master's thesis, Department of Biology, Fresno State College, Fresno California. 58 pages.
- Fellers, G. 2005. *Rana draytonii* Baird and Girard, 1852b California Red-Legged Frog. Pages 552-554 in M. Lannoo (editor). Amphibian Declines: The Conservation Status of United States Species. University of California Press. Berkeley, California.
- Fisher, R. N., and H. B. Shaffer. 1996. The Decline of Amphibians in California's Great Central Valley. *Conservation Biology* 10(5):1387-1397.
- Fitzpatrick, B. M. and H. B. Shaffer. 2004. Environmental-Dependent Admixture Dynamics in a Tiger Salamander Hybrid Zone. *Evolution* 58(6): 1282-1293.
- Garner, T. W. J., M. W. Perkins, P. Govindarajulu, D. Seglie, S. Walker, A. A. Cunningham, and M. C. Fisher. 2006. The Emerging Amphibian Pathogen *Batrachochytrium dendrobatidis* Globally Infects Introduced Populations of the North American Bullfrog, *Rana catesbeiana*. *Biology Letters* 2:455-459.
- Hayes, M. P., and M. R. Jennings. 1988. Habitat Correlates of Distribution of the California Red-Legged Frog (*Rana aurora draytonii*) and the Foothill Yellow-Legged Frog (*Rana boylei*): Implications for Management. Pages 144-158 in R. Sarzo, K. E. Severson, and D. R. Patton (technical coordinators). Proceedings of the Symposium on the Management of Amphibians, Reptiles, and Small Mammals in North America. United States Department of Agriculture, Forest Service, Rocky Mountain Range and Experiment Station, Fort Collins, Colorado. General Technical Report (RM-166): 1-458.
- Hayes, M. P. and D. M. Krempels. 1986. Vocal Sac Variation among Frogs of the Genus *Rana* from Western North America. *Copeia* 1986(4):927-936.
- Hayes, M. P. and M. M. Miyamoto. 1984. Biochemical, Behavioral and Body Size Differences between *Rana aurora aurora* and *R. a. draytonii*. *Copeia* 1984(4):1018-1022.
- Hayes, M. P., and M. R. Tennant. 1985. Diet and Feeding Behavior of the California Red-Legged Frog, *Rana aurora draytonii* (Ranidae). *Southwestern Naturalist* 30(4): 601-605.
- Hunt, L. 1993. Letter to Marvin L. Plenert, Regional Director, U.S. Fish and Wildlife Service, Portland, Oregon, regarding proposed listing.
- Inkley, D.B., M.G. Anderson, A.R. Blaustein, V.R. Burkett, B. Felzer, B. Griffith, J. Price and T.L. Root. 2004. Global Climate Change and Wildlife in North America. Technical Review 04-2, The Wildlife Society, Bethesda, Maryland.
- International Panel on Climate Change. 2001. Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change [Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell, and C.A. Johnson (editors)]. Cambridge University Press, Cambridge, United Kingdom and New York, New York. 881 pp. Available at <http://www.ipcc.ch/>
- \_\_\_\_\_. 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Alley,

Ms. Melanie Brent

37

- R., T. Berntsen, N.L. Bindoff, Z. Chen, A. Chidthaisong, P. Friedlingstein, J. Gregory, G. Hegerl, M. Heimann, B. Hewitson, B. Hoskins, F. Joos, J. Jouzel, V. Kattsov, U. Lohmann, M. Manning, T. Matsuno, M. Molina, N. Nicholls, J. Overpeck, D. Qin, G. Raga, V. Ramaswamy, J. Ren, M. Rusticucci, S. Solomon, R. Somerville, T.F. Stocker, P. Stott, R.F. Stouffer, P. Whetton, R.A. Wood, D. Wratt. 21 pp. Available at <http://www.ipcc.ch/>.
- Jennings, M. R. 1993. Letter to Peter C. Sorensen, U.S. Fish and Wildlife Service, Sacramento, California.
- Jennings, M. R., and M. P. Hayes. 1985. Pre-1900 Overharvest of California Red-Legged Frogs (*Rana aurora draytonii*): The Inducement for Bullfrog (*Rana catesbeiana*) Introduction. *Herpetological Review* 31(1):94-103.
- . 1990. Final Report of the Status of the California Red-Legged Frog (*Rana aurora draytonii*) in the Pescadero Marsh Natural Preserve. Final report prepared for the California Department of Parks and Recreation, Sacramento, California, through Agreement (4-823-9018). Department of Herpetology, California Academy of Sciences, Golden Gate Park, San Francisco, California. 30 pages.
- . 1994. Amphibian and Reptile Species of Special Concern in California. Report prepared for the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California. 255 pages.
- Jennings, M. R., M. P. Hayes, and D. C. Holland. 1992. A Petition to the U.S. Fish and Wildlife Service to Place the California Red-Legged Frog (*Rana aurora draytonii*) and the Western Pond Turtle (*Clemmys marmorata*) on the List of Endangered and Threatened Wildlife and Plants. 21 pages.
- Kanter, J. 2007. Scientists Detail Climate Changes, Poles to Tropics. *New York Times*. April 10, 2007.
- Keeler-Wolf T, Evens JM, Solomeshch AI, Holland VL, Barbour MG. 2007. Community classification and nomenclature. In: Stromberg MR, Corbin JD, D'Antonio CM, editors. *California grasslands: ecology and management*. Berkeley, Los Angeles, London: University of California Press. p 21-34.
- Kruse, K. C. and M. G. Francis. 1977. A Predation Deterrent in Larvae of the Bullfrog, *Rana catesbeiana*. *Transactions of the American Fisheries Society* 106(3):248-252.
- Kupferberg, S. J. 1996a. Hydrologic and Geomorphic Factors Affecting Conservation of a River-Breeding Frog (*Rana boylei*). *Ecological applications* 6: 1322-1344.
- . 1996b. The Ecology of Native Tadpoles (*Rana boylei* and *Hyla regilla*) and the Impacts of Invading Bullfrogs (*Rana catesbeiana*) in a Northern California River. PhD dissertation. University of California, Berkeley, California.
- . 1997. Bullfrog (*Rana catesbeiana*) invasion of a California river: the role of larval competition. *Ecology* 78(6):1736-1751.
- Lenihan, J., R. Drapek, D. Bachelet, and R. Neilson. 2003. Climate Change Effects on Vegetation Distribution, Carbon, and Fire in California. *Ecological Applications* 13(6) 1667-1681.
- Lips, K. R., F. Brem, R. Brenes, J. D. Reeve, R. A. Alford, J. Voyles, C. Carey, L. Livo, A. P. Pessier, and J. P. Collins. 2006. Emerging infectious disease and the loss of biodiversity in a neotropical amphibian community. *Proceedings of the National Academy of Sciences* 103(9):3165-3170.
- Loredo, I., and D. Van Vuren. 1996. Reproductive Ecology of a Population of the California Tiger Salamander. *Copeia* 4:895-901.
- Loredo, I., D. Van Vuren and M. L. Morrison. 1996. Habitat Use and Migration Behavior of the California Tiger Salamander. *Journal of Herpetology* 30(2): 282-285.

Ms. Melanic Brent

38

- Mao, J., D. E. Green, G. M. Fellers, and V. G. Chincar. 1999. Molecular Characterization of Iridoviruses Isolated from Sympatric Amphibians and Fish. *Virus Research* 6: 45-52. California Department of Fish and Game, Sacramento, California.
- Morey, S. R. 1998. Pool Duration Influences Age and Body Mass at Metamorphosis in the Western Spadefoot Toad: Implications for Vernal Pool Conservation. Pages 86-91 in Witham, C.W., E.T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff (editor). *Ecology, Conservation, and Management of Vernal Pool Ecosystems - Proceedings from a 1996 Conference*. California Native Plant Society. Sacramento, California. 1998.
- Moyle, P. B. 1976. Fish Introductions in California: History and Impact on Native Fishes. *Biological Conservation* 9(1):101-118.
- Pechmann, J. H. K., D. E. Scott, J. W. Gibbons, and R. D. Semlitsch. 1989. Influence of Wetland Hydroperiod on Diversity and Abundance of Metamorphosing Juvenile Amphibians. *Wetlands Ecology and Management* 1(1):3-11.
- Petranka, J. W. 1998. *Salamanders of the United States and Canada*. Smithsonian Institution Press, Washington, D.C.
- Riley, S. P. D., H. B. Shaffer, S. R. Voss, and B. M. Fitzpatrick. 2003. Hybridization Between a Rare, Native Tiger Salamander (*Ambystoma californiense*) and its Introduced Congener. *Biological Applications* 13(5): 1263-1275.
- Saunders, S., C. Montgomery, and T. Easley. 2008. *Hotter and Drier The West's Changing Climate*. Rocky Mountain Climate Organization, Denver, Colorado.
- Scott, D. E. 1994. The Effect of Larval Density on Adult Demographic Traits in *Ambystoma opacum*. *Ecology* 75:1383-1396.
- Semlitsch, R. D., D. E. Scott, and J. H. K. Pechmann. 1988. Time and Size at Metamorphosis Related to Adult Fitness in *Ambystoma talpoideum*. *Ecology* 69: 184-192.
- Semonsen, V. J. 1998. *Ambystoma californiense* (California tiger salamander) Survey Technique. *Herpetological Review* 29:96.
- Shaffer, H. B. and P. C. Trenham. 2004. *Ambystoma californiense* Gray, 1853. California tiger salamander. Pages 605 in Lannoo, M.(editor). *Amphibian declines: The Conservation Status of United States Species*. University of California Press, Berkeley, California. 2005.
- Shaffer, H.B., G.B. Pauly, J.C. Oliver, and P.C. Trenham. 2004. The Molecular Phylogenetics of Endangerment: Cryptic Variation and Historic Phylogeography of the California Tiger Salamander, *Ambystoma californiense*. *Molecular Ecology* 13: 3033-3049.
- Shaffer, H.B., G.M. Fellers, S.R. Voss, C. Oliver, and G.B. Pauley. 2010. Species boundaries, phylogeography, and conservation genetics of the red-legged frog (*Rana aurora draytonii*) complex. *Molecular ecology* 13: 2667-2677.
- Shaffer, H.B., R.N. Fisher, and S.E. Stanley. 1993. Status Report: the California Tiger Salamander (*Ambystoma californiense*). Final report for the California Department of Fish and Game. 36 pages plus figures and tables.
- Stebbins, R. C. 2003. *A Field Guide to Western Reptiles and Amphibians*. Houghton Mifflin Company, Boston, Massachusetts.
- Storer, T. I. 1925. A Synopsis of the Amphibia of California. University of California Publications in Zoology 27:1-1-342.
- . 1933. Frogs and their Commercial Use. California Department of Fish and Game 19(3)203-213.
- Sweet, S. 1998. Letter to Dwight Harvey, U.S. Fish and Wildlife Service with a report titled "Vineyard Development Posing an Imminent Threat to *Ambystoma californiense* in Santa Barbara County, California." University of California, Santa Barbara, California.

Ms. Melanie Brent

39

- Tatarian, P. J. 2008. Movement Patterns of California Red-Legged Frogs (*Rana draytonii*) in an Inland California Environment. *Herpetological Conservation and Biology* 3(2):155-169. November.
- Trenham, P. 1998a. Radio Tracking Information. University of California, Davis, California.
- . 1998b. Demography, Migration, and Metapopulation Structure of Pond Breeding Salamanders. Ph.D. dissertation. University of California, Davis, California.
- . 2001. Terrestrial Habitat Use by Adult California Tiger Salamanders. *Journal of Herpetology* 35(2):343-346.
- Trenham, P. C., and H. B. Shaffer. 2005. Amphibian Upland Habitat Use and its Consequences for Population Viability. *Ecological Applications* 15:1158-1168.
- Trenham, P. C., H. B. Shaffer, W. D. Koenig and M. R. Stromberg. 2000. Life History and Demographic Variation in the California Tiger Salamander (*Ambystoma californiense*). *Copeia* 2000(2): 365-377.
- Trenham, P. C., W. D. Koenig, and H. B. Shaffer. 2001. Spatially Autocorrelated Demography and Interpond Dispersal in the Salamander *Ambystoma californiense*. *Ecology* 82: 3519-3530.
- Twedt, B. 1993. A Comparative Ecology of *Rana aurora* Baird and Girard and *Rana catesbeiana* Shaw at Freshwater Lagoon, Humboldt County, California. Unpublished. Master of Science thesis. Humboldt State University, Arcata, California. 53 pages plus appendix.
- Twitty, V. C. 1941. Data on the Life History of *Ambystoma tigrinum californiense* Gray. *Copeia* 1941 (1):1-4.
- U. S. Fish and Wildlife Service (Service). 1996. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Red-Legged Frog. *Federal Register* 61:25813-25833.
- . 2002. Recovery Plan for the Red-Legged Frog (*Rana aurora draytonii*). Portland, Oregon. 173 pages.
- . 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. Sacramento Field Office, Sacramento, California.
- . 2004. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Tiger Salamander; and Special Rule Exemption for Existing Routine Ranching Activities; Final Rule. *Federal Register* 69: 47212-47248.
- . 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. Sacramento Field Office, Sacramento, California.
- . 2006. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Red-legged Frog (*Rana aurora draytonii*), and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities; Final Rule. *Federal Register* 71(71):19244-19346. April 13.
- . 2010. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the California Red-Legged Frog. *Federal Register* 75:12816-12959.
- Van Hattem, M. G. 2004. Underground Ecology and Natural History of the California Tiger Salamander. Master of Science thesis. San Jose State University, San Jose, California.
- Weldon, C., L.H. du Preez, R. Muller, A.D. Hyatt, and R. Speare. 2004. Origin of the Amphibian Chytrid Fungus. *Emerging Infectious Diseases* 10:2100-2105.
- Wilbur, H. M. and J. P. Collins. 1973. Ecological Aspects of Amphibian Metamorphosis. *Science* (n.s.) 182(4119): 1305-1314.

Ms. Melanic Brent

40

Wright, A. H. and A. A. Wright. 1949. Handbook of Frogs and Toads of the United States and Canada. Comstock Publishing Company, Inc., Ithaca, New York. 640 pages.

Ms. Melanie Brent

41

**APPENDIX A**  
**Sacramento Fish and Wildlife Office**  
**Review Criteria for Section 7 Compensation**  
 Revised January 30, 2014

**Property Assurances and Conservation Easement**

- Title Report [preliminary at proposal, and Final Title Insurance at recordation]; no older than six months;
- Property Assessment and Warranty;
- Subordination Agreement [include if any outstanding debts or liens on the property; may be needed for existing easements];
- Legal Description and Parcel Map;
- Conservation Easement [use the current SFWO standardized CE template]; or
- Non-Template Conservation Easement [this requires additional review]

**Site Assessment and Development**

- Phase I Environmental Site Assessment;
- Habitat Development Plan [include if habitat will be constructed, restored, or enhanced];
- Construction Security Analysis [applicable if habitat is being constructed/enhanced/restored];
- Performance Security Analysis [applicable if there are performance standards];

**Site Management**

- Interim Management Plan;
- Interim Management Security Analysis and Schedule;
- Long-Term Management Plan;
- Endowment Fund Analysis and Schedule;
- Endowment Funding Agreement or Trust Agreement or Declaration of Trust [DFW calls this a "mitigation agreement"]

### Guidelines

#### Real Estate Assurances and Conservation Easement (CE)

##### Title Report

1. Who holds fee title to property?
2. Exceptions to title. Are there any liens or encumbrances (existing debts, leases, or easements) on the property? Note that any existing exceptions to title will have priority over a conservation easement for the mitigation project.
  - a. Review Preliminary Title Report to evaluate liens and encumbrances (see Property Assessment and Warranty, below).
  - b. Could any of these exceptions to title potentially interfere with either biological habitat values or ownership? If existing easements can potentially interfere with the conservation values/habitat of the property, those portions of the land should be deducted from the total compensation acreage available on the site.
  - c. Split estates. Have the water or mineral rights been severed from title? If so, property owner should be encouraged to re-acquire those rights, or at least to acquire the surface-entry rights to remove or limit access for mineral exploration/development.

##### Property Assessment and Warranty

1. Property owner should submit a Property Assessment and Warranty, which discusses every exception to title listed on the Preliminary Title Report and Final Title Insurance Policy, evaluating any potential impacts to the conservation values that could result from the exceptions to title (see below).
2. The Property Assessment and Warranty should include a summary and full explanation of all exceptions remaining on the title, with a statement that the owner/Grantor accepts responsibility for all lands being placed under the CE as available for the primary purposes of the easement, as stated in the easement, and assures that these lands have a free and clear title and are available to be placed under the CE.

##### Subordination Agreement

1. A Subordination Agreement is necessary if there is any outstanding debt on the property; it could also be used to subordinate liens or easements. Review Subordination Agreement language for adequacy—the lending bank or other lien or rights holder must agree to fully subordinate each lien, encumbrance, or easement under the CE.

##### Legal Description and Parcel Map

1. Ensure accuracy of map, and location and acreage protected under the CE.
2. Both the map and the legal description should explain the boundaries of the individual project compensation site. The site should *not* have 'leftover' areas for later use.
3. Ask for an easement map to be prepared (if applicable), showing all easements on the property.

##### Conservation Easement from Template

1. Who will hold the easement?

Ms. Melanie Brent

43

- a. Conservation easements require third-party oversight by a qualified non-profit or government agency (=easement holder or Grantee). Minimum qualifications for an easement holder include:
  - i. Maintaining accreditation by the Land Trust Accreditation Commission <http://www.landtrustaccreditation.org/home>.
  - ii. Organized under IRS 501(c)(3);
  - iii. Qualified under CA Civil Code § 815;
  - iv. Bylaws, Articles of Incorporation, and biographies of Boards of Directors on file at;
    1. Must meet requirements of SFWO, including 51% disinterested parties on the Board of Directors;
  - v. Approved by SFWO
2. Project Applicant should submit a redline version showing all of their proposed revisions in track changes or other editable electronic format, along with an explanation of all deviations from the template.

#### Non-Template Conservation Easement

1. If not using the CE template, the Project Applicant should specify objections they have to the template. This may substantially delay processing as the non-template CE will require review by the Solicitor's Office. Alternate CEs are subject to SFWO approval prior to being granted and recorded.
2. The Project Applicant must either 1) add SFWO as a third-party beneficiary, or 2) add language throughout the document, in all appropriate places, that will assure SFWO the right to enforce, inspect, and approve any and all uses and/or changes under the CE prior to occurrence (including land use, biological management or ownership).
3. Include, at a minimum, language to:
  - a. Reserve all mineral, air, and water rights under the CE as necessary to maintain and operate the site in perpetuity;
  - b. Ensure all future development rights are forfeited;
  - c. Ensure all prohibited uses contained in the CE template are addressed; and
  - d. Link the CE, Management Plan, and the Endowment Fund within the document (e.g., note that each exists to support the others, and where each of the documents can be located if a copy is required).
4. Insert necessary language, particularly, but not exclusively, per: (can compare to CE template):
  - a. Rights of Grantee
  - b. Grantee's Duties
  - c. Reserved Rights
  - d. Enforcement
  - e. Remedies
  - f. Access
  - g. Costs and Liabilities
  - h. Assignment and Transfer
  - i. Merger
  - j. Notices
5. Include a signature block for USFWS to sign "approved as to form".

### Site Assessment and Development

#### Phase I Environmental Site Assessment

1. The Phase I ESA must show that the compensation site is not subject to any recognized environmental conditions as defined by the American Society for Testing and Materials (ASTM) Standard E1527-05 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, available at <http://www.astm.org/Standards/E1527.htm>, (i.e., the presence or likely presence of any Hazardous Substances or petroleum products).
2. If the Phase I ESA identifies any recognized environmental conditions, the Project Applicant must represent and warrant to the SFWO that all appropriate assessment, clean-up, remediation, or removal action has been completed.
3. If the Phase I ESA identifies any recognized environmental conditions, a Phase II ESA may be needed for sampling and laboratory analysis.

#### Restoration or Habitat Development Plan [not required if the site is preservation only]

1. The overall plan governing construction and habitat establishment activities required to be conducted on the Property, including, without limitation, creation, restoration, and enhancement of habitat.
  - a. This plan should include the baseline conditions of the Property including biological resources, geographic location and features, topography, hydrology, vegetation, past, present, and adjacent land uses, species and habitats occurring on the property, a description of the activities and methodologies for creating, restoring, or enhancing habitat types, a map of the approved modifications, overall habitat establishment goals, objectives and Performance Standards, monitoring methodologies required to evaluate and meet the Performance Standards, an approved schedule for reporting monitoring results, a discussion of possible remedial actions, and any other information deemed necessary by the SFWO.
2. Any permits and other authorizations needed to construct and maintain the site shall be included and in place prior to the start of construction of the habitat.
3. Full construction plans for any habitat construction are subject to SFWO approval and must be *SFWO-approved prior* to the start of construction of the habitat.

#### Construction Security

1. Construction Security in the amount of 100% of a reasonable third party estimate or contract to create, restore, or enhance habitats on the property in accordance with the Restoration or Habitat Development Plan.
2. Construction Security can be drawn on should the project proponent default.
3. The Construction Security should be in the form of an irrevocable standby letter of credit or a cashier's check.
  - a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
  - b. Beneficiary: a third party subject to approval by the SFWO.
  - c. Language in a draft letter of credit subject to approval by the SFWO.

Ms. Melanie Brent

45

Performance Security *only necessary if habitat if performance standards have been identified*

1. Performance Security in the amount of 20% of the Construction Security.
2. Performance Security can be drawn on should the Performance Standards not be met, if remedial action becomes necessary.
3. The Performance Security in the form of an irrevocable standby letter of credit or a cashier's check.
  - a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
  - b. Beneficiary: a third party who is subject to approval by the SFWO.
  - c. Language in a draft letter of credit is subject to SFWO approval.

**Site Management**Interim Management Plan

1. The Interim Management Plan should identify the short-term management, monitoring, and reporting activities to be conducted from the time construction ends until the Endowment Fund has been fully funded for three years and all the Performance Standards in the Development Plan have been met. This may be the same as the Long-term Management Plan.

Interim Management Security Analysis and Schedule

*The purpose of the Interim Management Security is to allow the endowment to grow for at least three years without any disbursements, and is a safeguard to ensure that there will be enough funds in the endowment to pay for future management costs. The period can be longer than three years; a 5 year period is recommended by many land trusts.*

1. Interim Management Security (in the form of a standby letter of credit) in the amount equal to the estimated cost to implement the Interim Management Plan during the first three years of the Interim Management Period, as set for in the Interim Management Security Analysis and Schedule.
2. The Interim Management Security Analysis and Schedule should be in the form of a table and/or spreadsheet that shows all of the tasks (management, monitoring, reporting), task descriptions, labor (hours), cost per unit, cost frequency, timing or scheduling of the tasks, the total annual funding necessary for each task, and any associated assumptions for each task required by the Interim Management Plan. The total annual expenses should include administration and contingency costs.
3. The Interim Management Security:
  - a. Held by a qualified, non-profit organization or government agency, subject to SFWO approval [see requirements under CE above], and
  - b. Held according to minimum standards for assuring maximum success in earning potential, and will include assurances to safeguard against loss of principle.
  - c. Instructions for disbursements or releases from the fund must be outlined in the Endowment Management Agreement/Trust Agreement/Declaration of Trust.

Long-Term Management Plan (LTMP)

1. The LTMP template identifies the long-term management, monitoring and reporting activities to be conducted.
2. The LTMP should include at minimum:
  - a. Purpose of the Project and purpose of the LTMP;
  - b. A baseline description of the setting, location, history, and types of land use activities, geology, soils, climate, hydrology, habitats present (once project meets Performance Standards), and species descriptions;
  - c. Overall management, maintenance and monitoring goals; specific tasks and timing of implementation; and discussion of any constraints, which may affect goals;
  - d. The Endowment Fund Analysis and Schedule (see below);
  - e. Discussion of Adaptive Management actions for reasonably foreseeable events and possible thresholds for evaluating and implementing Adaptive Management;
  - f. Rights of access to the Property and prohibited uses of the Property as provided in the CE; and
  - g. Procedures for Property transfer, land manager replacement, amendments, and notices.
3. The LTMP must be incorporated by reference in the CE.
4. The LTMP is considered a living document and may be revised as necessary upon agreement of the land manager, easement holder, and SFWO.

Endowment Fund Analysis and Schedule

1. Can use a PAR or PAR-like analysis and must be based upon the final LTMP, subject to SFWO approval.
  - The analysis should be developed with input by the land manager and conservation easement holder.
2. The analysis and schedule should be in the form of a table and/or spreadsheet that shows, at a minimum:
  - all of the tasks (management, monitoring, reporting)
  - task descriptions, with tasks numbers cross-referenced in management plan(s)
  - labor (hours)
  - materials
  - cost per unit (hr., linear feet, each, etc.).
  - cost frequency
  - timing or scheduling of the tasks,
  - the total annual funding necessary for each task, and
  - the assumptions required for each task by the Management Plan.
3. The total annual expenses should include administration and contingency costs (contingency can be included on each line item – identify the percentage). Unless there is a separate endowment for the purpose of monitoring and reporting on the CE conditions, then, the analysis should also include costs of
  - Monitoring and reporting CE conditions;
  - Defending the CE; and
  - Liability insurance.

Ms. Melanie Brent

47

4. The Endowment Fund:
  - Held by a qualified, SFWO-approved, non-profit organization or government agency [see requirements under CE above],
  - Held according to minimum standards for assuring maximum success in earning potential, and should include assurances for no loss of principle.
  - Disbursements or releases from the fund must be for documented expenditures, as they occur.

Endowment Funding Agreement

1. This is the agreement between the endowment holder and the Project Applicant, as to how the endowment is to be funded, held and disbursed;
2. USFWS is not signatory to this agreement, but there should be a signature block on the agreement for SFWO to sign "approved as to form";
3. USFWS has approval authority over the language in the document, and it must state that modifications or transfer of the endowment to another holder are subject to USFWS approval;
4. This agreement can also be called: "Trust Agreement", "Declaration of Trust"
5. When the CA Dept. of Fish and Wildlife is involved, this is called "Mitigation Agreement"

**Appendix F**

***Title VI Policy Statement***

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

**DEPARTMENT OF TRANSPORTATION**

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



*Flex your power!  
Be energy efficient!*

March 2013

**NON-DISCRIMINATION  
POLICY STATEMENT**

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

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: [http://www.dot.ca.gov/hq/bep/title\\_vi/t6\\_violated.htm](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 14<sup>th</sup> Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

A handwritten signature in blue ink, appearing to read "Malcolm Dougherty".

MALCOLM DOUGHERTY  
Director

*"Caltrans improves mobility across California"*

**THIS PAGE INTENTIONALLY LEFT BLANK**

**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

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  
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, P.O. Box 2050  
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