

Interstate 580 Storm Damage Repair

Alameda County, East of Livermore, near Stone Cut Railroad Underpass

04-ALA-580-PM R3.9/R4.2

SCH# 2013082043

Project ID: 0412000008 (04-2G850)

Initial Study with Mitigated Negative Declaration



Prepared by the
State of California Department of Transportation

August 2014



General Information About This Document:

What's in this Document:

This document contains a Mitigated Negative Declaration, and the supporting study examines the environmental effects of a project on Interstate 580 in Alameda County.

The Initial Study with Proposed Mitigated Negative Declaration circulated to the public from August 12, 2013 to September 12, 2013. A public notice was published August 10, 2013 in the Tri-Valley Herald announcing the availability of the draft environmental document, and indicating that a public meeting could be held upon request during this period, although no meeting was requested. Responses to comments on the circulated document are shown in Appendix G of this document. Elsewhere throughout this document, a vertical line in the margin indicates a content change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated.

What happens after this:

The project has completed environmental compliance after the publication of this document, and filing of the Notice of Determination with the Office of Planning and Research- State Clearinghouse. Once funding is approved, the California Department of Transportation and the Federal Highway Administration can design, acquire right-of-way for, and construct the project.

Additional copies of this document as well as the technical studies are available at:

Caltrans District 4 Environmental office at: 111 Grand Avenue, Oakland, CA 94612

Livermore Public Library (Civic Center): 1188 South Livermore Avenue, Livermore, CA 94550 (see web address for hours of operation or directions:

<http://www.cityoflivermore.net/citygov/lib/>)

The document can also be accessed electronically at the following Caltrans website:

<http://www.dot.ca.gov/dist4/envdocs.htm>

Questions about the project can be directed to:

Yolanda Rivas, Senior Environmental Planner
California Department of Transportation (Caltrans)
111 Grand Ave, Oakland, CA 94612
(510-286-6216)
Email: Yolanda.rivas@dot.ca.gov

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Yolanda Rivas, District 4 Environmental Analysis Branch, 111 Grand Avenue, Oakland, CA 94612; 510-286-6216, or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice), or 711.

PROJECT DESCRIPTION AND BACKGROUND

Project Title:	Alameda County, Interstate 580, Storm Damage Project- Repair Slip-out
State Clearinghouse #	2013082043
Lead Agency Name and Address Office:	California Department of Transportation (Caltrans) 111 Grand Avenue, Oakland, CA 94612
Contact Person and Telephone Number:	Yolanda Rivas, Senior Environmental Planner California Department of Transportation (Caltrans) 111 Grand Ave, Oakland, CA 94612 (510-286-6216) Email: Yolanda.rivas@dot.ca.gov
Project Location:	Eastbound Interstate 580 (I-580), Alameda County, near Livermore, at Stone Cut Underpass (see Figures 1 and 2)
General Plan Description:	Located at the mouth of a primary natural pass, I-580 traverses Castro Valley. The I-580 corridor provides regional access between the Tri-Valley communities of Dublin, San Ramon, Danville, Pleasanton, and Livermore, as well as the Central Valley, and the East Bay communities of Hayward, San Leandro, and Oakland.
Zoning:	Transportation corridor in unincorporated Alameda County
Description of Project:	The major elements of the project include: install a retaining wall (600 feet long and 30 feet deep); repair/modify existing drainage facilities, including two cross culverts (18-inch pipes) across eastbound I-580, two down drains on the south side slope, dikes, and ditches associated with the roadway reconstruction; widen the outside shoulder by 4.5 feet, and widen the inside shoulder by 2 feet; reconstruct the highway pavement within the project limits; install metal beam guard railing.
Surrounding Land Uses and Setting:	The project is in the State right-of-way on undeveloped rolling hillside of grassland, adjacent to a railroad crossing I-580 eastbound lanes. Wind energy windmills cover adjacent hills.
Other Public Agencies Whose Approval is Required:	<ul style="list-style-type: none"> • U.S. Fish and Wildlife Service (Sacramento Office) • California Department of Fish and Wildlife (Bay-Delta Region Office) • Union Pacific Railroad

Note: Pursuant to (State) Division 13, California Public Resources Code—This project documentation has been prepared in compliance with the California Environmental Quality Act (CEQA). A Categorical Exclusion has been signed for National Environmental Policy Act (NEPA) compliance.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

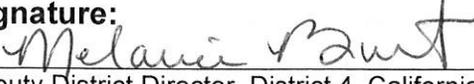
The environmental factors checked below would be potentially affected by this project. Please see the checklist beginning on page 8 for additional information. Any boxes *not* checked represent issues that were considered as part of the scoping and environmental analysis for the project, but for which no adverse impacts were identified. Regarding boxes not checked, no further discussion of these issues is in this document.

<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"/>	Paleontology	<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				

DETERMINATION:

On the basis of this initial evaluation, check one of the boxes below:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because, although a 2081 permit is required, mitigation will compensate for any impacts, therefore A MITIGATED NEGATIVE DECLARATION has been prepared and signed.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION , including revisions or mitigation measures that are imposed upon the proposed project.

Signature: 	Date: Aug. 29, 2014
Deputy District Director, District 4, California Department of Transportation	
Printed Name: Melanie Brent	

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to repair the storm-damaged embankment, pavement and drainage system along eastbound Interstate 580 at approximately 0.1 mile west of Stone Cut Underpass (PM R4.0) east of the city of Livermore in Alameda County.

Determination

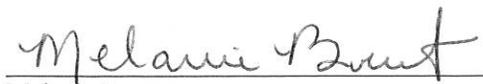
Caltrans has prepared an Initial Study for this project and, following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The project would have no effect on: land use, coastal zone, Wild and Scenic Rivers, parks and recreational facilities, pedestrian and bicycle facilities, growth, farmlands/timberlands, businesses, cultural resources, community character, paleontology, air quality, noise or vibration.

In addition, the project would have no significant effect on: utilities, emergency services, traffic and transportation, visual/aesthetics, hydrology/floodplain, water quality/storm water runoff, geology/soils/seismic/topography, hazardous waste/materials or climate change.

In addition, because the following mitigation measures would reduce potential effects to insignificance, the proposed project would not have a significant adverse effect on biological resources:

- Suitable habitat for each species, or suitable multi-species habitat, 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. Alternatively, credits will be purchased at a conservation bank approved by the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service.


Melanie Brent
Deputy District Director, District 4
California Department of Transportation

Aug. 29, 2014
Date

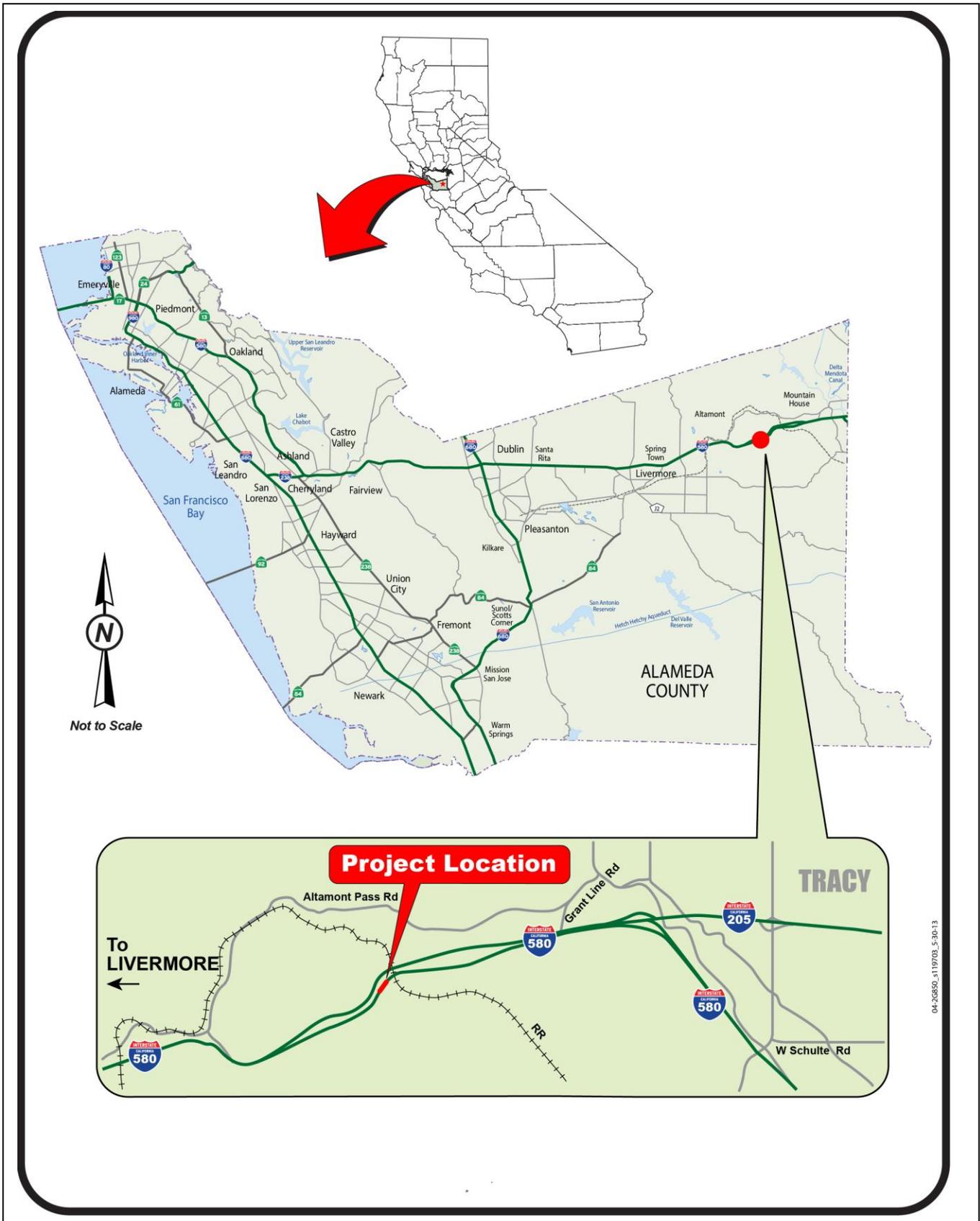


Figure 1: Project Vicinity Map

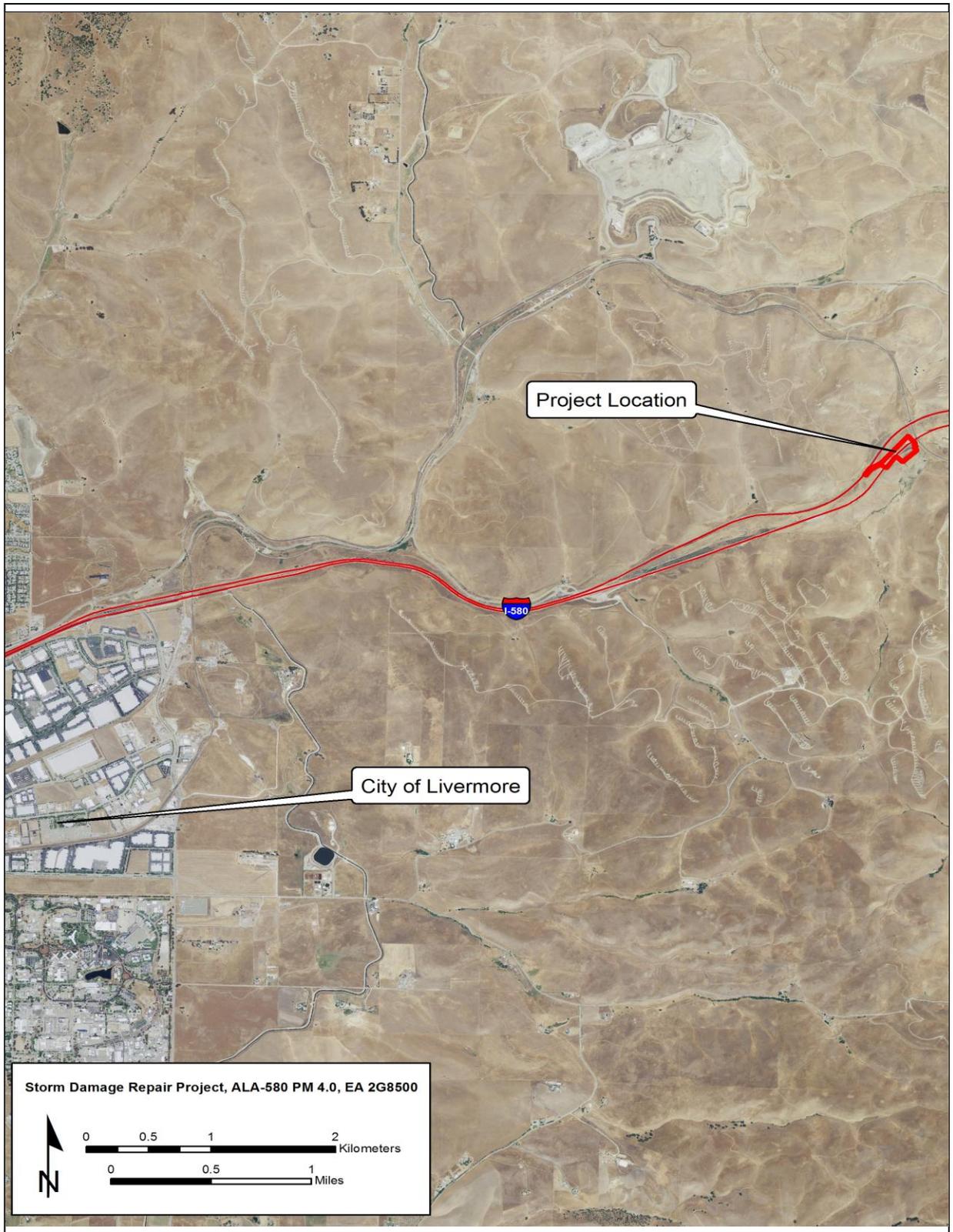


Figure 1 Project Location Map

California Environmental Quality Act Checklist

04-ALA-580

R3.9/R4.2

04-2G850_ID #0412000008

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 a clarifying discussion is needed, the discussion either follows the applicable section in the checklist or is placed 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE AND FOREST RESOURCES:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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"/>
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U.S. Department of Fish and Wildlife Section 7 Biological Opinion and California Department of Fish and Wildlife 2081 permit required. Both permits will require off-site mitigation.				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Nationwide 404 permit required for temporary impacts				
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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

V. CULTURAL RESOURCES: Would the project:

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

VI. GEOLOGY AND SOILS: Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

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?

An assessment of the greenhouse gas emissions and climate change is included in Appendix C

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

of this environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas 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.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Soils contaminated with aerially deposited lead may require transport offsite; see further information below.

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"/>
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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"/>
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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"/>
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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"/>
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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"/>
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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"/>
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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"/>
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Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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IX. HYDROLOGY AND WATER QUALITY: Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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 storm water 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"/> |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

X. LAND USE AND PLANNING: Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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XI. MINERAL RESOURCES: Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XII. NOISE: Would the project result in:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XIII. POPULATION AND HOUSING: Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XIV. PUBLIC SERVICES:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Additional Explanations for Questions in the Checklist

IV. Biological Resources (checklist questions a and c)

The discussion below covers Threatened and Endangered Species (resources that triggered a checklist response other than No Impact).

Affected Environment

The project sits on the south side of Altamont Pass within rolling hills and grassland habitat. The elevation in this area ranges from 740 to 1,000 feet above sea level. Mountain House Creek borders the south side of I-580 south of the project area and flows to the east toward the Central Valley. Mountain House Creek confluences with the San Joaquin River; Arroyo Seco Creek confluences with Alameda Creek and flows into the San Francisco Bay.

A Natural Environment Study (June 2013) was prepared for this project. For the preparation of this report, studies were conducted to evaluate the potential presence of special-status wildlife and plant species, wetlands and other waters of the U.S. and other sensitive biological resources in and around the project area.

The biological study area is defined as the project impact area—the area to be directly affected—plus adjacent areas that may be indirectly affected by the proposed project. The biological study area is within the existing Caltrans right-of-way. The surrounding landscape consists mostly of agricultural grazing land and includes utility facilities. A series of windmills is located south and east of the project location. The biological study area encompasses 7.4 acres. A combination of database searches, literature review, botanical surveys, and wetland delineation was conducted.

Habitats that support a number of common wildlife species are present and intermixed throughout the study area.

Threatened and Endangered Species

Federal- and state-listed species that could be present in the study area include the following:

- **California red-legged frog (*Rana draytonii*) – Federal Threatened, State Species of Special Concern.** These frogs mainly inhabit permanent water sources such as streams, lakes, marshes, natural and human-made ponds, as well as drainages in valley bottoms and foothills. The closest designated critical habitat is adjacent to the study area, bordering the right-of-way. Based on the result of the

habitat survey conducted, suitable breeding habitat for the California red-legged frog was not identified within the study area. However, the survey did identify suitable breeding habitat to the east of the study area and, considering that, determined that the biological study area would provide suitable upland habitat for this species. No protocol level surveys have been conducted for this species. Presence has been assumed.

- **California tiger salamander (*Ambystoma californiense*) – Federal Threatened, State Candidate Endangered.** California tiger salamanders inhabit lowland grasslands, oak savannah, and mixed woodland habitats. They require vernal pools, seasonal ponds, or semi-permanent calm waters that pond water for at least 3 to 4 months at a time for breeding and larval maturation, and adjacent upland habitat with small mammal burrows. The salamanders begin migrating to breeding sites after the onset of winter rains and have been documented traveling up to 1.3 miles from breeding sites. The habitat survey did not identify suitable breeding habitat for the California tiger salamander, but did find such habitat nearby and determined that the study area offers suitable upland habitat for this species. No protocol-level surveys have been conducted for this species. Presence has been assumed.

Within the biological study area, two culverts provide partial passage below the eastbound lanes between the central median and the grasslands south of the biological study area. Although these culverts do not provide direct connectivity across I-580, they may facilitate north-south migratory and dispersal movement in the vicinity; if California tiger salamanders are able to successfully cross the westbound lane, north-south migratory and dispersal movement could occur through the median between grasslands to the north and south.

The study area does not overlap with designated critical habitat for the California tiger salamander. The closest critical habitat unit is approximately 6 miles west.

- **San Joaquin kit fox (*Vulpes macrotis mutica*) – Federal Endangered, State Threatened.** This species is found in the southern half of California, but can range as far north as Contra Costa County. These foxes prefer habitat consisting of annual grasslands or open grassy portions of vegetation with mixed scrub and small brush. Cover is provided by dens, which they dig out in open level areas with loose textured sandy and loamy soils. There is no designated critical habitat for the San Joaquin kit fox in the study area or within 10 miles. No dens were observed during surveys within the study area, and the study area does not contain suitable denning

habitat. Based on the results of the surveys, it is not anticipated that San Joaquin kit foxes would potentially use habitat within the study area nor be affected by the proposed project.

- **Large-flowered fiddleneck (*Amsinkia grandiflora*) – Federal Endangered, State Endangered, CNPS 1B.1.** The large-flowered fiddleneck is an annual herb in the borage family. It grows up to 2 feet tall and blooms March to May. It has bright red-orange flowers arranged in a fiddleneck-shaped cluster and has the potential to occur within the vicinity of the action area.

Special-status and locally rare species that could be present in the study area include the following:

- **American badger (*Taxidea taxus*) – California Species of Special Concern.** Numerous occurrences have been recorded within a 10-mile radius of the biological study area. Suitable habitat for the species is present within and near the study area, and there are multiple occurrences within the vicinity. Moderate potential exists for the American badger to occur within the biological study area. The surrounding grasslands and presence of mammal burrows indicate suitable habitat for this species.
- **Loggerhead shrike (*Lanius ludovicianus*) – California Species of Special Concern.** The loggerhead shrike is a resident of lowlands in California and a migrant in the adjacent foothills. It is found in grasslands, valley foothill hardwood, valley foothill hardwood-conifer, and valley foothill riparian habitats, preferring plant communities with open canopies. It nests in shrubs and trees with thick or thorny characteristics. It may also be found in croplands, but is rare in urban areas. Loggerhead shrikes occur within the 10-mile radius of the biological study area. Most occurrences are found southeast of the study area. Grasslands within the area provide suitable foraging habitat for loggerhead shrikes, but no suitable breeding habitat is present.
- **Tricolored blackbird (*Agelaius tricolor*) – California Species of Special Concern.** The tricolored blackbird is highly colonial and most numerous in the vicinity of the Central Valley. It is largely endemic to California and requires open water, protected nesting substrate, and foraging areas with insect prey within a few miles of the colony. Nesting occurs from March through August. The bird nests near open water and foraging areas in thorny or spiny vegetation. Tricolored blackbirds

were not observed; however, suitable foraging habitat for the tricolored blackbird is present within and adjacent to the biological study area.

Environmental Consequences

Threatened and Endangered Species impacts include the following:

- **California red-legged frog (*Rana draytonii*) – Federal Threatened, State Species of Special Concern.** Temporary impacts to habitat include disturbance due to clearing and equipment access and staging; permanent impacts include loss of dispersal and migration habitat (although migration habitat is very poor within the project footprint) associated with roadway widening and retaining wall construction. This loss of dispersal habitat could constitute a disturbance and result in a “take” (harm to a frog) if California red-legged frogs are present. No direct or indirect impacts to breeding habitat are anticipated. If California red-legged frogs are present in the action area during construction, “take” may occur in the form of harm, harassment, injury, and mortality associated with construction activities. The project would result in the temporary loss of 1.37 acres and permanent loss of 0.13 acre of California red-legged frog dispersal and upland habitat, consisting primarily of nonnative grassland.
- **California tiger salamander (*Ambystoma californiense*) – Federal Threatened, State Candidate Endangered.** Temporary impacts to dispersal/aestivation habitat for California tiger salamander include disturbance due to clearing and equipment access and staging; permanent impacts include loss of dispersal and migration habitat (although migration habitat is very poor within the project footprint) associated with roadway widening and soil nail wall construction. This loss of dispersal habitat could constitute a disturbance and result in a “take” (harm to a salamander) if salamanders are present. No direct or indirect impacts to salamander breeding habitat are anticipated. The project would result in approximately 1.37 acres of temporary impacts and 0.13 acre of permanent impacts to the potential upland habitat. Breeding habitat does not occur within the study area and would not be affected by the project.
- **San Joaquin kit fox (*Vulpes macrotis mutica*) – Federal Endangered, State Threatened.** A biological opinion was obtained from the United States Fish and Wildlife Service through formal section 7 consultation for a *may affect, not likely to adversely affect* determination of impacts to San Joaquin kit fox. The Service

concur with the determination that the project is not likely to adversely effect, as the project effects will be discountable.

- **Large-flowered fiddleneck (*Amsinkia grandiflora*) – Federal Endangered, State Endangered, CNPS 1B.1.** Due to the limited area of the project scope, no direct or indirect impacts to the large-flowered fiddleneck are currently anticipated.

Special-status and locally rare species that could be present in the study area include the following:

- **American badger (*Taxidea taxus*) – California Species of Special Concern.** Impacts to this species include both temporary and permanent impacts to foraging habitat. The American badger may also be indirectly affected by noise, light, and visual disturbance; however, since the project area is already highly disturbed due to roadway traffic, these impacts are expected to be negligible.
- **Loggerhead shrike (*Lanius ludovicianus*) – California Species of Special Concern.** Implementation of the project would not result in the removal of nesting habitat. However, implementation of the project may result in the removal of marginal suitable foraging and dispersal habitat. This habitat is considered marginal given its proximity to I-580 and human-disturbed areas. The removal of the marginal habitat is not expected to have any adverse effect on this species. No direct impacts to this species are anticipated. Additionally, the implementation of the various avoidance and minimization measures would further lessen the degree and potential impacts to this species.
- **Tricolored blackbird (*Agelaius tricolor*) – California Species of Special Concern.** The project may result in the removal of marginal suitable foraging, nesting, and dispersal habitat. This habitat is considered marginal given its proximity to I-580 and human-disturbed areas. The removal of the marginal foraging habitat is not expected to have any adverse effect on this species. Avoidance and minimization measures would further ensure that this species is not affected by the project.

Jurisdictional Wetland Delineation

No impacts are anticipated to wetlands or waters of the U.S.

Consultation/Permits

Consultation was initiated through submittal of: the Biological Assessment to the U.S. Fish and Wildlife Service (Sacramento Office) with the request for a Biological Opinion (permit), which has been obtained and is included in this document as Appendix E. An Incidental Take Permit under section 2081(b) of the California Endangered Species Act will be obtained from the California Department of Fish and Wildlife prior to the start of construction.

Avoidance, Minimization and Mitigation

Avoidance and Minimization

- **California red-legged frog (*Rana draytonii*) – Federal Threatened, State Species of Special Concern.** Due to the proximity of habitat and documented occurrences of the California red-legged frog in the vicinity, Caltrans would implement, the following specific measures to avoid or minimize potential impacts to listed amphibian species (including California red-legged frog):
 - **Seasonal Work Window:** Except for limited vegetation clearing necessary to minimize effects to nesting birds, all work will be conducted between April 15 and October 15.
 - **Preconstruction Surveys:** A U.S. Fish and Wildlife Service-approved biologist would conduct a preconstruction survey within the biological study area 14 days prior to the start of construction activities. Preconstruction surveys would be conducted in areas where ground-disturbing activities, some of which include vegetation clearing, grubbing, or slope excavation, would occur. If California red-legged frogs are observed, the biologist would notify the U.S. Fish and Wildlife Service to determine the appropriateness of relocating the species. If the agencies approve relocation, a U.S. Fish and Wildlife Service biologist would be allowed sufficient time to move the species from the work site before work activities begin. Only U.S. Fish and Wildlife Service-approved biologists would participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.
 - **Construction Area Delineation:** Prior to any ground disturbance within the biological study area, the boundaries of the disturbance area would be clearly delineated with orange-colored plastic high-visibility construction fencing (Environmentally Sensitive Area fencing) or solid barriers to prevent workers or equipment from inadvertently straying from the project footprint.

- Wildlife Exclusion Fencing: Exclusion fencing would be erected along the edge of the project footprint area before project activities begin, including staging equipment and supplies. Fencing would be a minimum of 3 feet high and buried in the soil or from a tight seal with the pavement to prevent listed amphibian species from crawling under and entering the project area.
- 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 a minimum of:
 - a. A description of the California red-legged frog and Central California tiger salamander and their habitat within the project area,
 - b. An explanation of the status of these species and their protection under state and federal laws,
 - c. The avoidance and minimization measures to be implemented, communication and stop-work procedures (in case of a listed species being observed in the project area),
 - d. An explanation of 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. All personnel attending the training will sign a form stating that they attended and understood all avoidance and minimization measures and implications of the Act.

- Procedure for Listed Species Discovery Onsite: If a listed amphibian species, or what construction personnel believes may be listed species, is encountered during project construction, or if any contractor, employee, or agency personnel inadvertently kills or injures a listed amphibian, the following protocol would be followed:
 - a. All work that could result in direct injury, disturbance, or harassment of the individual animal would immediately cease.
 - b. The Resident Engineer would be immediately notified.

- c. The Resident Engineer would notify the approved onsite biologist.
 - d. The listed species would be captured and immediately transported in a cool, moist container to a suitable location outside the project area (e.g., suitable habitat adjacent to but outside of the project footprint area). The relocation site would be determined in advance by a U.S. Fish and Wildlife Service-approved biologist in consultation with the U.S. Fish and Wildlife Service (and California Department of Fish and Wildlife if appropriate). The relocated individual(s) would be monitored until it is determined that the animal(s) are not imperiled by predators or other dangers.
 - e. The onsite biologist would notify the U.S. Fish and Wildlife Service within 24 hours after listed species have been relocated.
 - f. If a listed species had been killed or injured, the biologist would contact the U.S. Fish and Wildlife Service within 24 hours.
- Entrapment Avoidance: To prevent inadvertent entrapment of listed amphibian or mammal species during construction, all excavated, steep-walled holes or trenches more than 1 foot deep would be covered with plywood or similar material at the end of each working day, or the holes or trenches would contain one or more escape ramps constructed of earth fill or wooden planks. At the beginning of each work day, and before such holes or trenches are filled, they would be thoroughly inspected for trapped animals. If, at any time, a trapped listed species (or other wildlife) is discovered, the U.S. Fish and Wildlife Service would be contacted.
 - Prohibition of erosion control material potentially harmful to the California red-legged frog: Plastic monofilament netting (erosion control matting) or similar material would not be used at the project site because listed amphibian species may become entangled and trapped in it. Tightly woven fiber netting or similar material would be used for erosion control or other purposes.
 - Prevention of introduction of amphibian diseases: Biologists would take all precautions to prevent the spread of amphibian diseases when handling listed species. All equipment and clothing would be disinfected per protocol standards.

- **Biological Monitor:** A Service-approved Biological Monitor will be onsite during all activities that may result in a take of California red-legged frog or Central California tiger salamander, as determined by the Service. A minimum of one Service-approved biologist will be onsite throughout the project duration. Should a California red-legged frog be identified, construction would be halted, U.S. Fish and Wildlife Service and California Department of Fish and Wildlife would be contacted and, with approval, the individual would be relocated by a permitted biologist before construction is restarted.
- **Revegetation:** All slopes or unpaved areas that are temporarily affected by the proposed action will be revegetated with an appropriate mix of native grasses and shrubs. Where trees or plants are removed, native species will be replanted and maintained until they become established.
- **California tiger salamander (*Ambystoma californiense*) – Federal Threatened, State Candidate Endangered.** Due to the potential for presence of the California tiger salamander, a State Threatened Species within upland habitats, avoidance and minimization measures outlined for California red-legged frog would also be implemented to avoid and/or minimize impacts on this species. The following additional measures would be implemented by Caltrans to further avoid or minimize impacts of the project on the California tiger salamander:
 - **Preconstruction survey and relocation:** A U.S. Fish and Wildlife Service-approved and California Department of Fish and Wildlife-approved biologist would conduct a preconstruction survey of the work site 14 days prior to the start of work construction activities, including vegetation clearing, grubbing, or other ground disturbance activities. If California tiger salamander adults or juveniles are found within the project footprint, all work that could result in direct injury, disturbance, or harassment of the individual animal would immediately cease and can resume once there is no potential for the species to be affected. The biological monitor should contact the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife to determine whether relocating the species is appropriate. If the agencies approve of relocation, a U.S. Fish and Wildlife Service-permitted biologist should be allowed sufficient time to move the species from the work site before work activities begin. Only U.S. Fish and Wildlife Service-approved and California Department of Fish and Wildlife-approved biologists may participate in

activities associated with the capture, handling, and monitoring of California tiger salamander.

Mitigation

- **California red-legged frog (*Rana draytonii*) – Federal Threatened, State Species of Special Concern.** In accordance with the Federal Endangered Species Act, Caltrans proposes to mitigate for habitat impacted by the project. The 0.13 acre of permanent impacts to California red-legged frog habitat would be mitigated at an offsite mitigation source at a 3:1 ratio. The total mitigation for permanent impacts at a 3:1 ratio is 0.39 acre. Temporary impacts to habitat would be mitigated at a 1.1:1 ratio. A 1:1 ratio would be restored onsite, and the remaining would be purchased at an offsite mitigation source. Caltrans would purchase single- or multiple-species acreage from an agency-approved mitigation source.
- **California tiger salamander (*Ambystoma californiense*) – Federal Threatened, State Candidate Endangered.** In accordance with the Federal Endangered Species Act and the California Endangered Species Act, Caltrans proposes to mitigate for California tiger salamander habitat impacted by the project. The 0.13 acre of permanent impacts to salamander habitat would be mitigated at an offsite mitigation source at a 3:1 ratio. The total mitigation for permanent impacts at a 3:1 ratio is 0.39 acre. Temporary impacts to habitat would be mitigated at a 1.1:1 ratio. A 1:1 ratio would be restored onsite, and the remaining would be purchased at an offsite mitigation source. Caltrans would purchase single- or multiple-species acreage from an agency-approved mitigation source.

Jurisdictional Wetland Delineation

Due to the implementation of avoidance and minimization measures, no indirect impacts to waters outside of the project footprint are anticipated; therefore, no mitigation is proposed for these features. Caltrans will use AMMs to protect surrounding wetlands.

VIII. Hazards and Hazardous Materials (checklist question a)

Affected Environment

A database search did not reveal the presence of known hazardous waste sites within one-quarter mile of the project limits, and there is no right-of-way acquisition. Since

the project will not alter any bridges and is not located within the area where naturally occurring asbestos (NOA) is likely to be found, an asbestos survey is not needed.

Lead-based paint may be present in yellow traffic striping and pavement-marking materials along the highway within the project limits. These hazardous materials were eliminated from Caltrans roadway construction in 1989.

Aerially deposited lead created by the exhaust of cars burning unleaded gasoline is common near freeways and highways. Due to the vehicular activity on I-580 since the 1970s, the adjacent soil is likely to contain elevated lead concentrations. This project will involve roadway excavation in areas where aerially deposited lead is likely to be present due to historic vehicle emissions. There was a site investigation conducted in 2010 for another Caltrans project (the eastbound I-580 truck climbing lane project, Ala-580, PM R4.7-R8.2, EA 04-4A07U4) close to this project footprint, where contaminated soil was found.

Environmental Consequences

Lead-based paint in good condition does not present an immediate health risk; however, lead particles could be emitted into the air during pavement renovation activities.

Construction activities will disturb soil with potentially elevated lead levels in excess of the hazardous waste threshold, requiring one or both of the following: either disposal at a Class I landfill or re-use of contaminated soils onsite abiding by the Department of Toxic Substance Control-determined special provisions.

Since the scope and site settings of the truck climbing lane project and this project are very similar, it could be that a new subsurface investigation exclusively for this project will not be necessary and the data collected from the 2010 site investigation will be suitable for use in this project to assess different soil management options.

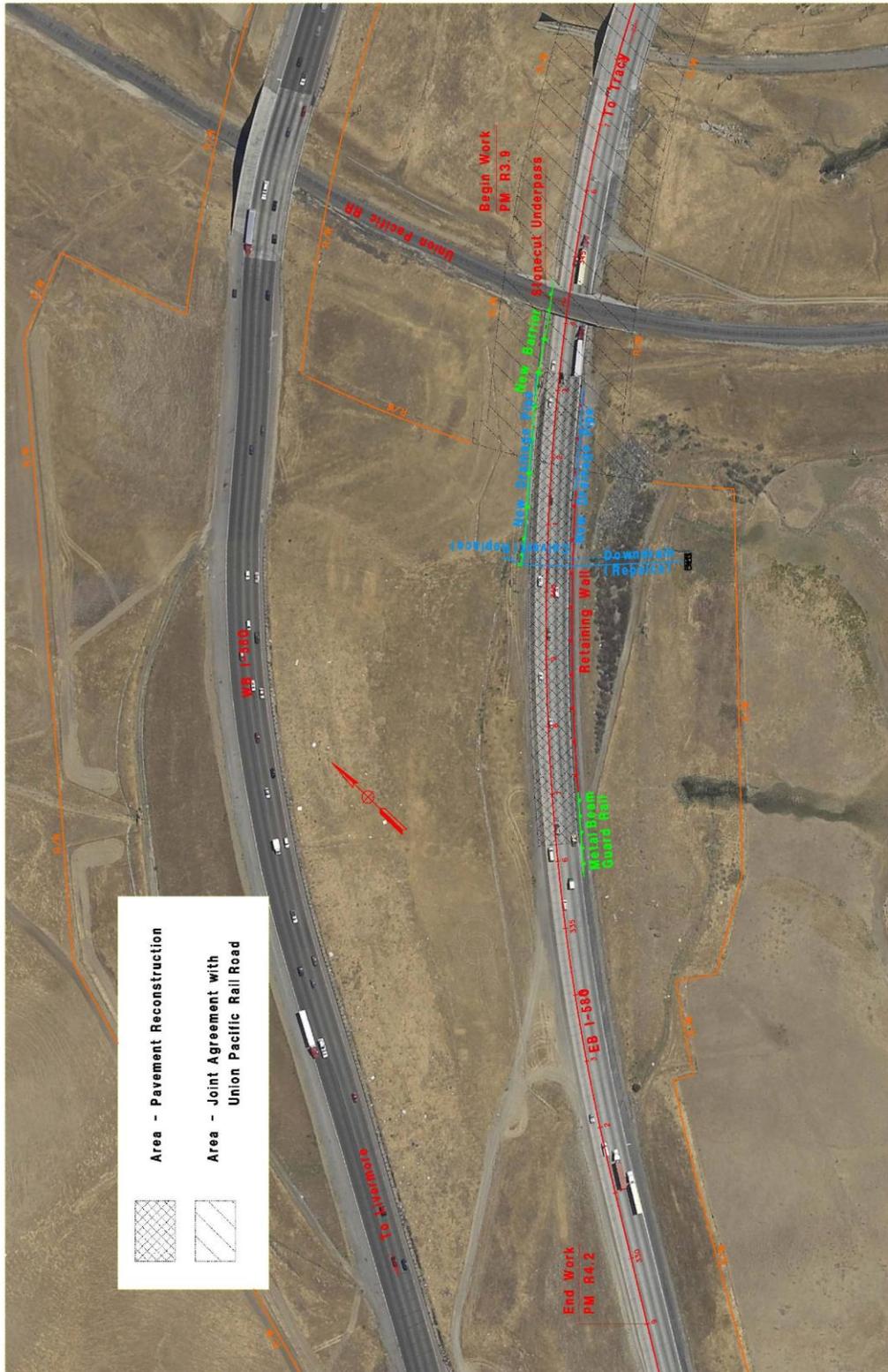
The Department of Toxic Substances Control issued Caltrans a variance, which allows Caltrans to manage lead-contaminated soil within its right-of-way.

Protective measures to reduce or eliminate hazardous waste-related impacts include the following:

- Construction contractor(s) would be required to prepare a Lead Compliance Plan to be approved by Caltrans before construction activities because lead was found to be present in the soil.

- Soil to be disturbed by the project has been tested, and testing to date has determined that lead from automobile emissions is present in the soil along the highway. Any excavated soil would be handled and disposed of in accordance with all applicable laws and regulations. Language will be included in the construction contract to ensure that this material is managed appropriately, requiring one or both of the following: disposal at either a Class I landfill or re-use of contaminated soils onsite abiding by the Department of Toxic Substance Control-determined special provisions.

Appendix A Project Map



Appendix B Permits, Reviews, Approvals

Agency	Permit/Approval (federal, state and local)	Status
U.S. Fish and Wildlife Service (Sacramento Office)	Endangered Species Act Section 7 Consultation for federally listed Threatened and Endangered Species – Biological Opinion from the U.S. Fish and Wildlife Service	A Biological Assessment evaluating the project's potential effects to the California red-legged frog and California tiger salamander has been submitted to the U.S. Fish and Wildlife Service, and a Biological Opinion from the U.S. Fish and Wildlife Service has been received.
California Department of Fish and Wildlife (Bay-Delta Region 3 Office)	2081 Agreement	Impacts to California tiger salamander habitat and the potential to "take" (harm) a salamander during construction require an Incidental Take Permit. The application will be submitted during final design and the permit obtained prior to the project going out for bidding on the construction contract.
Union Pacific Railroad	Contractor Occupancy/Access	Under an existing joint agreement (1937), Caltrans will notify Union Pacific Railroad of intent for Contractor Occupancy/Access—to be submitted after approval of the final environmental document.
Regional Water Quality Control Board Region 2	Clean Water Act Section 402—National Pollutant Discharge Elimination System: Waste Discharge Permit A Storm Water Pollution Prevention Plan required by Caltrans will be prepared and is expected to provide all the necessary temporary pollution and erosion control measures required during construction	Compliance with (1) the Statewide National Pollutant Discharge Elimination System Permit (Order No. 99-06-DWQ NPDES No. CAS000003) and (2) the General Permit, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (Order No. 99-08-DWQ, NPDES No. CAS000002).

Appendix C Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gasses generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of greenhouse gas emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of greenhouse gas emitting sources. The dominant greenhouse gas emitted is CO₂, 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 greenhouse gas 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)¹.

There are four primary strategies for reducing greenhouse gas emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing growth of vehicle miles traveled, 3) transitioning to lower greenhouse gas 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 greenhouse gas emissions from transportation sources.

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

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 proactive approach to dealing with greenhouse gas emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the U.S. Environmental Protection Agency administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own greenhouse gas emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce greenhouse gas emissions for passenger cars model years 2017-2025.

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

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

Executive Order S-20-06 (signed on October 18, 2006 by former Governor Arnold Schwarzenegger): This order further directs state agencies to begin implementing AB 32, including the recommendations made by the California's Climate Action Team.

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

Senate Bill 97 (SB 97) Chapter 185, 2007: This bill required the Governor's Office of Planning and Research to develop recommended amendments to the California

Environmental Quality Act Guidelines for addressing greenhouse gas emissions. The amendments became effective on March 18, 2010.

Caltrans Director's Policy 30 (DP-30) Climate Change (approved June 22, 2012): This policy is intended to establish a Caltrans policy that will ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities. This policy contributes to the Caltrans stewardship goal to preserve and enhance California's resources and assets.

Federal

Although climate change and greenhouse gas reduction is a concern at the federal level, currently there are no regulations or legislation that have been enacted specifically addressing greenhouse gas emissions reductions and climate change at the project level. Neither the U.S. Environmental Protection Agency nor the Federal Highway Administration has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on Federal Highway Administration's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by the Federal Highway Administration to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in the growth of vehicle hours traveled.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and Executive Order 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*. Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. Environmental Protection Agency has the authority to regulate greenhouse gas. The court held that the U.S. Environmental Protection Agency Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. Environmental Protection Agency Administrator signed two distinct findings regarding greenhouse gases under Section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution that threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. Environmental Protection Agency's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009². On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

The U.S. Environmental Protection Agency and the National Highway Traffic Safety Administration are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced greenhouse gas emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever greenhouse gas regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle greenhouse gas regulations. These steps were outlined by President Barack Obama in a Presidential Memorandum on May 21, 2010.³

² <http://www.epa.gov/oms/climate/regulations.htm#1-1>

³ <http://epa.gov/otaq/climate/regulations.htm>

The final combined U.S. Environmental Protection Agency and National Highway Traffic Safety Administration standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO₂) per mile, (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO₂ level solely through fuel economy improvements. Together, these standards will cut greenhouse gas emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On November 16, 2011, the U.S. Environmental Protection Agency and National Highway Traffic Safety Administration issued their joint proposal to extend this national program of coordinated greenhouse gas and fuel economy standards to model years 2017 through 2025 passenger vehicles.

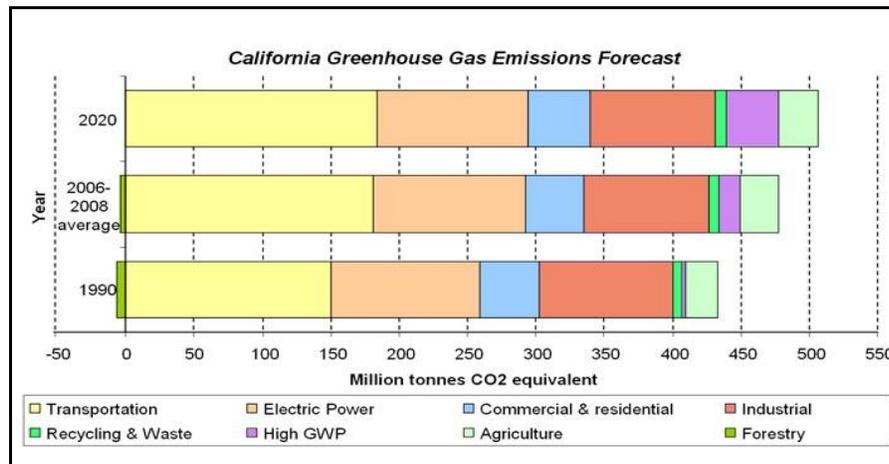
Project Analysis

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of greenhouse gas.⁴ 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 greenhouse gas emissions. As part of its supporting documentation for the Draft Scoping Plan, the Air Resources Board released the greenhouse gas inventory for California (forecast last updated: October 28, 2010). See the following figure. The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the greenhouse gas inventory for 2006, 2007, and 2008.

⁴ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

California Greenhouse Gas Forecast



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

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California's greenhouse gas emissions are from the burning of fossil fuels and 40 percent of all human-made greenhouse gas emissions are from transportation, Caltrans has created and is implementing the *Climate Action Program at Caltrans* that was published in December 2006.⁵

The purpose of the proposed project is to repair damage and deficiencies which include: erosion of the hillside supporting the eastbound lanes and outside shoulder; broken roadway slabs; and the underground drainage system in disrepair. The scope of work consists of construction a retaining wall, repairing/modifying the drainage system, and rehabilitating the roadway surface. There will be no change to the existing lane configuration or capacity of the highway. Since the project will not increase capacity or vehicle hours traveled, no increases in operational greenhouse gas emissions are anticipated.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to

⁵ 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

construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

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

CEQA Conclusion

While construction will result in a slight increase in greenhouse gas emissions during construction, Caltrans expects that there would be no operational increase in greenhouse gas emissions associated with the proposed project. However, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and California Environmental Quality Act significance, it is too speculative to make a determination on the project's direct impact and its contribution on the cumulative scale to climate change. Nonetheless, Caltrans is taking further measures to help reduce energy consumption and greenhouse gas emissions. These measures are outlined in the following section.

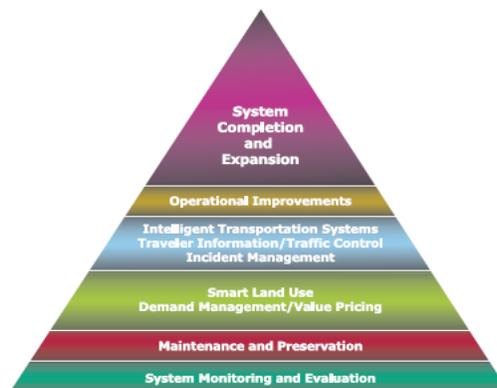
Greenhouse Gas Reduction Strategies

AB 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as Air Resources Board 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. Former Governor Arnold

Schwarzenegger's Strategic Growth Plan calls for a \$222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding during the next decade.

The Strategic Growth Plan targets a



Mobility Pyramid

significant decrease in traffic congestion below today's level and a corresponding reduction in greenhouse gas emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in the figure above (Mobility Pyramid).

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by the U.S. Environmental Protection Agency and Air Resources Board.

Table 1 summarizes Caltrans' and statewide efforts that Caltrans is implementing in order to reduce greenhouse gas emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 1 Climate Change/CO₂ Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.07	2.17
Mainstream Energy & Greenhouse Gas into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	InterCaltrans effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	InterCaltrans, CA Environmental Protection Agency, Air Resources Board, California Energy Commission		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Caltrans of General Services		Fleet Replacement B20 B100	.0045	.0065 .045 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	4.2 3.6
Goods Movement	Office of Goods Movement	CA Environmental Protection Agency, Air Resources Board, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Adaptation Strategies

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

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, released its interagency report on October 14, 2010 outlining recommendations to President Obama for how federal agency policies and programs can better prepare the U.S. to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation’s capacity to better understand, prepare for, and respond to climate change.

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

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

The California Natural Resources Agency was directed to coordinate with local, regional, state and federal public and private entities to develop. The California Climate Adaptation Strategy (Dec 2009)⁶, which summarizes the best-known science on climate change impacts to California, assesses California’s vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

⁶ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

The strategy outline is in direct response to EO S-13-08 that specifically asked the California Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: public health; biodiversity and habitat; ocean and coastal resources; water management; agriculture; forestry; and transportation and energy infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The California Natural Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010⁷ to advise how California should plan for future sea level rise. The report includes:

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

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

⁷ Pre-publication copies of the report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, were made available from the National Academies Press on June 22, 2012. For more information, please see http://www.nap.edu/catalog.php?record_id=13389.

Interim guidance has been released by the Coastal Ocean Climate Action Team as well as Caltrans as a method to initiate action and discussion of potential risks to the state's infrastructure due to projected sea level rise.

All projects that have filed a Notice of Preparation as of the date of Executive Order S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. 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.

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

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

Appendix D List of Technical Studies/Materials Available

Project Area Map

Typical Cross Section

Project Area Photos (Early 2013)

Need for the Project and Construction Data

Air Quality Analysis and Noise Analysis (March 2012)

Water Quality Study (April 2013)

Natural Environment Study (June 2013)

Biological Assessment (July 2013)

Storm Water Data Report (June 2013)

Hazardous Waste Review (March 2012)

Scenic Resource Evaluation/Visual Assessment (June 2013)

Preliminary Foundation Report (August 2012)

Paleontological Identification Report (April 2013)

The following technical study has been removed due to confidentiality:

Historical Property Survey Report/Archaeological Survey Report (Nov.2012)

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

Appendix E Biological Opinion



United States Department of the Interior

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



In Reply Refer to:
08ESMF00-
2013-F-0625-1

AUG 07 2014

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

Subject: Biological Opinion on the Effects of the Proposed Interstate 580 Storm Damage Repair Project, Alameda County, California (Caltrans EA 2G850)

Dear Ms. Brent:

This letter responds to a letter from the California Department of Transportation (Caltrans), dated July 3, 2013, which requested formal consultation for the proposed Interstate 580 (I-580) Storm Damage Repair Project in Alameda County, California. Your letter was received by the U.S. Fish and Wildlife Service (Service) on July 10, 2013 (Caltrans EA 2G850). 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*), and endangered San Joaquin kit fox (*Vulpes macrotis mutica*). 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).

The Service has reviewed the submitted project as described in the July 2013 biological assessment, the April 24, 2014 site visit, correspondence from Caltrans on May 12, 2014, 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 as the effects will be discountable. The Service concurs that the proposed action is not likely to adversely affect the San Joaquin kit fox based on the following: (1) construction activities, including staging, laydown and vehicle parking, will predominately occur within paved area, a small, disturbed area of grassland habitat, and coyote brush scrub habitat extending down the slope from a ripped section immediately adjacent to I-580; (2) construction access, staging, storage and parking areas will be located within the right-of-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 habitat.

The remainder of this biological opinion is on the effects of the project on California red-legged frog and California tiger salamander. Caltrans determined that the proposed project would have no effect on the designated critical habitat for the California red-legged frog. California red-legged frog critical habitat Unit ALA-2 occurs approximately 100 feet southeast of the action area. Caltrans has designed the project to stay out designated critical habitat. The replacement of the two downdrains will not extend into designated critical habitat at the base of the slope.

This biological opinion is based on: (1) the Interstate 580 Storm Damage Repair Project, Biological Assessment dated July 2013; (2) letter from Caltrans to the Service dated July 3, 2013; (3) the April 24, 2014 field visit; (4) email correspondence from Caltrans on May 12, 2014, and accompanying exhibits; (5) miscellaneous correspondence and electronic mail concerning the proposed action between Caltrans and the Service; and (6) other information available to the Service.

Consultation History

July 10, 2013	The Service received a letter requesting the initiation of formal consultation dated July 3, 2013, and a Biological Assessment for the I-580 Storm Damage Repair Project.
April 24, 2014	The Service attended a site visit Caltrans 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.
July 10, 2013 - July 17, 2014	Electronic and phone correspondence between Caltrans and the Service.

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 July 2013 Biological Assessment with minor modifications for reasons of clarity and accuracy provided by the Service.

Project History

I-580 is the major east-west corridor between the San Francisco Bay Area and the Central Valley as well as a major route serving the Tri-Valley area, which includes the cities of Pleasanton, Dublin, and Livermore. Alameda I-580 was constructed in 1938 as a two-lane single-level facility on the present east bound alignment. In 1971, the highway was widened to four lanes on a split profile. The existing westbound section was constructed at the time and the old two-way 1938 highway portion

converted to one way eastbound. Widening on the eastbound portion of the highway was performed under the 1971 contract to provide standard shoulder widths. I-580 transverses the side slopes of a major east west drainage; a north-south railroad embankment transverses this drainage, creating a dam. Drainage was provided by a 60-inch metal culvert. The purpose of this proposed project is to repair roadway damage and deficiencies including broken roadway slabs, erosion of the hillside supporting the eastbound lanes and outside shoulder, and to address the underground drainage system. This location has suffered from shifting and settlement since the mid-1970's. Subsequent repairs, such as crack sealing, pressurized grouting of roadway slabs, and rock slope protection have been performed, but have not resolved the constant creeping of the right shoulder resulting in continuous maintenance repairs of the eastbound lanes. The embankment soil material is insufficient to support the roadway and it is sliding away. This erosion appears to be occurring due to a combination of the soil issue, and seasonal high groundwater subsurface flow conditions, storm damage, and a suspected underground natural spring.

Project Description

Caltrans proposes to repair and permanently restore storm-damaged embankment and pavement on eastbound I-580 at approximately 0.1-mile west of Stone Cut Underpass at post mile (PM) R4.0 near the City of Livermore in eastern Alameda County. The total length of the project work is approximately 700 feet from PM R3.9 to PM R4.2. The proposed work would stabilize earth movement and improve underground drainage by construction of a soldier pile timber-lagging retaining wall with tiebacks on the south side of the roadway. The proposed work includes:

- Installation of a 593-foot long soldier pile, timber-lagging retaining wall along the south side of I-580 to stabilize the slope. The retaining wall would require excavation to a maximum depth of approximately 30 feet.
- Reconstruction the pavement within the project limits. Widen the outside shoulder (addition of four feet six inches as required up to standard).
- Repair and modify existing drainage facilities including two cross culverts (18 inch pipes) across the eastbound I-580, installation of two downdrains on the south side slope, dikes, and ditches associated with the roadway reconstruction, cleaning and repair of the existing ditch in the median area; excavation for the installation of drainage systems would be approximately 15 feet, the total length of all drainage pipes would be approximately 200 feet, and culverts would be approximately three feet in diameter. Drainage systems are likely to be installed using a form of tunneling (also known as jacking), however if trenches are required, they would be approximately 20 feet wide.
- Installation of Metal Beam Guard Railing (MBGR)

All work would occur within the Caltrans right-of-way (ROW) and that of the Union Pacific Railroad. Tree removal is not anticipated. Construction is anticipated to begin in September of 2015.

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 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	1.37	1.1:1	1.51	0.13	3:1	0.39	1.90
California tiger salamander	1.37	1.1:1	1.51	0.13	3:1	0.39	1.90

General Conservation Measures

To reduce potential effects to sensitive biological resources, Caltrans proposes to incorporate construction 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. **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.
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, 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. **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.
6. **Best Management Practices.** Storm Water Pollution Prevention Plans (SWPPP) and erosion control BMPs will be developed and implemented to minimize any wind or water-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.
7. **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 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.

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- 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.
8. **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.
9. **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.
10. **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
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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 7.78 acres extending approximately 700 feet along eastbound I-580 from PM R3.9 to PM R4.2 in eastern Alameda County. The action area encompasses the project footprint, equipment staging areas, access routes, Caltrans Right-of-Way limits, and adjacent lands that will be subjected to noise, light, and vibration disturbance. Habitat within the action area comprises paved roadways and shoulders, California naturalized annual and perennial grasslands, coyote brush scrub, and freshwater marsh vegetation communities.

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 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.

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 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 frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

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.

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 California tiger salamander was threatened (Service 2004), we determined that the Santa Barbara and Sonoma County populations were threatened as well, and reclassified the 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 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 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 Central 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; Petranka 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 flat 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 Central 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 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 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 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 Central 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 Central 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).

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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 California naturalized annual and perennial grasslands, coyote brush scrub, and freshwater marsh vegetation communities within the action area are part of a larger mosaic 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 action area; however, numerous stock ponds and Mountain House Creek are present within a one-mile radius of the action area. Freshwater marsh wetlands extend into the southeastern portion of the action area that provide suitable non-breeding aquatic habitat; however, the proposed action was designed to avoid affecting this aquatic resource. Caltrans identified a known breeding approximately 0.5-mile east of the action area within a stock pond adjacent to Mountain House Creek associated with CNDDDB occurrence #133 (CDFW 2014). Eight CNDDDB occurrences are reported within two miles of the action area (CDFW 2014). 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 and dispersal habitat with the exception of paved roadways. No focused California red-legged 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 600 feet in some areas and provides similar, but highly disturbed, ruderal upland and dispersal habitat. However, there are natural and artificial wildlife crossings outside of the action area that provide connectivity between habitat north and south of I-580 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 6 (CZ-6) of the East Alameda County Conservation Strategy (EACCS), which includes the Mountain House Creek Watershed (ICF International 2010). The action area contains two of the Conservation Strategy land cover types: alkali wetland and California annual grassland (ICF International 2010). EACCS modeling analysis determined that CZ-6 contains 61% (380 acres) of the area's unprotected alkali wetland and 12%

(12,245 acres) of unprotected California annual grasslands. Conservation priorities for CZ-6 applicable to the proposed action include: 1) protection of alkali wetlands; 2) protection and restoration of 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) protection of 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 0.5-mile east of the action area; (6) there are no significant barriers to California red-legged frog movement between confirmed occupied areas and the action area; (7) 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.

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 California naturalized annual and perennial grasslands and coyote brush scrub vegetation communities. 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 action area; however, numerous stock ponds and Mountain House Creek are present within a one-mile radius of the action area. Freshwater marsh wetlands extend into the southeastern portion of the action area that provide suitable non-breeding aquatic habitat; however, the proposed action was designed to avoid affecting this aquatic resource. Caltrans identified a potential breeding pond approximately 0.5-mile east of the action area and a known breeding pond (Occ. #330) 1.1 miles to the east (CDFW 2014). Several nearby drainages, stock ponds and creeks provide suitable breeding and foraging habitat. Within the action area, freshwater marsh wetlands extend from Mountain House Creek into the southeastern-most portion of the action area. However, Caltrans has designed the project to avoid effects to freshwater marsh habitat. Seven CNDDDB occurrences are reported within two miles of the action area (CDFW 2014). 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 and dispersal habitat with the exception of paved roadways. No focused Central California tiger salamander or roadkill surveys were conducted in preparation of the biological assessment.

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 the action area and provides subterranean habitat that may support salamander aestivation, refugia, and foraging. Movement among land south of I-580 is relatively unrestricted. I-580 poses a significant barrier to the safe north-south movement and dispersal of Central California tiger salamanders in the portion of core habitat within the action area. The vegetated median between the eastbound and westbound lanes extends up to 600 feet in some

areas and provides similar, but highly disturbed, ruderal upland and dispersal habitat. However, there are natural and artificial wildlife crossings outside of the action area that provide connectivity between habitat north and south of I-580 for Central California tiger salamanders, 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 6 (CZ-6) of the East Alameda County Conservation Strategy (EACCS), which includes the Mountain House Creek Watershed (ICF International 2010). The action area contains two of the Conservation Strategy land cover types: alkali wetland and California annual grassland (ICF International 2010). EACCS modeling analysis determined that CZ-6 contains 61% (380 acres) of the area's unprotected alkali wetland and 12% (12,245 acres) of unprotected California annual grasslands. Conservation priorities for CZ-6 applicable to the proposed action include: 1) protection of alkali wetlands; 2) protection and restoration of 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) protection of 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 habitat as modeled in Figure D-8 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 approximately than 1 mile to the east of 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 confined to the construction phase of the project associated with the construction of the 593-foot long soldier pile, timber-lagging retaining wall, widening the outside shoulder, repairing the existing cross culverts, installing two downdrains, trenching, and installing a metal beam guardrail.

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 Central 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. Additionally, Caltrans will avoid wetland habitat and will install ESA fencing to ensure workers and equipment does not affect the habitat.

The proposed construction activities could result in the introduction of chemical contaminants to the site. California red-legged frogs and Central California tiger 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, 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 Central 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. These effects will be minimized by using qualified Service-approved biologists, limiting the duration of handling, and relocating amphibians to suitable nearby habitat.

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. construction of the 593-foot long soldier pile, timber-lagging retaining wall, shoulder widening, and the repair and modification of the existing drainage facilities including two cross culverts would result in the permanent loss and/or degradation of 0.15-acre of California red-legged frog and Central California tiger salamander upland and dispersal

habitat; and the temporary loss and/or degradation of 1.54 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 Central 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.

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.

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 Storm Damage Repair 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.

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 quantifying take incidental to the proposed action as the mortality/injury of no more than one California red-legged frog and the harassment of all California red-legged frogs inhabiting or utilizing the 7.78-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 Central 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 Central California tiger salamanders and harassment of all Central California tiger salamanders inhabiting or utilizing the 7.78-acre action area. The Service anticipates that take of juvenile or adult Central 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 Central 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 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 July 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 reinitiation 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.

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 and relocated to nearby suitable habitat outside of the work area 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 shall be relocated to nearby suitable habitat outside of the work area and released in a safe area on the same side of I-580 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.

The Service believes that no more than two California red-legged frogs and Central California tiger salamanders will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. Caltrans must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Reporting Requirements

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

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5 minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the 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 *Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California* (Service 2003), and the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (Service 1998).
3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the Central California tiger salamander, California red-legged frog, 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 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 Storm Damage Repair 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

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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 Storm Damage Repair Project, Alameda County, California, please contact Jerry Roe or Ryan Olah at the letterhead address or jerry_rose@fws.gov, ryan_olah@fws.gov or at (916) 414-6600.

Sincerely,



Jennifer M. Norris
Field Supervisor

Enclosure

cc:

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

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Ms. Melanie Brent

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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?
 - 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.

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

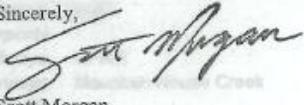
1. Can use a PAR or PAR-like analysis and must be based upon the final LTMP, subject to SFWO approval.
 - The analysis should be developed with input by the land manager and conservation easement holder.
2. The analysis and schedule should be in the form of a table and/or spreadsheet that shows, at a 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.

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 State Clearinghouse Acknowledgement of CEQA Compliance

	STATE OF CALIFORNIA GOVERNOR'S OFFICE of PLANNING AND RESEARCH STATE CLEARINGHOUSE AND PLANNING UNIT	
EDMUND G. BROWN JR. GOVERNOR		KEN ALEX DIRECTOR
September 11, 2013		
Kelly Hobbs California Department of Transportation, District 6 855 M Street, Suite 200 Fresno, CA 93721		
Subject: Alameda County, Interstate 580, Storm Damage Project - Repair Slip-Out SCH#: 2013082043		
Dear Kelly Hobbs:		
The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on September 10, 2013, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.		
Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.		
Sincerely,  Scott Morgan Director, State Clearinghouse		
Project location: Highway 99 at Stone Cut Underpass		
Reviewing Agencies: Resource Agency, Department of Fish and Wildlife, Regional Office, Department of Fish and Wildlife, Department of Water Resources, California Highway Patrol, Air Resources Board, State Water Resources Control Board, District 5, Regional Office, Quality Control Board, Region 2, Feather-Antelope Irrigation District		
Date Received: 08/12/2013		
1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044 (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov		

**Document Details Report
State Clearinghouse Data Base**

SCH# 2013082043
Project Title Alameda County, Interstate 580, Storm Damage Project - Repair Slip-Out
Lead Agency Caltrans #6

Type MND Mitigated Negative Declaration
Description The major elements of the project include: installation of a retaining wall (600 feet long and 30 feet in depth); repairing / modifying existing drainage facilities including two cross culverts (18" pipes) across the eastbound I-580, two down drains on the south side slope, dikes, and ditches associated with the roadway reconstruction, widening the outside shoulder by an additional of 4.5 feet and widening the inside shoulder by an additional 2 feet; reconstructing the highway pavement within the project limits; installing Metal Beam Guard Railing.

Lead Agency Contact

Name Kelly Hobbs
Agency California Department of Transportation, District 6
Phone 559 445 5286 **Fax**
email
Address 855 M Street, Suite 200
City Fresno **State** CA **Zip** 93721

Project Location

County Alameda
City Livermore
Region
Lat / Long
Cross Streets Eastbound Interstate 580 at Stone Cut Underpass
Parcel No.
Township

<i>Range</i>	<i>Section</i>	<i>Base</i>
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Proximity to:

Highways I-580
Airports
Railways UPRR
Waterways Mountain House Creek
Schools
Land Use Transportation corridor in Unincorporated Alameda County

Project Issues Biological Resources; Toxic/Hazardous

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 3; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Air Resources Board, Transportation Projects; State Water Resources Control Board, Division of Financial Assistance; Regional Water Quality Control Board, Region 2; Native American Heritage Commission; Public Utilities Commission

Date Received 08/12/2013 **Start of Review** 08/12/2013 **End of Review** 09/10/2013

Appendix G Comments and Responses

This appendix contains the two comment letters/emails received during the public circulation and comment period from August 12, 2013 to September 12, 2013. A Caltrans response follows each comment.

Comment from Central Valley Regional Water Quality Control Board



Central Valley Regional Water Quality Control Board

10 September 2013

Kelly Hobbs
California Department of Transportation
District 4
855 M Street, Suite 200
Fresno, CA 93721

CERTIFIED MAIL
7012 2210 0002 1419 4802

COMMENTS ON THE DRAFT MITIGATED NEGATIVE DECLARATION, ALAMEDA COUNTY, INTERSTATE 580, STORM DAMAGE PROJECT- REPAIR SLIP-OUT PROJECT, SCH NO. 2013082043, ALAMEDA COUNTY

Pursuant to the State Clearinghouse's 12 August 2013 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Draft Mitigated Negative Declaration* for the Alameda County, Interstate 580, Storm Damage Project- Repair Slip-out Project, located in Alameda County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.sh:ml.

KARL E. LONGLEY SCD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCEE, EXECUTIVE OFFICER
11020 Sun Center Drive #200, Rancho Cordova, CA 95670 | www.waterboards.ca.gov/centralvalley



Phase I and II Municipal Separate Storm Sewer System (MS4) Permits¹

The Phase I and II MS4 permits require the Permittees to reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which MS4 Permit this project applies to, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 97-03-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit, or any other federal permit, is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

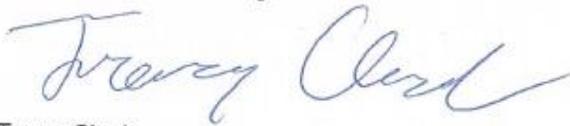
¹ Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 Permit provides coverage for small municipalities, including non-traditional SmallMS4s, which include military bases, public campuses, prisons and hospitals.

Waste Discharge Requirements

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project will require Waste Discharge Requirements (WDRs) to be issued by the Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

If you have questions regarding these comments, please contact me at (916) 464-4684 or tcleak@waterboards.ca.gov.



Trevor Cleak
Environmental Scientist

cc: State Clearinghouse Unit, Governor's Office of Planning and Research, Sacramento

Response to Comment from the Central Valley Regional Water Quality Control Board

Thank you for your letter and for taking the time to describe the permits, certifications and other requirements.

Comment from Robert Allen

From: Robert Allen [<mailto:robertseeallen@gmail.com>]
Sent: Saturday, August 10, 2013 10:41 AM
To: Hobbs, Kelly J@DOT
Subject: EB I-580 Storm Damage Repair Draft Initial Study

Seems like a big ad for a work with so few impacts. Only thing I noticed: UP goes OVER the EB 580 lanes, NOT UNDER as the map in your ad shows.

Response to Comment from Robert Allen

Thank you for your comments on the Public Notice published in *The Tri-Valley Herald* on August 10, 2013. You are correct about the graphic. The Union Pacific Railroad does cross over I-580, and the map did imply otherwise. Thank you for taking the time to review the notice and submit your observation. The project team appreciates your input.

Appendix H Title VI Statement

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



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March 2013

NON-DISCRIMINATION POLICY STATEMENT

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

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

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"