

Interstate 580 and Interstate 205 Roadside Safety Improvement Project

ALAMEDA COUNTY, CALIFORNIA
DISTRICT 4 – ALA – 580/205 (PM 0.0-R9.7/L0.0-0.5)
EA 04-4J940/ EFIS 0416000025

Initial Study with Negative Declaration



Prepared by the

State of California, Department of Transportation



June 2020

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General Information about This Document

What's in this document:

The California Department of Transportation (Caltrans) has prepared this Initial Study (IS) with Negative Declaration (ND), which examines the potential environmental impacts of the proposed Interstate 580 and Interstate 205 Roadside Safety Improvement Project (project) located from North Vasco Road in the City of Livermore in Alameda County to the Alameda-San Joaquin county line, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document explains why the project is being proposed, the existing environment that could be affected by the project, potential impacts of each of the alternatives, and the proposed avoidance and minimization measures, and/or mitigation measures. The IS was circulated to the public for 31 days between April 20 and May 20. Comments received during this period are included in Chapter 3. Elsewhere throughout this document, a vertical line in the margin indicates a change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated.

Alternate formats:

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Improve maintenance worker safety by extending and paving gore areas and constructing maintenance vehicle pullouts along Interstate 580 (post mile 0.0 to post mile R9.7) and Interstate 205 (post mile L0.0 to post mile 0.5) from North Vasco Road in the City of Livermore in Alameda County to the Alameda-San Joaquin county line.

INITIAL STUDY WITH NEGATIVE DECLARATION

Submitted Pursuant to: Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies: California Transportation Commission and California Department of Fish and Wildlife

June 15, 2020

Date of Approval



Christopher Caputo
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Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

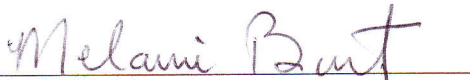
The California Department of Transportation (Caltrans) proposes to construct the Interstate 580 (I-580) and Interstate 205 (I-205) Roadside Safety Improvement Project to improve maintenance worker safety along I-580 and I-205. This will be accomplished by extending and paving gore areas and constructing maintenance vehicle pullouts (MVPs) at 14 locations from North Vasco Road in the City of Livermore in Alameda County to the Alameda/San Joaquin county line (post mile [PM] 0.0 to PM R9.7 on I-580, and PM L0.0 to PM 0.5 on I-205).

Determination

Caltrans has prepared an Initial Study (IS) 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 proposed project would have no effect on aesthetics, agriculture and forest resources, air quality, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology/water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, tribal cultural resources, utilities and service systems, and wildfire.

The proposed project would have less than significant impacts on biological resources, as well as transportation and traffic.



Melanie Brent
Deputy District Director
Office of Environmental Analysis
California Department of Transportation District 4



Date

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes the Interstate 580 (I-580) and Interstate 205 (I-205) Roadside Safety Project (project) to improve maintenance worker safety by extending and paving gore areas, which are small triangular unpaved areas between on-ramps and highways, and constructing maintenance vehicle pullouts (MVPs) at 14 locations along I-580 and I-205 from North Vasco Road in the City of Livermore in Alameda County to the Alameda-San Joaquin county line (post mile [PM] 0.0 to PM R9.7 on I-580, and PM L0.0 to PM 0.5 on I-205). The total length of the project is approximately 9.62 miles. The Project Vicinity Map is shown below in Figure 1.

1.2 National Environmental Policy Act (NEPA) Assignment

Caltrans prepared this Initial Study (IS) with Negative Declaration (ND) pursuant to the California Environmental Quality Act (CEQA). Because this project will also receive funding from the Federal Highway Administration (FHWA), it is also subject to National Environmental Policy Act (NEPA) review. Caltrans entered into a Memorandum of Understanding (MOU) pursuant to 23 USC 327 (NEPA Assignment MOU) with the FHWA. Under the NEPA Assignment MOU, Caltrans assumes FHWA responsibilities under NEPA and other federal environmental laws. With the NEPA Assignment MOU, the FHWA assigned, and Caltrans assumed, all of the U.S. Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions (CEs) that the FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

Caltrans, as assigned by FHWA, is the federal lead agency under NEPA for this project. Caltrans is also the state lead agency under CEQA for this project. Caltrans has prepared a CE, pursuant to NEPA, for this project.

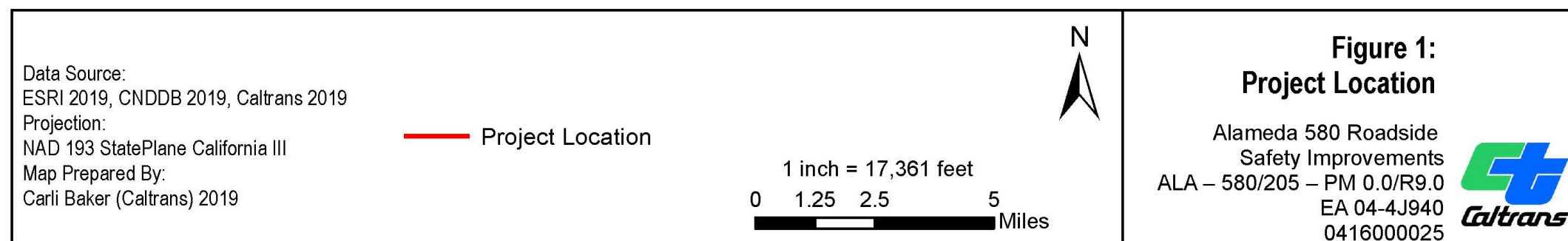
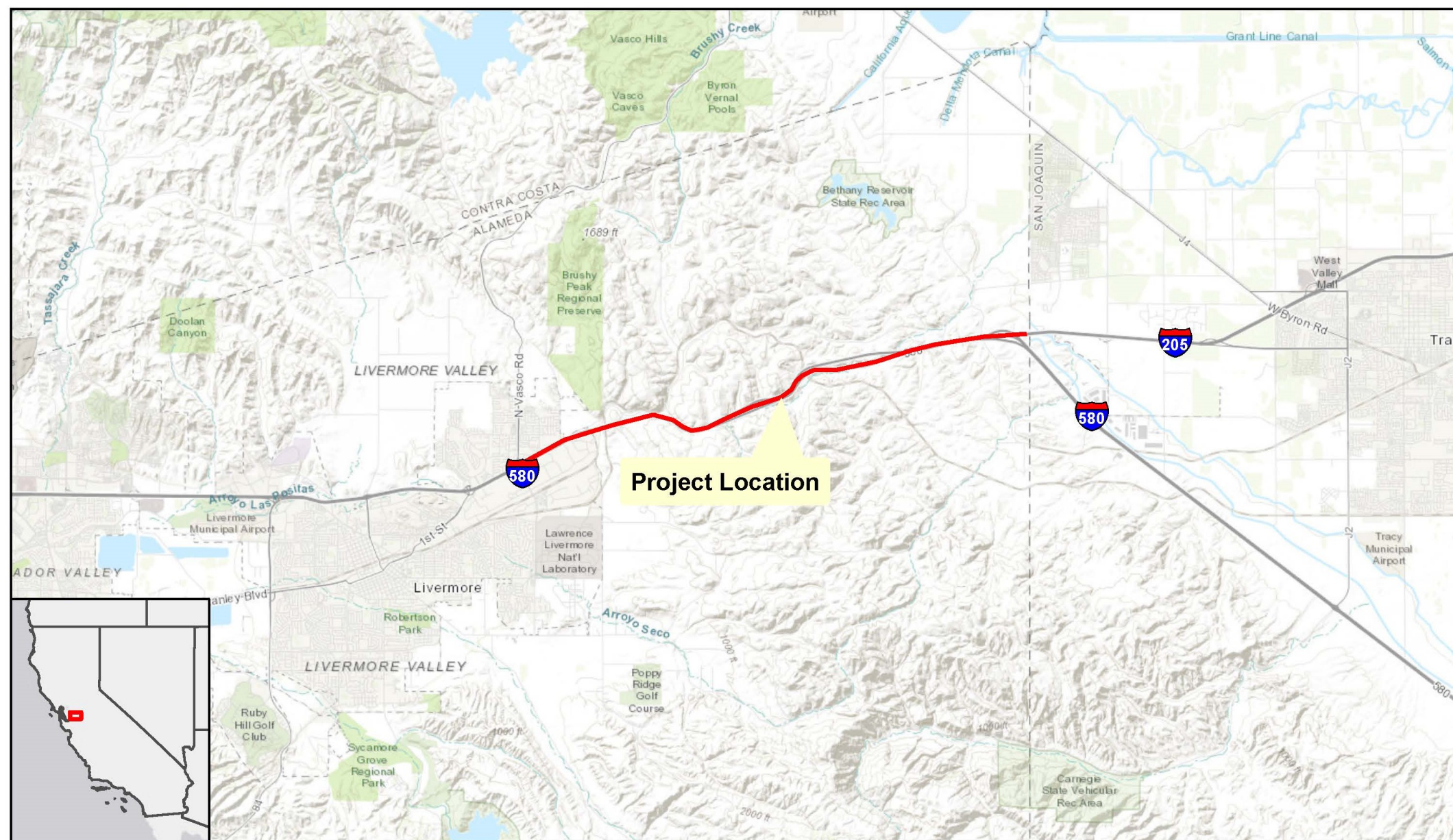


Figure 1. Project Vicinity Map

1.3 Background

The project includes 14 locations within a 9-mile segment of I-580, starting at North Vasco Road in the City of Livermore to the west and ending on I-205 at the San Joaquin/Alameda county line to the east. The I-580 corridor is an east-west route in Alameda County that serves a growing number of commuters living outside the Bay Area; provides access for the movement of goods and freight into and out of the region; and serves significant recreational travel to and from the Central Valley, the Sierra Nevada, and Southern California during weekends and summer months.

The cities of Livermore, Pleasanton, and Dublin, as well as the community of Castro Valley are the main urban centers along the corridor. Livermore, Pleasanton, and Dublin are included in what is referred to as the “Tri-Valley” region. The corridor is characterized by steep grades from its eastern limit near the I-580/I-205 interchange to the west side of the Altamont Pass, then continues through the highly urbanized, Tri-Valley area, including the interchange with I-680. West of the Tri-Valley area, the corridor is again characterized by another steep grade referred to as the Dublin Grade. Finally, it passes through the urbanized area of Castro Valley and an interchange with I-238 in the City of Hayward.

The segment of I-580 within the project limits is classified as a rural divided freeway. The first mile of the western segment of I-580 is situated within an urbanized section of the City of Livermore. The remaining segment of I-580 in the project limits consists primarily of mountainous terrain with eight lanes, an unpaved median, a paved 8-foot inside shoulder, and a paved 10-foot outside shoulder. The roadway contains a lengthy downhill section followed by several reverse and compound curves (“S”-curves) situated on a high embankment. The eastern project limits end on I-205 a quarter of a mile after the I-580/I-205 interchange.

1.4 Purpose and Need

The purpose of this project is to improve maintenance worker safety at 14 locations along I-580 and I-205 by increasing worker access off the traveled roadway and accommodating maintenance activities, with a goal of reducing roadside worker fatalities to zero. The project is needed because maintenance workers must currently park, walk, and work on the roadside, frequently exposing them to freeway traffic. Of the 14 identified locations with worker safety deficiencies in the project limits, eight are proposed MVPs where maintenance workers must currently park on the shoulder to perform necessary activities, exposing them to high-speed traffic. The other six locations are contrasting surface areas beyond the unpaved gore areas, which require workers to perform weed and litter control on foot. In these 14 locations, the traveling public are also at risk of potential accidents with maintenance workers, vehicles, and equipment on the roadside.

Current average daily traffic in the project vicinity is 148,700 vehicles, 10.4 percent of which is truck traffic. The Caltrans Office of Traffic Safety performed a collision analysis with data obtained during the most recent three-year period available (January 1, 2016 to December 31, 2018). During that period, a total of 309 accidents occurred at the project's proposed 14 locations.

The accident rate, measured in accidents per million vehicle miles (MVM), is relatively higher in the project locations than the expected accident rate for the types of facilities statewide. At Location 7 on I-580 at PM R3.9L/R4.1L, for example, the accident rate is 1.89 accidents per MVM, while the statewide average for this type of facility is 0.31 accidents per MVM. In average, the 14 locations have an accident rate of 1.40 accidents per MVM compared to a sitewide average of 0.49 accidents per MVM. Of all accidents at the 14 locations, about 26 percent resulted in injury or fatality.

The proposed project would create safer conditions for both maintenance workers and the travelling public.

1.5 Project Description

Project construction will occur along eastbound and westbound I-580 and I-205 at 14 discrete locations that were identified as having deficiencies in worker safety. Eight new MVPs will be constructed within the project limits to increase maintenance workers' access to the shoulder. Six locations along the project limits will receive new concrete pavement beyond the unpaved gore areas, eliminating the need for maintenance workers to perform weed and litter control on foot and allowing the areas to become accessible to mechanical sweeping (Table 1).

1.5.1 Maintenance Vehicle Pullouts (MVPs)

Eight proposed MVPs will be constructed to provide additional space for safe exit off of the freeway mainline, providing better maintenance worker access to the shoulder and reducing worker exposure to high speed traffic. To construct the MVPs, existing vegetation and substrate material will first be cleared and grubbed to a depth of 0.85 feet in a 972 square foot area. The excavated area will then be repaved using Aggregate Base-Class 2 (AB) followed by hot mix asphalt (HMA), to be installed using a skip loader, paving machine, and roller. Erosion control will be applied as necessary around MVPs and any temporarily disturbed areas will be revegetated. Excavated soil will be tested and trucked to an appropriate disposal site depending on the level of contamination.

1.5.2 Gore and Reverse Gore Paving

At six locations, new concrete pavement will be installed at the tips of extended gore areas, which are areas between the off-ramps (gore) or on-ramps (reverse gore) and

the freeway mainline. This will allow maintenance personnel to collect trash using a mechanical sweeper and eliminate the need to perform weed and litter control on foot. All proposed contrasting surface areas will be excavated beyond the gore to a depth of 9 inches from the original ground level. The excavated area will be replaced with a 4-inch layer of Aggregate Base-Class 2. A welded wire mesh will be placed over the aggregate base, and a 4-inch layer of concrete will be poured over the wire mesh. According to Caltrans Department of Hydraulics and Stormwater Design, this activity may require raising existing drainage inlets to grade, and installation of additional inlets and pipes around Grant Line Road would be required due to the increased runoff generated by the loss of permeable surface from gore paving.

Table 1. Project Installation Activities and Location Details

| Location Number | Activity | Post Mile (PM) | Location Description |
|------------------------|---------------------|-----------------------|--|
| 1 | MVP | 9.50 | westbound I-580 |
| 2a | MVP | 7.86 | eastbound I-580 |
| 2 | Gore | 8.42 | westbound I-580 Greenville Road/Altamont Pass off-ramp |
| 3 | MVP | 6.55 | eastbound I-580 |
| 4 | Reverse Gore Paving | 5.69 | eastbound I-580 North Flynn Road on-ramp |
| 5 | MVP | 5.05 | eastbound I-580 |
| 6 | MVP | 4.10 | westbound I-580 |
| 7 | MVP | 3.99 | eastbound I-580 |
| 8 | Gore | 1.70 | eastbound I-580 Grant Line Road off-ramp |
| 9 | Gore | 1.66 | westbound I-580 Grant Line Road on-ramp |
| 10 | Reverse Gore Paving | 1.38 | eastbound I-580 Grant Line Road on-ramp |
| 11 | Gore | 1.28 | westbound I-580 Grant Line Road off-ramp |
| 12 | MVP | 0.65 | westbound on-ramp from northbound I-5 |
| 13 | MVP | 0.30 | westbound I-205 |

The estimated total duration of construction is 120 working days. Work is expected to take place during daylight hours. Work will include temporary ramp, lane, and shoulder closures at various locations along I-580 and I-205 in the project area. Staging will primarily involve lane closures during non-peak hours. A Traffic Management Plan (TMP) will be required for this project. The TMP and details of the construction staging for the project will be developed and refined during the next phase of project design. TMP development will be supported by detailed traffic studies to evaluate traffic operations. The need for lane closures during off-peak hours or at night, or short-term

detour routes, will be identified as required. The project may need to be constructed in stages to minimize disruption to the traveling public. The TMP will include press releases to notify and inform motorists, businesses, community groups, local entities, and emergency services of upcoming closures or detours. Various TMP elements such as portable Changeable Message Signs and Construction Zone Enhanced Enforcement Program may be utilized to minimize delay to the traveling public.

The project is funded from the 2018 State Highway Operation and Protection Program, under Safety Improvements, Program Code 201.010. The total approximate cost of the project for support and capital, including construction costs, is estimated at \$3,632,000.

1.6 Project Features

The project will install eight MVPs and pave six gore areas. As part of the project, Caltrans would implement standard conservation measures, avoidance and minimization measures (AMMs), and standard best management practices (BMPs) as outlined in the Caltrans' 2018 Standard Specifications and the Caltrans Construction Site Best Management Practices Manual. Measures include minimizing the area of impact, conducting preconstruction surveys for biological resources, and implementing water quality BMPs and other construction-site BMPs.

1.7 Permits and Approvals Needed

The following permits, licenses, agreements, and certifications are required for project construction:

- United States Fish and Wildlife Service (USFWS) Endangered Species Act Section 7 Consultation and Biological Opinion (BO),
- California Department of Fish and Wildlife (CDFW) consistency determination or Section 2081 Agreement for Threatened and Endangered Species (Incidental Take Permit) for California tiger salamander, and
- California Department of Water Resources (DWR) project plan review and/or encroachment permit.

Caltrans received a BO from the USFWS on March 26, 2020. USFWS actively participated in the NEPA process.

The project may require either a consistency determination or a Section 2081 Agreement (Incidental Take Permit) from CDFW. Consultation with CDFW is ongoing and an application will be submitted following approval of the FED.

Project Location 2a is within a Common Use Area easement between the DWR and Caltrans. Caltrans will submit project plans or an encroachment permit application to DWR for review following approval of the FED.

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

2.1 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. Potential impact determinations include Significant and Unavoidable Impact, Less Than Significant with Mitigation Incorporated, Less Than Significant Impact, and No Impact. In many cases, background studies performed in connection with a project will indicate that there are no impacts to a particular resource. A “No Impact” answer reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA or any other environmental legislation, impacts. The questions in this checklist are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Standard Conservation Measures and project features, which can include both design elements of the project, standardized measures that are applied to Caltrans projects, such as BMPs, and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapter 1 for a detailed discussion of these features. Standard Conservation Measures are discussed herein. All AMMs and/or Mitigation Measures are found in Appendix B.

2.1.1 Aesthetics

CEQA Significance Determinations for Aesthetics

This section is summarized from the *Visual Impact Analysis* for the proposed project, which was completed in August 2019.

The portion of I-580 within the project limits is eligible for designation as a State Scenic Highway. Immediately past the border of the eastern edge of the project, at the I-205 and I-580 interchange, eastbound I-580 becomes an Officially Designated Scenic Highway. The regional landscape is characterized by linear/curvilinear stretches bordered by rolling hills of naturalized annual grass and scrub plantings on both sides of the project. Existing vegetation removal is expected to be minimal.

Would the project:

a) Have a substantial adverse effect on a scenic vista?

No Impact – The proposed area does not include any scenic vistas.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact – All project work is expected to occur within Caltrans Right-of-Way (ROW) or in temporary construction easements. It is not anticipated that the project would adversely affect any designated scenic resource, such as a rock outcropping, tree grouping, or historic property, etc., as defined by CEQA statutes or guidelines, or by Caltrans' policy.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact – The proposed project will not conflict with any applicable zoning or regulations governing scenic quality. Views of the roadway would remain similar to existing conditions and there are no residential views of the proposed project, as it is located between grassy rolling hills and lacks development within the project limits.

Commuter and local motorists likely have previous experience with construction occurring on I-580 westbound near Livermore and will be familiar with staging areas for construction. North Flynn Road already has two existing turnouts and a brake check

area; therefore, motorists are likely accustomed to encountering large vehicles alongside the road in these locations.

Based on preliminary investigation, the primary visual concerns associated with the proposed project involve the preservation of the naturalized annual grassland along the hillsides of this Eligible State Scenic Highway corridor. Contractor staging areas and operations will be conducted with minimal impacts to existing hillsides and sporadic scrub areas. Equipment and material staging areas can be placed in less visible locations and covered where possible to reduce the temporary visual impacts from construction. After construction, areas cleared for contractor access and trenching operations will be treated with appropriate erosion control measures and replacement planting where required. Existing mature vegetation will be protected, and motorists are not expected to notice a high amount of visual changes once construction is complete.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact – The proposed project will install new pavement alongside the freeway mainline and between the freeway mainline and on- and off-ramps. The project will not install any new permanent lighting, and project construction would not occur at night. The proposed project will not result in any permanent new light or glare that would adversely affect day or nighttime views of the area.

Standard Conservation Measures:

AES-1: Protect mature vegetation to the maximum extent feasible in order to preserve the scenic quality of the existing landscape.

AES-2: Plan contractor staging and operations to protect and preserve naturalized annual grassland and sporadic shrubs to the maximum extent feasible.

AES-3: After construction, treat areas cleared for contractor access and trenching operations with appropriate erosion control measures where required.

AES-4: Provide replacement highway planting, if warranted, in all areas of highway planting removal where ROW allows. Where replacement planting is not possible at the removal location, provide replacement in adjacent planting areas along the project corridor.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.2 Agriculture and Forest Resources

CEQA Significance Determinations for Agriculture and Forest Resources

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

Would the project:

- 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?

No Impact – There is no prime farmland, unique farmland, or farmland of statewide importance within the project limits. All work is expected to occur within Caltrans ROW or in temporary construction easements. The land adjacent to the project limits is predominantly low density rural and classified as “Urban and Built-Up Land” and “Other Land” by the Department of Conservation. This project does not propose changes in the use of the current roadway and will not require or cause changes in the use of adjacent properties. There are no changes anticipated to prime farmland, unique farmland, or farmland of statewide importance

- b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact – There are no areas zoned for agricultural use or parcels under a Williamson Act contract within the project limits. All work is expected to occur within Caltrans ROW or in temporary construction easements. The land adjacent to the project limits is predominantly low density rural and classified as “Urban and Built-Up Land” and “Other Land” by the Department of Conservation. This project does not propose changes in the use of the current roadway and will not require or cause changes in the use of adjacent properties. No conflicts with areas zoned for agricultural use or parcels under a Williamson Act contract are anticipated as a result of this project.

- 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))?

No Impact – There are no forest lands or timberlands within the project limits. All work is expected to occur within Caltrans ROW or in temporary construction easements. The land adjacent to the project limits is predominantly low density rural and classified as “Urban and Built-Up Land” and “Other Land” by the Department of Conservation. This project does not propose changes in the use of the current roadway and will not require or cause changes in the use of adjacent properties. No conflicts are anticipated with areas zoned as forest land or timberland.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact – There are no forest lands within the project area. The land adjacent to the project limits is predominantly low density rural and classified as “Urban and Built-Up Land” and “Other Land” by the Department of Conservation. All work is expected to occur within Caltrans ROW or in temporary construction easements. This project does not propose changes in the use of the current roadway and will not necessitate changes in the use of adjacent properties. There are no changes anticipated to forest land.

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?

No Impact – There are no prime farmland areas, no parcels under a Williamson Act contract, and no forest or timberlands within the project limits. All work is expected to occur within Caltrans ROW or in temporary construction easements. The land adjacent to the project limits is predominantly low density rural and classified as “Urban and Built-Up Land” and “Other Land” by the Department of Conservation. This project does not propose changes in the use of the current roadway and will not necessitate changes in the use of adjacent properties. No conversion of agricultural land to non-agricultural use or conversion of forest land to non-forest use is anticipated as a result of this project.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.3 Air Quality

CEQA Significance Determinations for Air Quality

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

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact – The proposed project is exempt from the requirement to determine conformity per 40 Code of Federal Regulation (CFR) 93.126: Table 2 – Shoulder improvements. The project would not conflict with or obstruct implementation of the air quality plan of the area.

b) 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?

No Impact – The proposed project is exempt from the requirement to determine conformity per 40 CFR 93.126: Table 2 – Shoulder improvements. The project will not add travel lanes to I-580 or I-205. The project will not substantially increase any criteria pollutant that the area is in non-attainment for.

c) Expose sensitive receptors to substantial pollutant concentrations?

No Impact – The proposed project is exempt from the requirement to determine conformity per 40 CFR 93.126: Table 2 – Shoulder improvements. Surrounding land use is rural and undeveloped. No sensitive receptors have been identified in the project area. The project would not add travel lanes to I-580 or I-205. The project will not expose sensitive receptors to substantial pollutant concentrations.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact – The proposed project is exempt from the requirement to determine conformity per 40 CFR 93.126: Table 2 – Shoulder improvements. Surrounding land use is rural and undeveloped, and project construction is limited to Caltrans ROW. The project will not result in emissions that would adversely affect a substantial number of people.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.4 Biological Resources

CEQA Significance Determinations for Biological Resources

Caltrans Office of Biological Sciences and Permits prepared a Natural Environment Study (NES) for the proposed project in February 2020. The NES documented the potential effects of the proposed project on nearby biological resources. This section is summarized from the NES, which is incorporated into this IS ND by reference.

Caltrans established a biological study area (BSA) to evaluate the effects of the proposed project on natural communities and other biological resources. The BSA encompasses the project footprint along with a 2-mile buffer to include areas that project construction activities may directly or indirectly impact (Figure 2).

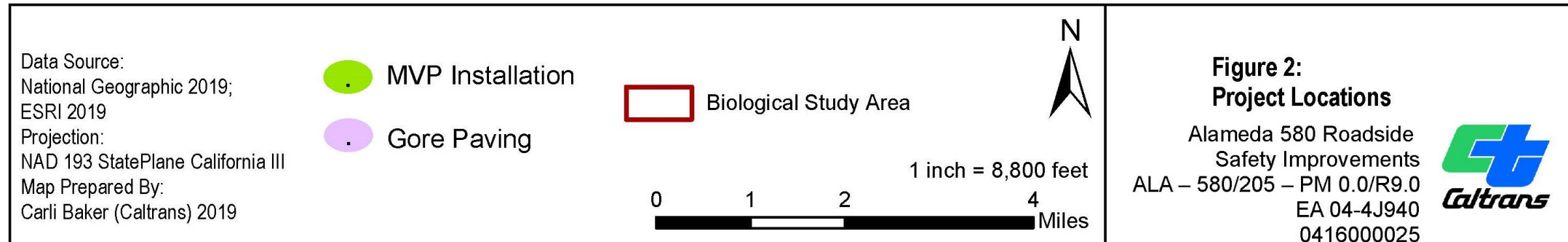
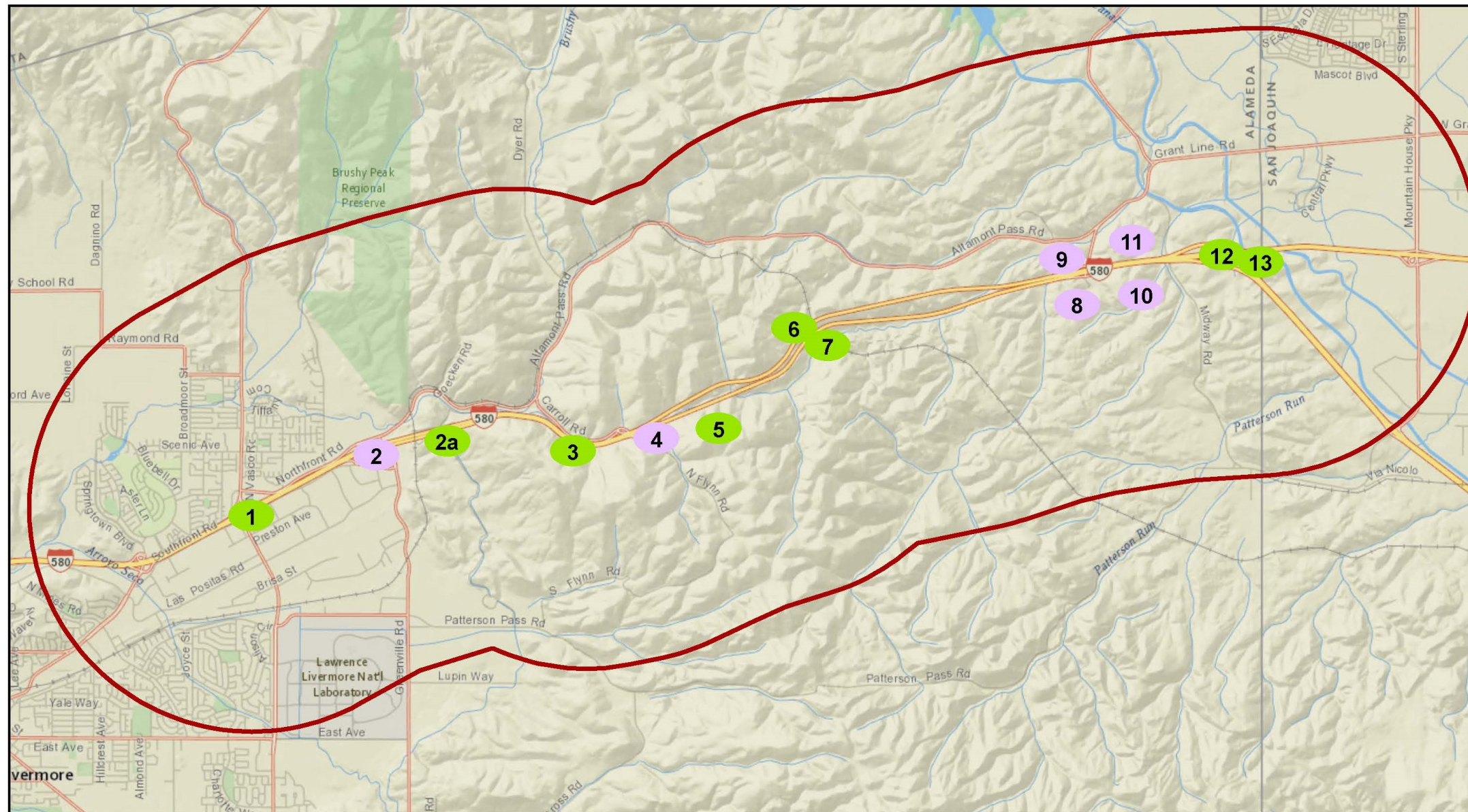


Figure 2. Project Work Locations

For the proposed project, the BSA consists of approximately 2.55 acres located within the City of Livermore and the Altamont Pass I-580 transportation corridor, before the San Joaquin/Alameda county line. The BSA is composed primarily of paved road and barren ground. About 15 percent of the BSA is composed of naturalized annual grassland and landscaped land.

Caltrans conducted plant and vegetation surveys and a wildlife habitat assessment within the BSA in spring 2019 to assess biological resources. Based on literature reviews, database searches, and familiarity with the region, a total of 35 special-status plant and 37 special-status wildlife species were initially considered to have potential to occur within the BSA. Further evaluation found that no plant species are expected to occur within or around the project area due to lack of suitable habitat. Eleven individual wildlife species, including three migratory bird and three bat species, were determined to have some potential to occur within the BSA:

- American badger (*Taxidea taxus*) – state species of special concern
- burrowing owl (*Athene cunicularia*) – state species of special concern
- California red-legged frog (CRLF) (*Rana draytonii*) – federally threatened, state species of special concern
- California tiger salamander (CTS), Central California Distinct Population Segment (DPS) (*Ambystoma californiense*) – federally threatened, state threatened
- San Joaquin kit fox (*Vulpes macrotis mutica*) – federally endangered, state threatened
- migratory birds
 - loggerhead shrike (*Lanius ludovicianus*) – state species of special concern
 - northern harrier (*Circus hudsonius*) – state species of special concern
 - white-tailed kite (*Elanus leucurus*) – state fully protected species
- bats
 - pallid bat (*Antrozous pallidus*) – state species of special concern
 - Townsend's big-eared bat (*Corynorhinus townsendii*) – state species of special concern
 - hoary bat (*Lasiurus cinereus*) – included on the CDFW's Special Animals List

Three species—CRLF, CTS, and San Joaquin Kit Fox—are listed as threatened or endangered under the California Endangered Species Act (CESA) and/or the Federal Endangered Species Act (FESA). Under CESA and FESA, compensation is required if suitable habitat for these species will be impacted temporarily or permanently. The following discussion summarizes the affected environment and environmental consequences for each species.

San Joaquin Kit Fox

The San Joaquin kit fox was listed as an endangered species under the FESA and CESA. There are five occurrences of San Joaquin kit fox within 2.5 miles of the BSA. All occurrences were recorded prior to 2000. The presence of suitable habitat and occurrence records nearby suggest that San Joaquin kit foxes may be present intermittently and in low numbers in the region. The BSA is, however, at the edge of the species' range, and the potential that the species would occur within the BSA during the limited time period of construction is low. Although suitably friable—or crumbly—soils are present, it is unlikely that San Joaquin kit foxes would dig or use dens within the BSA due to constant disturbance from I-580 and other intersecting roads. San Joaquin kit foxes may use grassland within the BSA for dispersal or movement between dens and other destinations. They are not expected to occur in urbanized areas, except under locally unique conditions, and are not known to occur in Livermore or other urbanized areas of the BSA.

California tiger salamander (CTS)

The Central California DPS of CTS is listed as federally threatened under FESA and state threatened under CESA. There are no documented occurrences of CTS inside the BSA. There are, however, 15 occurrences within 2 miles of the BSA boundaries, 10 of which are within the 1.3-mile dispersal range of the species. Dispersal range refers to the distance a species can travel away from an existing population. The USFWS-recommended survey buffer is 1.3 miles (USFWS. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. August 2005.)

CTS require two different habitats to complete their life cycle. The dry summer and fall months are spent in underground burrows in upland habitat. On rainy fall and winter nights, CTS leave their burrows to feed and migrate to nearby ponds or seasonal water sources for breeding.

Suitable upland habitat in the form of grassland is present within the BSA.

Critical habitat, as designated by USFWS, is the specific geographic areas that contain physical or biological features that are essential to the conservation of an endangered or threatened species and that may need special management or protection. There is no designated critical habitat or suitable breeding habitat inside of the BSA.

There are numerous documented CTS occurrences in ponds within 2 miles of the BSA boundary, so it is possible that adults may travel into the BSA and use it as upland habitat from surrounding suitable habitat areas.

Due to the presence of known populations and potential breeding ponds within dispersal range of the BSA, Caltrans has concluded that the presence of CTS is possible throughout the BSA.

California red-legged frog (CRLF)

The CRLF is listed as federally threatened under the FESA and as a state species of special concern under the CESA. There are 20 recorded occurrences of CRLF within 2 miles of the BSA boundaries, three of which are within 1 mile of the BSA. Of these three occurrences, two occurred in ponds, streams, or wetlands.

Critical habitat (Unit ALA-2, Arroyo Valle) is adjacent to multiple locations in the BSA, to the north and south of I-580 from PM 1.0 to PM 8.2, and is located 0.03 mile from Locations 8-11. The critical habitat is separated from the project by roadways and Grant Line Road on- and off-ramps.

Critical habitat is determined based on the presence of physical and biological Primary Constituent Elements (PCE) that are essential to the conservation of a species. For CRLF, these elements include:

1. Aquatic breeding habitat. Aquatic breeding habitat consists of standing bodies of fresh water, including: natural and man-made ponds, slow-moving streams or pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks.
2. Non-breeding aquatic habitat. Non-breeding aquatic habitat consists of freshwater habitats that may not hold water long enough to be suitable for breeding, but that do provide potential for shelter, foraging, predator avoidance, and aquatic dispersal. Non-breeding habitat may include plunge pools within intermittent creeks, seeps, quiet water sanctuary areas during high water flows, and springs of sufficient flow to withstand the summer dry period.
3. Upland habitat. Upland habitat provides shelter, foraging, and predator avoidance areas. These areas are located within 200 feet of the edge of aquatic and riparian habitat and consist of grasslands, woodlands, or wetland/riparian vegetation. Upland habitat can include features such as boulders, rocks, downed trees, small mammal burrows, and moist leaf litter.
4. Dispersal habitat. Dispersal habitat, which allows for movement between occupied sites, consists of accessible upland or riparian habitat within designated critical habitat units located between occupied locations within 0.70 mile of each

other. Dispersal habitat includes natural and altered habitats that do not contain barriers. Barriers may include heavily traveled roads constructed without culverts or bridges. Dispersal habitat does not include moderate-to-high-density urban or industrial development, large reservoirs, or areas that do not contain other PCEs.

Surveys show that the areas near the critical habitat within the BSA do not contain the PCEs required to support CRLF. Aquatic features that are in the BSA are too shallow to provide suitable breeding or non-breeding aquatic habitat for the CRLF. The BSA also does not contain suitable upland habitat for CRLF.

There are two documented CRLF occurrences in ponds within 1 mile of the BSA, as well as numerous ponds and streams visible on aerial imagery within 1 mile of the BSA that could contain suitable breeding habitat. Adults and juveniles originating from these ponds and streams may potentially use the BSA for dispersal between occupied sites. Therefore, CRLF have potential to occur in grassland habitat within the BSA.

I-580 represents a major barrier to dispersal of CRLF because of heavy traffic likely to cause mortality of almost all individuals attempting to cross. This also includes on- and off-ramps along I-580 that also receive heavy loads of traffic throughout the day. Caltrans has identified several natural and artificial wildlife crossings within the project area that could potentially be used by dispersing CRLF to cross under I-580, including road underpasses, railroad undercrossings, drainage culverts, and hydraulic structures carrying streams under the freeway.

Due to the presence of known populations and potential breeding ponds within dispersal distance of the BSA and designated critical habitat in the region, Caltrans has concluded presence of CRLF is possible throughout the BSA.

Project Impacts

The project will result in less than significant impacts to CRLF, CTS, San Joaquin kit fox, American badger, burrowing owl, migratory bird species, and bat species from temporary impacts related to construction activities, such as site preparation, MVP installation, paving, and equipment use. AMMs and standard conservation measures, listed below and in Appendix B, are intended to reduce impacts during project activities.

The proposed project will result in approximately 0.06 acre of temporary impacts and approximately 0.01 acre of permanent impacts to suitable CTS and CRLF habitat. See Table 2 below for estimated impacts to suitable habitat types for both species.

Table 2. Temporary and Permanent Impacts within the BSA to Suitable Habitat for Listed Species, and Proposed Compensation to Impacted Species Habitat

| Vegetation Type | Habitat Impacts (acres) | | Compensation (acres) | | |
|------------------|-------------------------|--------------|----------------------|----------------|--------------------|
| | Temporary | Permanent | 1:1 ratio | 3:1 ratio | Total Compensation |
| Annual Grassland | 0.064 | 0.009 | 0.064 | 0.0297 | 0.0937 |
| Total | 0.064 | 0.009 | 0.064 | 0.0297* | 0.0937 |

*Mitigation credits cannot be purchased at such a small increment

Caltrans obtained a BO from the USFWS for CTS, CRLF, and San Joaquin kit fox on March 26, 2020. A Biological Assessment (BA) was submitted to USFWS on December 11, 2019. Caltrans will obtain a consistency determination or Section 2081 Incidental Take Permit (ITP) from CDFW for CTS during the next phase of the project, as the project design is further refined.

To avoid the potential adverse effects under FESA and CESA, and as a condition of permits under both regulations, Caltrans also proposes compensation to offset any adverse impacts caused by the project. Caltrans proposes that compensation in the form of habitat restoration and preservation would be provided at a 1:1 ratio for temporary habitat impacts, and a 3:1 ratio for permanent habitat impacts. Compensation for temporary impacts will be accomplished through restoration on-site of 0.06 acre of CTS and CRLF habitat. Compensation for permanent impacts will be accomplished through the purchase of 0.1 acre of off-site compensation at an agency-approved mitigation bank.

The proposed compensation is based on the current estimate of effects to suitable habitat within the range of the species. Caltrans developed the proposed compensation during Section 7 consultation with USFWS. Caltrans believes the AMMs, in conjunction with the proposed compensation for impacts, will reduce project impacts to a negligible level. The final compensation may be subject to change during the consultation and permitting processes.

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, U.S. Fish and Wildlife Service, or NOAA Fisheries?

Less than Significant Impact – The project’s NES details project impacts to candidate, sensitive, and special-status species determined to be present in the BSA. Caltrans

biologists have determined, through completion of the biological study referenced above, that the project will have a less than significant impact on CTS, CRLF, San Joaquin kit fox, American badger, burrowing owl, migratory bird species, and bat species.

The AMMs and Standard Conservation Measures listed below and in Appendix B will reduce potential impacts to San Joaquin kit fox, American badger, burrowing owl, migratory bird species, bat species, CTS, and CRLF. The amount and quality of habitat proposed to be impacted by the project is minimal, and impacts to the project would not affect the persistence of local wildlife populations in the project area.

Because the impacts from the project will not jeopardize the continued existence of San Joaquin kit fox, American badger, burrowing owl, migratory bird species, bat species, CTS, and CRLF, and thus will not present a significant impact to the species as a whole, Caltrans has determined that the project will have a “Less than Significant Impact” on species identified as a candidate, sensitive, or special-status.

- 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 U.S. Fish and Wildlife Service?

No Impact – The proposed project will not affect riparian habitat or other sensitive natural communities.

- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact – The proposed project will not affect any state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means.

- 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?

No Impact – Interstates 580 and 205 represent major barriers to dispersal of CTS and CRLF; the paved surface of I-580 and I-205 are not considered to be viable dispersal corridors because heavy traffic likely causes mortality of almost all individuals attempting to cross. The proposed project work activities would not impact potential wildlife crossings present in the project area, such as road underpasses, railroad undercrossings, drainage culverts, and hydraulic structures carrying streams under the freeway.

- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact – This project will not conflict with any local policies or ordinances protecting biological resources.

- 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?

No Impact – This project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Standard Conservation Measures:

BIO-1: Work Window for Nesting Birds. To the extent practicable, clearing and grubbing activities should occur outside of the bird nesting season (February 1 to September 30). When it is necessary to conduct clearing during the nesting season, preconstruction surveys would be conducted within the BSA prior to clearing and grubbing of vegetation. If preconstruction surveys indicate the presence of nests of any special-status species, CDFW/USFWS would be consulted to determine the appropriate buffer area to be established around the nesting site for the duration of the breeding season.

BIO-2: Preconstruction Surveys for Nesting Birds. A qualified biologist will conduct pre-construction surveys for nesting birds no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 1 to September 30).

BIO-3: Non-disturbance Buffer for Nesting Birds. If work is to occur within 300 feet of active raptor nests or 100 feet of active passerine nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance.

BIO-4: Vehicle Use. Project employees will be required to comply with Caltrans' guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.

BIO-5: Trash Control. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the work area.

BIO-6: Prohibition of Mono-filament Erosion Control. Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because CRLF and CTS may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

BIO-7: Staging. Staging and parking areas will be located in designated areas, as specified by Caltrans' Environmental Staff in coordination with the resident engineer.

BIO-8: Revegetation following Construction. All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, and trees. Invasive, exotic plants will be controlled within the BSA to the maximum extent practicable, pursuant to Executive Order 13112.

AMMs and/or MMs:

AMM BIO-1: Permits. Caltrans will include a copy of the BO and ITP/consistency determination within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the Conservation Measures and Terms and Conditions of the USFWS BO and the CDFW ITP/consistency determination.

AMM BIO-2: Reinitiation of Consultation. Caltrans will reinitiate consultation if the project results in effects to listed species not considered in the USFWS BO or CDFW ITP/consistency determination.

AMM BIO-3: Biological Monitor Approval. Caltrans will submit the names and qualifications of the biological monitor(s) for USFWS and CDFW approval prior to initiating construction activities for the proposed project. Only agency-approved biological monitors would implement the monitoring duties outlined in the BO.

AMM BIO-4: Preconstruction Surveys. Prior to initiation of construction activities at the eight MVP installation locations, preconstruction surveys for listed species will be conducted by an agency-approved biologist. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops,

appropriately sized soil cracks, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity. The entrances and other refuge features within the project limits will be collapsed or removed following investigation. Preconstruction surveys should identify San Joaquin kit fox habitat features on the project site, evaluate use by kit foxes, and, if possible, assess the potential effects to kit foxes by the proposed activity. If an occupied den is discovered within the project area, or within 100 feet of the project boundary, an exclusion zone of a minimum of 100 feet around the den will be established. If the minimum exclusion zone cannot be met, then USFWS must be contacted. If a natal/pupping den is discovered within the project area or within 200 feet of the project area boundary, the agencies will be notified immediately.

AMM BIO-5: Biological Monitoring. The agency-approved biologist(s) will be on-site during initial ground-disturbing activities at the eight MVP installation locations and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. The biologist(s) will keep copies of applicable permits in their possession when on site. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall be given the authority to communicate either verbally or by telephone, email, or hardcopy with all project personnel to ensure that take of listed species is minimized and permit requirements are fully implemented. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall have the authority to stop project activities to minimize take of listed species or if he/she determines that any permit requirements are not fully implemented. If the agency-approved biologist(s) exercises this authority, the agencies shall be notified by telephone and email within 48 hours.

AMM BIO-6: Listed Species On-site. The Resident Engineer will immediately contact the agency-approved project biologist(s) if a San Joaquin kit fox, CRLF, or CTS is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily. If a San Joaquin kit fox, CRLF, or CTS is observed, an agency-approved biological monitor may relocate the animal if an agency-approved protocol for removal has been established. The agency-approved biological Monitor will follow established USFWS protocols for relocation.

AMM BIO-7: Work Window for CTS and CRLF. All work within suitable habitat for CTS and CRLF will occur between April 15 and October 15, when the species are unlikely to be active and there is less potential for an individual to enter the work area.

AMM BIO-8: Worker Environmental Awareness Training. All construction personnel will attend a mandatory environmental education program delivered by an agency-approved biologist prior to working on the project. The program would focus on the conservation measures that are relevant to employee's personal responsibility and would include an explanation as how to best avoid take of sensitive species. Distributed materials would include a pamphlet with distinguishing photographs of sensitive species, species' habitat requirements, compliance reminders, and relevant contact information. Documentation of the training, including sign-in sheets, would be kept on file and would be available on request.

AMM BIO-9: Prevention of Wildlife Entrapment. To prevent inadvertent entrapment of listed species during construction, excavated holes or trenches more than 1 foot deep with walls steeper than 30 degrees will be covered by plywood or similar materials at the close of each working. Alternatively, an additional 4-foot-high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of listed species. If it is not feasible to cover an excavation or provide an additional 4-foot-high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape, or the USFWS and/or CDFW will be contacted by telephone for guidance. The agencies will be notified of the incident by telephone and electronic mail within 48 hours.

AMM BIO-10: Environmentally Sensitive Area Fencing. Before the start of construction, Environmentally Sensitive Areas (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 temporary high-visibility fencing. Construction work areas will include the active construction site and all areas providing support for the project, including areas used for vehicle parking, equipment and material storage and staging, and access roads. The high-visibility fencing will remain in place throughout the duration of construction activities, will be inspected regularly, and will be fully maintained at all times. The final project plans will show all locations where the fencing will be installed and will provide installation specifications. The project Special Provisions and Notice to Bidders 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.

AMM BIO-11: Material Storage. CTS and CRLF are attracted to cavity-like structures such as pipes and may seek refuge under construction equipment or debris. They may become trapped or injured if such materials are moved. All construction pipes, culverts, or similar structures, construction equipment or construction debris left overnight within the work area will be inspected by the agency-approved biological monitor prior to being moved.

AMM BIO-12: Night Work. To the extent practicable, nighttime construction will be minimized.

AMM BIO-13: Night Lighting. Artificial lighting of the project construction area during nighttime hours will be minimized to the maximum extent practicable.

2.1.5 Cultural Resources

CEQA Significance Determinations for Cultural Resources

This section is summarized from the Caltrans District 4 Office of Cultural Resource Studies (OCRS) Completion of Section 106 Compliance memorandum that was prepared for this project, dated July 9, 2019.

No significant historical resources are within the project area.

Would the project:

- a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

No Impact – Background research and identification efforts did not reveal any recorded historical resources in the area that will be affected by the proposed project.

- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

No Impact – Background research and identification efforts did not reveal any recorded archaeological resources in the area that will be affected by the proposed project.

- c) Disturb any human remains, including those interred outside of dedicated cemeteries?

No Impact – There are no known interred human remains within the project vicinity.

Standard Conservation Measures:

CULT-1: If remains are discovered during excavation, all work within 60 feet of the discovery will halt and Caltrans' OCRS will be called. A Caltrans OCRS qualified archeologist will assess the remains and, if determined human, will contact the County Coroner as per Public Resources Code (PRC) Sections 5097.98, 5097.99, and 7050.5 of the California Health and Safety Code. If the Coroner determines the remains to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC) who will assign a Most Likely Descendant. Caltrans will consult with the Most Likely Descendent on treatment and reburial of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.6 Energy

CEQA Significance Determinations for Energy

Would the project:

- a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No Impact – The proposed project will not add travel lanes to I-580 or I-205 that would increase roadway capacity or build structures that would require substantial direct or indirect energy use. The project will result in direct energy use during construction for on-site construction equipment. The project will not introduce any new activities that would significantly impact or increase energy use.

- b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact – The proposed project will not add travel lanes to I-580 or I-205 that would increase roadway capacity. The project will result in temporary energy use during construction for the operation of on-site equipment. The project will not conflict with or obstruct any state or local plans for renewable energy or energy efficiency.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.7 Geology and Soils

CEQA Significance Determinations for Geology and Soils

This section summarizes the Geologic and Paleontological Environmental Study/Memorandum prepared for this project, which is dated October 23, 2019.

Would the project:

- a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
 - ii. Strong seismic ground shaking?
 - iii. Seismic-related ground failure, including liquefaction?
 - iv. Landslides?

No Impact – The proposed work will not further expose the public to adverse effects from earthquakes, liquefaction, landslides, or other geologic hazards.

- b) Result in substantial soil erosion or the loss of topsoil?

No Impact – The work activities are not expected to impact soil conditions. There will be no disturbance to the native ground or native subsurface from this project.

- 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?

No Impact – The project will be located on artificial fill, clay, loam, and bedrock containing weathered sandstone and shale. The project is not located on a geologic unit that is unstable, nor is it located on an expansive soil.

- d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Impact – The project will be located on artificial fill, clay, loam, and bedrock containing weathered sandstone and shale. The project is not located on a geologic unit that is unstable, nor is it located on an expansive soil.

- 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?

No Impact – There are no nearby residences and the project does not propose to install sewers or wastewater treatment systems.

- f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact –The Geologic and Paleontological Environmental Study/Memorandum prepared for this project on October 23, 2019 determined that the excavations for the proposed project will be shallow and superficial. There will be no impacts to sensitive paleontological resources or unique geologic features within the project limits.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.8 Greenhouse Gas Emissions

CEQA Significance Determinations for Greenhouse Gas Emissions

Would the project:

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

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 GHG emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), and various hydrofluorocarbons (HFCs). CO₂ is the most abundant GHG; while it is a naturally occurring component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO₂.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG emissions to limit or "mitigate" the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels). This analysis will include a discussion of both.

Regulatory Setting

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

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA; 42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 2019). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability” (FHWA n.d.). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Economy (CAFE) Standards. This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the CAFE program based on each manufacturer’s average fuel economy for the portion of its vehicles produced for sale in the United States.

Energy Policy Act of 2005, 109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) the establishment of the Office of Indian Energy Policy and Programs within the Department of Energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

The U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) is responsible for setting GHG emission standards for new cars and light-duty

vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence GHG emissions.

State

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and executive orders (EOs) including, but not limited to, the following:

EO S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill (AB) 32 in 2006 and Senate Bill (SB) 32 in 2016.

AB 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals outlined in EO S-3-05, while further mandating that the California Air Resources Board (ARB) create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code [H&SC] Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

EO S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the governor's 2030 and 2050 GHG reduction goals.

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

SB 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under AB 32.

EO B-16-12 (March 2012): This EO orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

EO B-30-15 (April 2015): This EO establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO_{2e}). The “carbon dioxide equivalent” (CO_{2e}) is a metric used to express amounts of other gases relative to CO₂, which is the most important GHG. Since GHGs differ in how much heat they each trap in the atmosphere (known as global warming potential, or GWP), CO₂ is used as a base for measurement. The global warming potential of CO₂ is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO₂. Finally, the EO requires the Natural Resources Agency to update the state’s climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

SB 32, Chapter 249, 2016: This bill codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

SB 1386, Chapter 545, 2016: This bill declared “it to be the policy of the state that the protection and management of natural and working lands ... is an important strategy in meeting the state’s greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands.”

AB 134, Chapter 254, 2017: This bill allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

Senate Bill 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles travelled, to promote the state’s goals of reducing GHG emissions and traffic-related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

SB 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires ARB to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional GHG emission reduction targets.

EO B-55-18 (September 2018): This EO sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.

EO N-19-19 (September 2019) advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce GHG emissions from the transportation sector. It orders a focus on transportation investments near housing, managing congestion, and encouraging alternatives to driving. This EO also directs ARB to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

Environmental Setting

The proposed project is in a rural area, with a primarily natural resources based agricultural and tourism economy. I-580 is the main transportation route to and through the area for both passenger and commercial vehicles. The nearest route that connects to this stretch of roadway is I-205, 6 miles to the east. Traffic counts are moderate to high and this segment of I-580 is intermittently congested. The Metropolitan Transportation Commission (MTC) is the regional transportation agency that guides transportation development in the project area. The City of Livermore General Plan: Climate Change elements also address GHGs in the project area.

State GHG Inventory

ARB collects GHG emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2019 edition of the GHG emissions inventory found total California emissions of 424.1 MMTCO_{2e} for 2017, with the transportation sector responsible for 41% of total GHGs (Figure 3). It also found that overall statewide GHG emissions declined from 2000 to 2017 despite growth in population and state economic output (Figure 4).

National GHG Inventory

The U.S. EPA prepares a national GHG inventory every year and submits it to the United Nations in accordance with the Framework Convention on Climate Change. The inventory provides a comprehensive accounting of all human-produced sources of GHGs in the United States, reporting emissions of CO₂, CH₄, N₂O, HFCs, perfluorocarbons, SF₆, and nitrogen trifluoride. It also accounts for emissions of CO₂ that are removed from the atmosphere by “sinks” such as forests, vegetation, and soils that uptake and store CO₂ (carbon sequestration). The 1990–2016 inventory found that of 6,511 MMTCO₂e GHG emissions in 2016, 81% consist of CO₂, 10% are CH₄, and 6% are N₂O; the balance consists of fluorinated gases (U.S. EPA 2018). In 2016, GHG emissions from the transportation sector accounted for nearly 28.5% of U.S. GHG emissions.

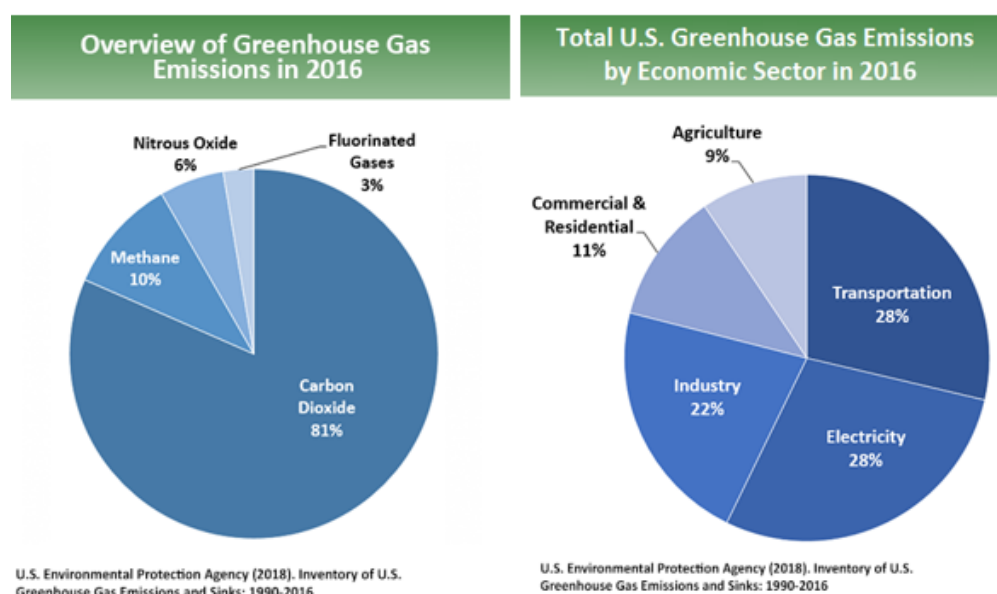


Figure 3. U.S. 2016 Greenhouse Gas Emissions

Source: California Air Resources Board (ARB). 2019a. California Greenhouse Gas Emissions Inventory–2019 Edition. <https://ww3.arb.ca.gov/cc/inventory/data/data.htm>. Accessed: August 21, 2019.

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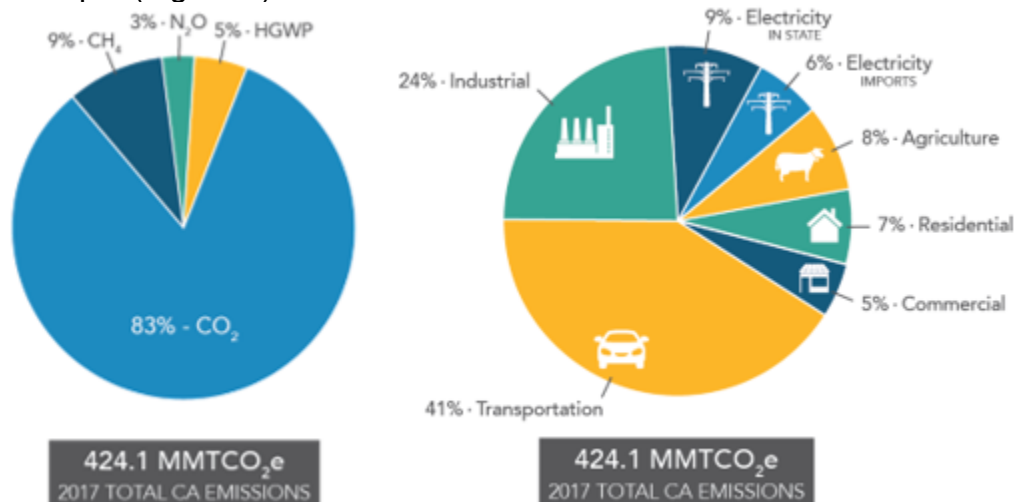


Figure 4. California 2017 Greenhouse Gas Emissions

Source: California Air Resources Board (ARB). 2019a. California Greenhouse Gas Emissions Inventory–2019 Edition. <https://ww3.arb.ca.gov/cc/inventory/data/data.htm>. Accessed: August 21, 2019.

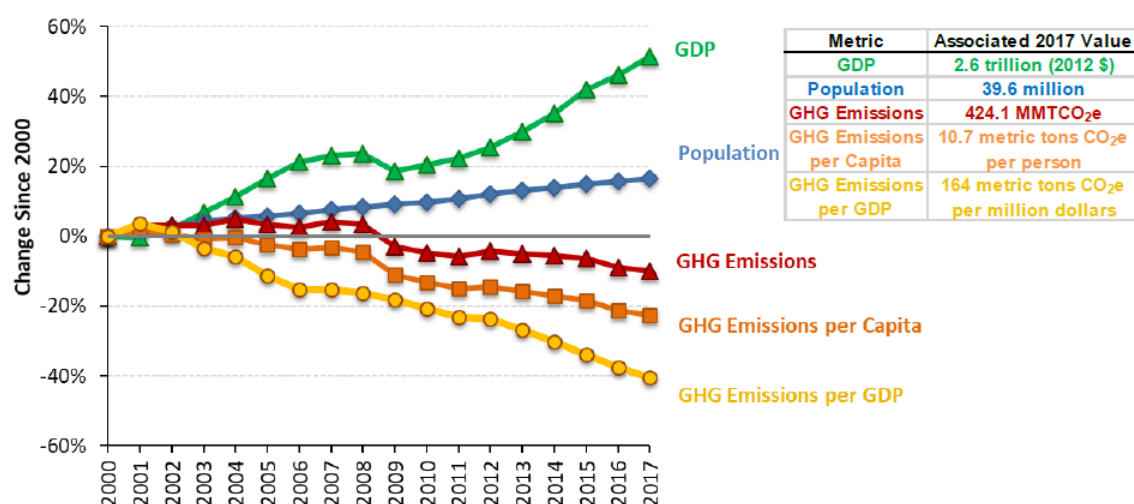


Figure 5. Change in California GDP, Population, and GHG Emissions since 2000

Source: California Air Resources Board (ARB). 2019b. California Greenhouse Gas Emissions for 2000 to 2017. Trends of Emissions and Other Indicators. https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf. Accessed: August 21, 2019.

AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. ARB adopted the first scoping plan in 2008. The second

updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32. The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions.

Regional Plans

ARB sets regional targets for California's 18 MPOs to use in their Regional Transportation Plans (RTPs)/SCSs to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. The proposed project is included in the MTC's RTP/SCS, Plan Bay Area. The regional reduction target for MTC is 10% percent by 2020 and 19% by 2035 (California Air Resources Board (ARB). 2019c. SB 375 Regional Plan Climate Targets. <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>. Accessed: August 21, 2019).

Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation of the State Highway System and those produced during construction. The primary GHGs produced by the transportation sector are CO₂, CH₄, N₂O, and HFCs. CO₂ emissions are a product of the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of CH₄ and N₂O are emitted during fuel combustion. In addition, a small amount of HFC emissions are included in the transportation sector.

The CEQA Guidelines generally address GHG emissions as a cumulative impact due to the global nature of climate change (PRC § 21083(b)(2)). As the California Supreme Court explained, "because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself" (Cleveland National Forest Foundation v. San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512). 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. Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

The purpose of the proposed project is to improve maintenance worker safety at 14 locations along I-580 and I-205 in Alameda County by installing MVPs and paving additional areas to increase worker access off the traveled roadway for maintenance activities. The proposed project would not increase the number of travel lanes and would result in no increase in vehicle miles traveled (VMT). Although some GHG emissions during the construction period would be unavoidable, no significant increase in operational GHG emissions is expected because the proposed project would not increase roadway capacity or VMT.

Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, workers commuting to and from the project site, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

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

Based on project information available for environmental studies, the construction-related GHG emissions were calculated using the Road Construction Emissions Model (RCEM), version 9.0.0, provided by the Sacramento Metropolitan Air Quality Management District. It was estimated that for projected construction duration of 120 working days, the total amount of CO₂ produced to construct the project would be 351.30 metric tons of CO₂e (Table 3).

Table 3. Summary of Construction-related GHG Emission Estimates

| Project Location: Alameda Co. | PARAMETERS | | | PROJECT TOTAL |
|----------------------------------|---------------|---------------|---------------|-----------------------|
| | CO2 (tons) | CH4 (tons) | N2O (tons) | CO2e (metric tons) |
| TOTAL EMISSIONS | 347.76 | 0.10 | 0.00 | 351.30 |

¹ Gases are converted to CO₂e by multiplying by their global warming potential (GWP). Specifically, GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO₂).

Implementation of Caltrans Standard Specifications, such as complying with air-pollution-control rules, regulations, ordinances, and statutes that apply to work performed under the Contract and the use of construction best management practices, would result in reducing GHG emissions from construction activities.

CEQA Conclusion

While the proposed project will result in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. The proposed project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With implementation of construction GHG-reduction measures, the impact would be less than significant.

Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

Statewide Efforts

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 GHG emissions targets. Former Governor Edmund G. Brown promoted GHG reduction goals that involved (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farms and rangelands, forests, and wetlands so they can store carbon; and, (6) periodically updating the state's climate adaptation strategy, *Safeguarding California* (Figure 6).

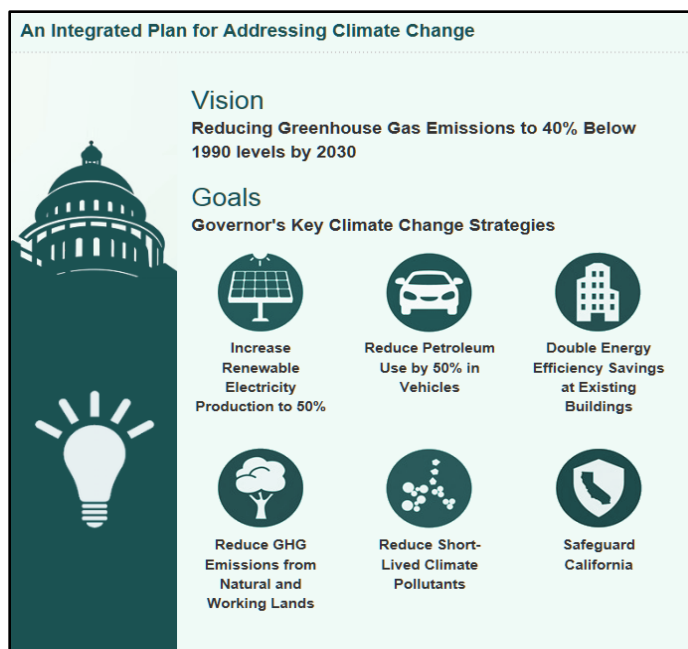


Figure 6. California Climate Strategy

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of VMT. A key state goal for reducing GHG emissions is to reduce today's petroleum use in cars and trucks by up to 50 percent by 2030 (State of California. 2019. *California Climate Strategy*. <https://www.climatechange.ca.gov/>. Accessed: August 21, 2019).

In addition, SB 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set an interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

CALIFORNIA TRANSPORTATION PLAN (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. In 2016, Caltrans completed the *California Transportation Plan 2040*, which establishes a new model for developing ground transportation systems, consistent with CO₂ reduction goals. It serves as an umbrella document for all the other statewide transportation planning documents. Over the next 25 years, California will be working to improve transit and reduce long-run repair and maintenance costs of roadways and developing a comprehensive assessment of climate-related transportation demand management and new technologies rather than continuing to expand capacity on existing roadways.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

CALTRANS STRATEGIC MANAGEMENT PLAN

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

FUNDING AND TECHNICAL ASSISTANCE PROGRAMS

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several sustainable transportation planning grants. These grants encourage local and regional multimodal transportation, housing, and land use planning that furthers the region's RTP/SCS; contribute to the State's GHG reduction targets and advance transportation-related GHG emission reduction project types/strategies; and, support other climate adaptation goals (e.g., *Safeguarding California*).

CALTRANS POLICY DIRECTIVES AND OTHER INITIATIVES

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. *Caltrans Activities to Address Climate Change* (April 2013) provides a comprehensive overview of Caltrans' statewide activities to reduce GHG emissions resulting from agency operations.

Project-Level GHG Reduction Strategies

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

- Construction contractors will comply with Caltrans Standard Specifications to comply with all federal, state, and local air quality requirements, such as proper construction vehicle maintenance and idling restrictions. Measures that reduce vehicle emissions also help reduce GHGs.
- During construction, if feasible, the project will use solar-powered signal boards, which have reduced GHG emissions from energy consumption.
- A TMP will be developed to alleviate and minimize delays to the traveling public and potential emissions from idling traffic.

Adaptation

Reducing GHG emissions is only one part of an approach to addressing climate change. Caltrans must 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 their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The U.S. Global Change Research Program (USGCRP) delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (15 U.S.C. ch. 56A § 2921 et seq). The Fourth National Climate Assessment, published in 2018, presents the foundational science and the “human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways.” Chapter 12, “Transportation,” presents a key discussion of vulnerability assessments. It notes that “asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and scenarios in the context of asset-specific information, such as design lifetime” (U.S. Global Change Research Program (USGCRP). 2018. Fourth National Climate Assessment. <https://nca2018.globalchange.gov/>. Accessed: August 21, 2019.).

The U.S. DOT Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to “integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions” (U.S. Department of Transportation (U.S. DOT). 2011. Policy Statement on Climate Change Adaptation. June. https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm. Accessed: August 21, 2019.).

FHWA order 5520 (Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (Federal Highway Administration (FHWA). 2019. Sustainability. <https://www.fhwa.dot.gov/environment/sustainability/resilience/>. Last updated February 7, 2019. Accessed: August 21, 2019.).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. *California's Fourth Climate Change Assessment* (2018) is the state's effort to “translate the state of

climate science into useful information for action” in a variety of sectors at both statewide and local scales (State of California. 2018. *California’s Fourth Climate Change Assessment*. <http://www.climateassessment.ca.gov/>. Accessed: August 21, 2019). It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- *Adaptive capacity* is the “combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities.”
- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- *Resilience* is the “capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience”. Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.
- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.
- *Vulnerability* is the “susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt.” Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

EO S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea-level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan). The Safeguarding California Plan offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

EO S-13-08 also led to the publication of a series of sea-level rise assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance) in 2010, with instructions for how state agencies could incorporate “sea-level rise (SLR) projections into planning and decision making for projects in California” in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California – An Update on Sea-Level Rise Science* was published in 2017 and its updated projections of sea-level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018.

EO B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change other than sea-level rise also threaten California’s infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017, to encourage a uniform and systematic approach. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts.

Caltrans Adaptation Efforts

CALTRANS VULNERABILITY ASSESSMENTS

Caltrans is conducting climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects including precipitation, temperature, wildfire, storm surge, and sea-level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency, and involves the following concepts and actions:

- *Exposure* – Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence* – Determine what might occur to system assets in terms of loss of use or costs of repair.

- *Prioritization* – Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the State Highway System, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

SEA LEVEL RISE ANALYSIS

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

FLOODPLAINS

The project is not located in a floodplain or adjacent to any streams or water bodies that could be affected by climate change so as to present a hazard to the new facility or be affected by the new facility.

WILDFIRE

The project area traverses moderate and high Fire Hazard Severity Zones in a State Responsibility Area (SRA), as designated by the California Department of Forestry and Fire Protection. The project will apply standard specifications 7.1.02M(2) for fire prevention during construction. The project will not exacerbate existing wildlife risks or contribute to new risks.

2.1.9 Hazards and Hazardous Materials

CEQA Significance Determinations for 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?

No Impact – The proposed project work locations were subjected to lead deposition from vehicular emissions during the era of leaded fossil fuel. Given the traffic volumes the project corridor experienced at the time, it is likely that the shallow soils to be excavated for this project have elevated concentrations of lead. The project will implement BMPs according to special provision 14-11.08 “Regulated Material Containing Aerially Deposited Lead (ADL).” With the implementation of BMPs, project construction will not result in hazards to the public or the environment through the transport, use, or disposal of hazardous materials.

- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

No Impact – Based on preliminary investigations, there is no potential for release of hazardous materials into the environment.

- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact – Based on preliminary investigations, there is no potential for release of hazardous materials into the environment. The project is not located within 0.25 mile of a school.

- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact – The project is not located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

- 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?

No Impact – The project is not located within an airport land use plan or within two miles of a public airport or public use airport. Nor is the project located in the vicinity of a private airstrip.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact – The project will not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact – The project is primarily surrounded by grazing lands, rural dwellings, and generally undeveloped, grassy areas. Urbanized areas adjacent to the project are commercial and industrial. The project will take place in existing Caltrans ROW and would not change existing land use. The project will apply standard specifications 7.1.02M(2) for fire prevention during construction. The project will not increase or contribute to new risks of exposure to fire hazards for the surrounding community.

Standard Conservation Measures:

HAZ-1: Caltrans Standards will be followed for the proper handling and disposal of any unanticipated hazardous waste discovered during construction.

HAZ-2: The project will implement BMPs according to special provision 12-11.09 “Minimal Disturbance of Regulated Material Containing ADL.”

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.10 Hydrology and Water Quality

CEQA Significance Determinations for Hydrology and Water Quality

This section summarizes the Location Hydraulics Study memorandum prepared for this project, which is dated October 15, 2019. This section also summarizes the Water Quality Study that was prepared for this project, which is dated October 2019.

This project is under jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB; Region 2) and the Central Valley RWQCB (Region 5). This project would result in less than an acre of disturbed soil area (DSA) and will require a Water Pollution Control Plan (WPCP). The project lies in Hydrological Sub Areas 543.00-575.00 in the North Diablo Range-Carbona hydrologic unit. Runoff drains into delta waterways, Mountain House Creek, Arroyo Las Positas, Arroyo Mocho, and Old River; all these waters are listed as 303(d) impaired water bodies.

Would the project:

- a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

No Impact – The proposed project will result in less than one acre of DSA. There will be no permanent water quality impacts.

- b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact – The proposed project's work activities will not substantially deplete groundwater supplies or interfere with groundwater recharge.

- c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - i. result in substantial erosion or siltation on- or off-site;

No Impact – The proposed project will not encroach into creeks or other water bodies. Existing drainage patterns will not be substantially altered and will not result in substantial erosion or siltation on- or off-site. After construction, areas cleared for contractor access and trenching operations will be treated with appropriate erosion control measures.

- ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

No Impact – The proposed MVP pullouts will not adversely affect any of the existing drainages, and gore paving locations will not be changing existing grade or flow patterns. The proposed project will not alter existing drainage patterns of the site or area and will not substantially increase the rate or amount of surface runoff that would result in flooding on- or off-site. The proposed project will also not create or contribute to runoff water that would exceed the capacity of existing or planned storm water drainage systems.

- iv. impede or redirect flood flows?

No Impact – The proposed project will not encroach into creeks or other water bodies. Existing drainage patterns will not be substantially altered and will not impede or redirect flood flows. After construction, areas cleared for contractor access and trenching operations will be treated with appropriate erosion control measures.

- d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact – The proposed project is not located in an area that would be subject to inundation by seiche, tsunami, or mudflow.

- e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact – The proposed project will use temporary construction-site BMPs to avoid any impacts to water from construction activities. The project will not conflict with or obstruct implementation of a water quality control or sustainable groundwater management plan.

Standard Conservation Measures:

HYDRO-1: Standard BMPs. The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the Caltrans Standard Specifications. Caltrans erosion control BMPs will be used to minimize any wind- or water-related erosion. BMPs to be implemented within the project area will include, at a minimum:

- a. No discharge of pollutants from vehicle and equipment cleaning will be allowed into storm drains or water courses.
- b. Vehicle and equipment fueling, and maintenance operations must be at least 50 feet away from water courses.
- c. Concrete wastes will be collected in washouts, and water from curing operations will be collected, disposed of, and not allowed into water courses.
- d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.
- e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment, and temporary organic hydro-mulching would be applied to all unfinished disturbed and graded areas.
- f. Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and reseeded with a native seed mix.
- g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.
- h. A Revegetation Plan will be prepared for restoration of temporary work areas.

HYDRO-2: During construction, a silt fence will be used to intercept and slow the flow of sediment-laden sheet flow runoff. A silt fence is a temporary linear sediment barrier of permeable fabric.

HYDRO-3: Prior to commencement of construction activities, a WPCP will be prepared by the Contractor and approved by Caltrans. The WPCP addresses potential temporary impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.11 Land Use and Planning

CEQA Significance Determinations for Land Use and Planning

Would the project:

a) Physically divide an established community?

No Impact – The land immediately adjacent to the western portion of the proposed project, from North Vasco Road to North Greenville Road in the City of Livermore, is zoned commercial and industrial. The remaining 8.22 miles of the project is situated in a predominantly rural area of unincorporated Alameda County and features a few residences adjacent to the interstates. The new MVPs and gore areas proposed by the project are contained within Caltrans ROW. The proposed project will not physically divide an established community.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact – The proposed project will not cause a significant environmental impact that would conflict with an applicable land use plan, policy, or regulation.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.12 Mineral Resources

CEQA Significance Determinations for 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?

No Impact – There are no known minerals of value within the project work location.

- 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?

No Impact – There are no known minerals of value within the project work location.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.13 Noise

CEQA Significance Determinations for Noise

There are a few dispersed residences located near the project area. Noise generated by the project will be temporary construction noise, and standard Caltrans noise abatement measures will be applied to reduce noise. Work will be confined to daytime hours and the work location will move periodically from one location to the next, so the duration of noise at any given location will be temporary.

Would the project result in:

- a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No Impact – The proposed project will not add travel lanes to I-580 or I-205 that would increase roadway capacity. Anticipated noise impacts from the proposed project will be temporary and periodic, associated with construction. Noise associated with construction is controlled by Caltrans Standard Specification, Section 14-8.02, Noise Control. The proposed project will not introduce a permanent increase in noise levels.

- b) Generation of excessive groundborne vibration or groundborne noise levels?

No Impact – The project will not involve activities that result in excessive ground vibration.

- c) For a project located within the vicinity of a private airstrip or 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?

No Impact – The project is not located within the vicinity of a private airstrip, an airport land use plan, or two miles of a public airport or public use airport.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.14 Population and Housing

CEQA Significance Determinations for Population and Housing

Would the project:

- a) Induce substantial unplanned 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)?

No Impact – The project will not induce growth. No new commercial or residential establishments would be built, and the project will not add travel lanes to I-580 or I-205 that would increase roadway capacity.

- b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact – The project will not induce growth. No new commercial or residential establishments will be built, and the project will not add travel lanes to I-580 or I-205 that would increase roadway capacity. The project will not displace people or housing units or require the construction of replacement housing. There are no houses within the project construction area and no ROW will be acquired.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.15 Public Services

CEQA Significance Determinations for Public Services

- a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, other public facilities?

No Impact – The proposed project will not result in the provision of new or physically altered government facilities. Furthermore, the project will not result in a need for new or physically altered governmental facilities in order to maintain acceptable service ratios or response times for fire protection, police protection, schools, parks, or other public facilities.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.16 Recreation

CEQA Significance Determinations for 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?

No Impact – Northfront Park and Bill Clark Park in the City of Livermore, and Brushy Peak Regional Preserve of the East Bay Regional Parks District are three publicly owned parks within a 0.5-mile radius of the project. None of these parks are within or adjacent to the project area. The described project work activities will not result in the increased use of or deterioration of existing neighborhood or regional parks or other recreational facilities.

- 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?

No Impact – Northfront Park and Bill Clark Park in the City of Livermore, and Brushy Peak Regional Preserve of the East Bay Regional Parks District are three publicly owned parks within a 0.5-mile radius of the project. None of these parks are within or adjacent to the project area. The described project work activities will not result in the construction, increased use, or expansion of new and existing recreational facilities.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.17 Transportation and Traffic

The Traffic Management Plan (TMP) for the project will be developed in the next stage of project development. The TMP will be supported by detailed traffic studies to evaluate traffic operations. The need for necessary lane closures during off-peak hours or at night, or for short-term detour routes will be identified as required.

CEQA Significance Determinations for Transportation/Traffic

Would the project:

- a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact – The proposed project is consistent with the California Transportation Plan 2040, the Alameda Countywide Transportation Plan, and the City of Livermore General Plan: Circulation Element.

- b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less than Significant – The project is not a capacity increasing project, so it will have no effect on vehicle miles traveled.

- c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact – The project will not substantially increase hazards due to a design feature or incompatible uses.

- d) Result in inadequate emergency access?

No Impact – The TMP will ensure that emergency services have adequate access.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.18 Tribal Cultural Resources

CEQA Significance Determinations for Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

No Impact – To date, Caltrans cultural staff has determined that the proposed project is not located within or adjacent to any site listed or eligible for listing in a local register of historical resources as defined in PRC section 5020.1(k).

- b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact – No previously known tribal cultural resources have been identified within the project area and there are no known concerns associated with the proposed project impacting such resources. Caltrans OCRS sent Assembly Bill (AB) 52 letters on February 18, 2020 to California Native American tribes identified by the NAHC, initiating consultation. No responses were received. See Chapter 3 for more details.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.19 Utilities and Service Systems

CEQA Significance Determinations for Utilities and Service Systems

Would the project:

- a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact – The project will not require or result in the relocation or construction of new water or wastewater treatment facilities, storm water drainage, electric power, natural gas, or telecommunications facilities. Neither will the project result in the expansion of existing facilities.

The project is not expected to exceed wastewater treatment requirements of the San Francisco Bay RWQCB (Region 2) or the Central Valley RWQCB (Region 5).

- b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact – The project does not require water supplies and will not impact current or future water supply.

- c) 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?

No Impact – The project does not require the services of a wastewater treatment provider where the project will impact the capacity of the provider.

- d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

No Impact – The project will not require the services of a solid waste facility where the project would impact the capacity of local infrastructure or impair the attainment of solid waste reduction goals.

- e) Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact – The project is anticipated to comply with federal, state, and local statutes and regulations related to solid waste.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.20 Wildfire

CEQA Significance Determinations for Wildfire

- a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact – All project work is expected to occur within Caltrans Right-of-Way (ROW) or in temporary construction easements. This project does not propose changes in the use of the current roadway and will not require or cause changes in the use of adjacent properties. The proposed project will not substantially impair an adopted emergency response or evacuation plan.

- b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact – All project work is expected to occur within Caltrans ROW or in temporary construction easements. This project does not propose changes in the use of the current roadway and will not require or cause changes in the use of adjacent properties. The project will apply standard specifications 7.1.02M(2) for fire prevention during construction. The proposed project will not exacerbate or contribute to new wildfire risks.

- c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact – All project work is expected to occur within Caltrans ROW or in temporary construction easements. This project does not propose changes in the use of the current roadway and will not require or cause changes in the use of adjacent properties. The proposed project will not exacerbate fire risk.

- d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact – All project work is expected to occur within Caltrans ROW or in temporary construction easements. This project does not propose changes in the use of the current roadway and will not require or cause changes in the use of adjacent properties. Existing drainage patterns will not be substantially altered and would not result in

substantial erosion or siltation on- or off-site. The project will apply standard specifications 7.1.02M(2) for fire prevention during construction. After construction, areas cleared for contractor access and trenching operations will be treated with appropriate erosion control measures. The proposed project will not expose people or structures to significant risks.

AMMs and/or MMs:

No impacts are anticipated; therefore, no measures are proposed.

2.1.21 Mandatory Findings of Significance

CEQA Significance Determinations for Mandatory Findings of Significance

- a) Does the project have the potential to substantially 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?

Less Than Significant Impact – The proposed project will result in approximately 0.06 acre of temporary impact and approximately 0.01 acre of permanent impact to suitable CTS and CRLF habitat. The limited disturbance to species habitat from temporary construction will not substantially degrade the quality of the environment or reduce wildlife species habitat.

- 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)?

No Impact – All past, present, and future projects have gone through or are required to undergo an environmental review to identify, account for, and mitigate for potential significant impacts. All projects have or will incorporate standard conservation measures, including standard Caltrans BMPs, which will protect surrounding habitat and water quality. Therefore, Caltrans does not anticipate any cumulative effects as a result of the proposed project.

- c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

No Impact – The project does not have environmental effects that would cause substantial adverse effects on human beings.

Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency and tribal consultation and public participation for this project have been accomplished through a variety of formal and informal methods. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

The Initial Study with Negative Declaration for the I-580 I-205 Roadside Safety Project was released on April 20, 2020. Caltrans published a Notice of Availability (NOA) for the project on April 16, 2020 via a quarter-page ad that was run in the East Bay Times.

3.1 Native American Coordination

Caltrans OCRS sent AB 52 letters on February 18, 2020 to the following Native American tribes who requested consultation:

- Amah Mutsun Tribal Band
- North Valley Yokuts
- Indian Canyon Mutsun Band of Mission San Juan Bautista
- Ohlone Indian Tribe
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
- Confederated Villages of Lisjan
- Costanoan Rumsen Carmel Tribe

No responses were received.

3.2 Agency Coordination

The Information for Planning and Conservation online tool was used to generate a species list from the Sacramento Office of the USFWS for the project area on September 24, 2019. Caltrans initiated technical assistance with USFWS on October 18, 2019. A request for formal consultation and a BA was submitted to USFWS on December 11, 2019. USFWS submitted a 30-day letter to Caltrans on January 3, 2020, requesting additional information on project mitigation. Caltrans submitted a revised BA and a response to the 30-day letter on February 4, 2020.

3.3 Comments Received and Responses

Caltrans filed a Notice of Completion for the Draft IS with Proposed ND with the State Clearinghouse on April 20, 2020. The filing of the Notice of Completion began a public review and comment period that extended from April 20, 2020 through May 20, 2020. State and local agencies, organizations, and members of the public submitted comments. Each comment letter or email that was received was reviewed, and substantive comments were identified. This chapter presents the comments that were received and the response to those comments.

Comment 1, California Department of Toxic Substances Control



Jared Blumenfeld
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D.
Director
8800 Cal Center Drive
Sacramento, California 95826-3200



Gavin Newsom
Governor

May 4, 2020

Ms. Sabrina Dunn
California Department of Transportation (Caltrans) District 4
PO Box 23660, MS 8B
Oakland, California 94623-0660
Sabrina.Dunn@dot.ca.gov

NEGATIVE DECLARATION FOR INTERSTATE 580 AND INTERSTATE
205 ROADSIDE SAFETY IMPROVEMENT PROJECT – DATED APRIL 2020
(STATE CLEARINGHOUSE NUMBER: UNKNOWN)

Dear Ms. Dunn:

The Department of Toxic Substances Control (DTSC) received a Negative Declaration (ND) for Interstate 580 and Interstate 205 Roadside Safety Improvement Project. The California Department of Transportation (Caltrans) proposes to construct the Interstate 580 (I-580) and Interstate 205 (I-205) Roadside Safety Improvement Project to improve maintenance worker safety along I-580 and I-205. This will be accomplished by extending and paving gore areas, as well as constructing maintenance vehicle pullouts (MVPs) at 14 locations from North Vasco Road in the City of Livermore in Alameda County to the Alameda/San Joaquin county line (post mile [PM] 0.0 to PM R9.7 on I 580; and PM L0.0 to PM 0.5 on I-205).

DTSC recommends that the following issues be evaluated in the ND Hazards and Hazardous Materials section:

- 1-1 | 1. The ND should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The ND should also identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.
- 1-2 | 2. Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance. This practice did not officially end until 1992 when lead was banned as a fuel additive

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Comment 1 (Continued)

Ms. Sabrina Dunn
May 4, 2020
Page 2

- 1-3 | in California. Tailpipe emissions from automobiles using leaded gasoline contained lead and resulted in aerially deposited lead (ADL) being deposited in and along roadways throughout the state. ADL-contaminated soils still exist along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. Due to the potential for ADL-contaminated soil DTSC, recommends collecting soil samples for lead analysis prior to performing any intrusive activities for the project described in the ND.
- 1-4 | 3. If any sites within the project area or sites located within the vicinity of the project have been used or are suspected of having been used for mining activities, proper investigation for mine waste should be discussed in the ND. DTSC recommends that any project sites with current and/or former mining operations onsite or in the project site area should be evaluated for mine waste according to DTSC's 1998 Abandoned Mine Land Mines Preliminary Assessment Handbook (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/11/aml_handbook.pdf).
- 1-5 | 4. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 *Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers* (https://dtsc.ca.gov/wpcontent/uploads/sites/31/2018/09/Guidance_Lead Contamination_050118.pdf).
- 1-6 | 5. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to DTSC's 2001 *Information Advisory Clean Imported Fill Material* (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/SMP_FS_Cleanfill-Schools.pdf).
- 1-7 | 6. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for organochlorinated pesticides should be discussed in the ND. DTSC recommends the current and former agricultural lands be evaluated in accordance with DTSC's 2008 *Interim Guidance for Sampling Agricultural Properties (Third Revision)* (<https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/Ag-Guidance-Rev-3-August-7-2008-2.pdf>).

DTSC appreciates the opportunity to comment on the ND. Should you need any assistance with an environmental investigation, please submit a request for Lead

Comment 1 (Continued)

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Agency Oversight Application, which can be found at: https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/VCP_App-1460.doc. Additional information regarding voluntary agreements with DTSC can be found at: <https://dtsc.ca.gov/brownfields/>.

If you have any questions, please contact me at (916) 255-3710 or via email at Gavin.McCreary@dtsc.ca.gov.

Sincerely,



Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Ms. Lora Jameson, Chief
Site Evaluation and Remediation Unit
Department of Toxic Substances Control
Lora.Jameson@dtsc.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

Response to Comment 1, California Department of Toxic Substances Control

1-1

All Caltrans projects are evaluated for potential to encounter hazardous materials, hazardous waste, and contamination. Evaluation of project sites includes consultation of department records to identify past land uses and chemical spills or soil contamination along the state highway system.

The proposed project will take place on existing Caltrans ROW. To limit and prevent the release of hazardous wastes/substances that may arise from construction, the project will implement provisions from 2018 Caltrans Standard Specifications Section 14-11: Hazardous Waste and Contamination.

Past and future Caltrans projects have and will follow the same provisions to limit and manage hazardous waste/substance release.

1-2

The project will implement provisions from 2018 Caltrans Standard Specifications Section 14-11: Hazardous Waste and Contamination.

Per standard provisions, Caltrans reports release of hazardous wastes and substances to state and/or federal agencies, as appropriate.

1-3

The project will implement BMPs according to special provision 14-11.08 "Regulated Material Containing Aerially Deposited Lead (ADL)."

1-4

The project will take place on existing Caltrans ROW. No areas located within the vicinity of the project have been used or are suspected of having been used for mining activities.

1-5

The project will take place on existing Caltrans ROW and would not change existing land use. No buildings are present on the project site. The project will not remove or demolish any buildings or structures that may contain lead-based paints or products, mercury, asbestos containing materials, or polychlorinated biphenyl caulk.

1-6

The project will implement provisions from 2018 Caltrans Standard Specifications Section 14-11: Hazardous Waste and Contamination. Section 14-11 outlines procedures to identify soil contamination and proper handling and disposal of contaminated soils during project construction. Soil sampling methods follow state and federal guidelines.

1-7

The project will implement provisions from 2018 Caltrans Standard Specifications Section 14-11: Hazardous Waste and Contamination. Section 14-11 outlines procedures to identify soil contamination and proper handling and disposal of contaminated soils during project construction. Soil sampling methods follow state and federal guidelines.

Comment 2, California Department of Fish and Wildlife

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State of California
Department of Fish and Wildlife



Memorandum

Date: May 7, 2020

To: Ms. Sabrina Dunn
California Department of Transportation
District 4
Post Office Box 23660, MS-8B
Oakland, CA 94623

DocuSigned by:
 Gregg Erickson, Regional Manager
California Department of Fish and Wildlife-Bay Delta Region, 2825 Cordelia Road, Suite 100, Fairfield, CA 94534

Subject: Interstate 580 – Interstate 205 Roadside Safety Improvement Project Initial Study/Negative Declaration, SCH #2020040221, City of Livermore, Alameda County

The California Department of Fish and Wildlife (CDFW) has reviewed the proposed Initial Study and Negative Declaration (IS/ND) for the proposed Interstate 580 – Interstate 205 Roadside Safety Improvement Project (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ Pursuant to our jurisdiction, CDFW is submitting comments on the IS/ND as a means to inform the California Department of Transportation (Caltrans) as the Lead Agency, of our concerns regarding potentially significant impacts to sensitive resources associated with the proposed Project.

PROJECT LOCATION AND DESCRIPTION SUMMARY

Caltrans proposes to improve maintenance worker safety by extending and paving gore areas, which are small triangular unpaved areas between on-ramps and highways, and constructing maintenance vehicle pullouts (MVPs) at 14 locations along Interstate 580 (I-580) and Interstate 205 (I-205) from North Vasco Road in the City of Livermore in Alameda County to the Alameda-San Joaquin county line (post mile [PM] 0.0 to PM R9.7 on I- 580, and PM L0.0 to PM 0.5 on I-205). The total length of the project is approximately 9.62 miles.

The Biological Study Area (BSA) consists of approximately 2.55 acres located within the City of Livermore and the Altamont Pass I-580 transportation corridor, before the San Joaquin/Alameda county line. The BSA is composed primarily of paved road and barren ground. About 15 percent of the BSA is composed of naturalized annual grassland and landscaped land.

CDFW ROLE

CDFW is a Trustee Agency with responsibility under CEQA §15386 for commenting on projects that could impact fish, plant and wildlife resources. CDFW is also considered a Responsible Agency if a project would require discretionary approval, such as permits issued under the California Endangered Species Act, the Native Plant Protection Act, the Lake and Streambed Alteration (LSA) Program and other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife trust resources.

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Comment 2 (Continued)

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Ms. Sabrina Dunn
California Department of Transportation

2

May 7, 2020

LAKE AND STREAMBED ALTERATION AGREEMENT

Please be advised that the proposed Project may be subject to LSA Notification for impacts to drainage systems that connect to tributaries of main stem creeks and tributaries that occur within the Project BSA. CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et. seq., for or any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are subject to notification requirements.

CALIFORNIA ENDANGERED SPECIES ACT

The proposed Project has the potential to impact California tiger salamander (*Ambystoma californiense*), a species designated as threatened pursuant to CESA. Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in take of species of plants or animals listed under CESA, either during construction or over the life of the Project. Under CESA, take is defined as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill." Issuance of an ITP is subject to CEQA documentation. If the Project will impact CESA-listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit.

COMMENTS AND RECOMMENDATIONS

CDFW acting as a Responsible Agency, has discretionary approval under CESA through issuance of an ITP and an LSA Agreement as well as other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife trust resources. CDFW would like to thank you for preparing the IS/ND and including the appropriate avoidance and mitigation measures imposed as conditions of Project approval by the lead agency, the California Department of Transportation, that will ensure all Project-related impacts are mitigated to below a level of significance under CEQA. Provided, the lead agency implements and adheres to the Project as described in the IS/ND and implements the avoidance and minimization measures related to the Biological Resources section of the Negative Declaration pursuant to CEQA, CDFW has no further comment in regards to the Project noted herein.

CONCLUSION

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California's fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

Questions regarding this letter or further coordination should be directed to Mr. Robert Stanley, Senior Environmental Scientist (Specialist), at (707) 428-2093 or Robert.Stanley@wildlife.ca.gov; or Mr. Craig Weightman, Environmental Program Manager, at (707) 944-5577 or Craig.Weightman@wildlife.ca.gov.

cc: State Clearinghouse #2020040221

Response to Comment 2, California Department of Fish and Wildlife

Thank you for your comment.

Pursuant to CESA, Caltrans will obtain a consistency determination or Section 2081 ITP from CDFW for CTS. Consultation with CDFW is ongoing and an application will be submitted following approval of the FED. The AMMs and Standard Conservation Measures listed in Section 2.1.4 and Appendix B of the IS ND will reduce potential project impacts to candidate, sensitive, or special status species with potential to occur in the project area to a less than significant level under CEQA.

Comment 3, Department of Water Resources

From: Canuela, Jonathan@DWR <Jonathan.Canuela@water.ca.gov>

Sent: Friday, May 15, 2020 10:52 AM

To: Dunn, Sabrina@DOT <Sabrina.Dunn@dot.ca.gov>

Subject: EA# 04-4J9400/RE: State Clearinghouse 2020040221: Interstate 580 Roadside Safety Improvement Project

EXTERNAL EMAIL. Links/attachments may not be safe.

Sabrina, our Real Estate Branch has not received any plan drawings from Caltrans for our review. DWR review requires plan drawings and CEQA compliance, among other things as described below from the Real Estate Branch. Once Caltrans has the items required for review (including the CEQA compliance), they can be submitted to Delia Grijalva, DWR senior right-of-way agent. Please let me know if you have other questions. Thank you for following up. ---Jon Canuela O&M 916-653-5095

In accordance with Water Code section 12899, DWR regulates the use of DWR right of way by third parties through the issuance of an encroachment permit. The permit process requires the submission of plan drawings for review and approval by DWR in accordance with California Code of Regulations, Title 23, Chapter 6 Articles 1 -10. Please visit the DWR website link below for links to the Regulations and the Encroachment Permit application. Please note the Regulations spell out the minimum requirements used by DWR to ensure the safety and integrity of the pipeline when reviewing proposed drawings. The application has 4 requirements, including evidence of CEQA compliance, that must be submitted before DWR will begin its review.

After reviewing the above, if there are any questions, please direct those questions to Delia Grijalva, Senior Right of Way Agent at Delia.Grijalva@water.ca.gov or (916) 657-4400.

<https://water.ca.gov/Work-With-Us/Real-Estate/Encroachment-Permits>

Response to Comment 3, Department of Water Resources

Caltrans is in continued contact with DWR to determine appropriate project plan review and permitting needs. Caltrans will submit project plans or an encroachment permit application for DWR review following approval of the FED.

Comment 4, Central Valley Regional Water Quality Control Board



Central Valley Regional Water Quality Control Board

18 May 2020

Brian Gassner
California Department of Transportation, District 4
111 Grand Avenue
Oakland, CA 94612

COMMENTS TO REQUEST FOR REVIEW FOR THE NEGATIVE DECLARATION, INTERSTATE 580 AND INTERSTATE 205 ROADSIDE SAFETY IMPROVEMENT PROJECT, SCH#2020040221, ALAMEDA AND SAN JOAQUIN COUNTIES

Pursuant to the State Clearinghouse's 20 April 2020 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Negative Declaration* for the Interstate 580 and Interstate 205 Roadside Safety Improvement Project, located in Alameda and San Joaquin Counties.

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.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by

KARL E. LONGLEY SCD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

11020 Sun Center Drive #200, Rancho Cordova, CA 95670 | www.waterboards.ca.gov/centralvalley

Comment 4 (Continued)

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the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsir_2018_05.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

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:

Comment 4 (Continued)

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http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.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 (USACE). If a Section 404 permit is required by the USACE, 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 USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), 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. For more information on the Water Quality Certification, visit the Central Valley Water Board website at:

https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality/certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE 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 may require a Waste Discharge Requirement (WDR) permit to be issued by 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 Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:

Comment 4 (Continued)

Interstate 580 and Interstate 205
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https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wgo/wgo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wgo/wgo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:

https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: <https://www.waterboards.ca.gov/centralvalley/help/permit/>

Comment 4 (Continued)

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If you have questions regarding these comments, please contact me at (916) 464-4856
or Nicholas.White@waterboards.ca.gov.



Nicholas White
Water Resource Control Engineer

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

Response to Comment 4, Central Valley Regional Water Quality Control Board

Thank you for your comment.

The proposed project will not encroach into creeks or other water bodies and will result in less than one acre of DSA. There will be no permanent water quality impacts. The project will not require a RWQCB 401, USACE 404, Waste Discharge Requirement, dewatering, or NPDES permit. Prior to commencement of construction activities, a WPCP will be prepared by the Contractor and approved by Caltrans.

Please see Section 2.1.9 and refer to Standard Conservation Measures HYDRO-1, HYDRO-2, and HYDRO-3 for more information.

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Chapter 4 List of Preparers

This document was prepared by the following Caltrans staff and consultants:

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Eva Ulfeldt, Environmental Planner

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Chapter 5 Distribution List

Elected Officials

U.S. Senate

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

The Honorable Kamala Harris
United States Senate, California
333 Bush Street, Suite 3225
San Francisco, CA 94104

U.S. House of Representatives

The Honorable Eric Swalwell
United States Congress, 15th District
3615 Castro Valley Boulevard
Castro Valley, CA 94546

California State Assembly

The Honorable Steve Glazer
California State Senate – 7th District
51 Moraga Way, Suite 2
Orinda, CA 94563

The Honorable Rebecca Bauer-Kahan
California State Assembly – 16th District
2440 Camino Ramon, Suite 345
San Ramon, CA 94583

County Officials

The Honorable Scott Haggerty
Alameda County Board of Supervisors,
District 1, County Administration
Building
1221 Oak Street, #536
Oakland, CA 94612

Local Officials

Mayor John Marchand
City Hall
1052 S. Livermore Avenue
Livermore, CA 94550

Vice Mayor Bob Woerner
City Hall
1052 S. Livermore Ave.
Livermore, CA 94550

Councilmember Bob Coomber
City Hall
1052 S. Livermore Avenue
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Councilmember Trish Munro
City Hall
1052 S. Livermore Avenue
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Councilmember Robert W. Carling
City Hall
1052 S. Livermore Avenue
Livermore, CA 94550

Federal Agencies

Natural Resources Conservation
Service, Alameda County Conservation
District
3583 Greenville Road, Suite 2
Livermore, CA 94550

U.S. Army Corps of Engineers,
Sacramento District
ATTN: Regulatory Branch
1325 J Street, Room 1350
Sacramento, CA 95814

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

Ryan Olah
Division Chief
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

State Agencies

State Clearinghouse, Executive Officer
1400 Tenth Street, Room 156
P.O. Box 3044
Sacramento, CA 95812
State Agencies Cont'd

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

California Air Resources Board
Executive Officer Richard Corey
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

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

Gregg Erickson
Regional Manager
California Department of Fish & Wildlife
2825 Cordelia Road, Suite 100
Fairfield, CA 94534

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

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

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

California Transportation Commission
Executive Director Susan Bransen
1120 N Street
Sacramento, CA 95814

Central Valley Regional Water Quality
Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

Department of Toxic Substances
Control
1001 I Street
Sacramento, CA 95814-2828
P.O. Box 806
Sacramento, CA 95812

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

San Francisco Bay Regional Water
Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

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

California Office of Emergency Services
3650 Schriever Avenue
Mather, CA 95655

California Transportation Commission
1120 N Street, MS-52
Sacramento, CA 95814

Regional Agencies

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

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

County Agencies

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

Alameda County Transportation
Commission
1111 Broadway, Suite 800
Oakland, CA 94607

Local Agencies
Cheri Sheets, City Engineer
City Hall
1052 S. Livermore Avenue
Livermore, CA 94550

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Appendix A. Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
FAX (916) 653-5776
TTY 711
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*Making Conservation
a California Way of Life.*

November 2019

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."*

Related federal statutes, remedies, and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, or obtain more information regarding Title VI, please contact the Title VI Branch Manager at (916) 324-8379 or visit the following web page:
<https://dot.ca.gov/programs/business-and-economic-opportunity/title-vi>.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at Title.VI@dot.ca.gov.

A blue ink signature of Toks Omishakin, consisting of a stylized 'T' followed by 'O' and 'A'.

Toks Omishakin
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

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Appendix B. Avoidance and Minimization Measures and/or Mitigation Measures

Avoidance and minimization measures (AMMs) for biological resources for the project are listed below. No mitigation measures have been proposed for this project. For detailed descriptions of the following measures, refer to the appropriate topic section in Chapter 2.

In order to be sure that all of the environmental measures identified in this document are executed at the appropriate time, the following mitigation program would be implemented: During project design, avoidance, minimization, and/or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. Some measures may apply to more than one resource area. Duplicative or redundant measures have not been listed.

Avoidance, Minimization, and/or Mitigation Measures

Biological Resources

AMM BIO-1: Permits. Caltrans will include a copy of the BO and ITP/consistency determination within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the Conservation Measures and Terms and Conditions of the USFWS BO and the CDFW ITP/consistency determination.

AMM BIO-2: Reinitiation of Consultation. Caltrans will reinitiate consultation if the project results in effects to listed species not considered in the USFWS BO or CDFW ITP/consistency determination.

AMM BIO-3: Biological Monitor Approval. Caltrans will submit the names and qualifications of the biological monitor(s) for USFWS and CDFW approval prior to initiating construction activities for the proposed project. Only agency-approved biological monitors would implement the monitoring duties outlined in the BO.

AMM BIO-4: Preconstruction Surveys. Prior to initiation of construction activities at the eight MVP installation locations, preconstruction surveys for listed species will be conducted by an agency-approved biologist. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least

50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity. The entrances and other refuge features within the project limits will be collapsed or removed following investigation. Preconstruction surveys should identify San Joaquin kit fox habitat features on the project site, evaluate use by kit foxes, and, if possible, assess the potential effects to kit foxes by the proposed activity. If an occupied den is discovered within the project area, or within 100 feet of the project boundary, an exclusion zone of a minimum of 100 feet around the den will be established. If the minimum exclusion zone cannot be met, then USFWS must be contacted. If a natal/pupping den is discovered within the project area or within 200 feet of the project area boundary, the agencies will be notified immediately.

AMM BIO-5: Biological Monitoring. The agency-approved biologist(s) will be on-site during initial ground-disturbing activities at the eight MVP installation locations and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. The biologist(s) will keep copies of applicable permits in their possession when on site. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall be given the authority to communicate either verbally or by telephone, email, or hardcopy with all project personnel to ensure that take of listed species is minimized and permit requirements are fully implemented. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall have the authority to stop project activities to minimize take of listed species or if he/she determines that any permit requirements are not fully implemented. If the agency-approved biologist(s) exercises this authority, the agencies shall be notified by telephone and email within 48 hours.

AMM BIO-6: Listed Species On-site. The Resident Engineer will immediately contact the agency-approved project biologist(s) if a San Joaquin kit fox, CRLF, or CTS is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily. If a San Joaquin kit fox, CRLF, or CTS is observed, an agency-approved biological monitor may relocate the animal if an agency-approved protocol for removal has been established. The agency-approved biological monitor will follow established USFWS protocols for relocation.

AMM BIO-7: Work Window for CTS and CRLF. All work within suitable habitat for CTS and CRLF will occur between April 15 and October 15, when the species are

unlikely to be active and there is less potential for an individual to enter the work area.

AMM BIO-8: Worker Environmental Awareness Training. All construction personnel will attend a mandatory environmental education program delivered by an agency-approved biologist prior to working on the project. The program would focus on the conservation measures that are relevant to employee's personal responsibility and would include an explanation as how to best avoid take of sensitive species. Distributed materials would include a pamphlet with distinguishing photographs of sensitive species, species' habitat requirements, compliance reminders, and relevant contact information. Documentation of the training, including sign-in sheets, would be kept on file and would be available on request.

AMM BIO-9: Prevention of Wildlife Entrapment. To prevent inadvertent entrapment of listed species during construction, excavated holes or trenches more than 1 foot deep with walls steeper than 30 degrees will be covered by plywood or similar materials at the close of each working. Alternatively, an additional 4-foot-high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of listed species. If it is not feasible to cover an excavation or provide an additional 4-foot-high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape, or the USFWS and/or CDFW will be contacted by telephone for guidance. The agencies will be notified of the incident by telephone and electronic mail within 48 hours.

AMM BIO-10: Environmentally Sensitive Area Fencing. Before 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 temporary high-visibility fencing. Construction work areas will include the active construction site and all areas providing support for the project, including areas used for vehicle parking, equipment and material storage and staging, and access roads. The high-visibility fencing will remain in place throughout the duration of construction activities, will be inspected regularly, and will be fully maintained at all times. The final project plans will show all locations where the fencing will be installed and will provide installation specifications. The project Special Provisions and Notice to Bidders 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.

AMM BIO-11: Material Storage. CTS and CRLF are attracted to cavity-like structures such as pipes and may seek refuge under construction equipment or debris. They may become trapped or injured if such materials are moved. All construction pipes, culverts, or similar structures, construction equipment or construction debris left overnight within the work area will be inspected by the agency-approved biological monitor prior to being moved.

AMM BIO-12: Night Work. To the extent practicable, nighttime construction will be minimized.

AMM BIO-13: Night Lighting. Artificial lighting of the project construction area during nighttime hours will be minimized to the maximum extent practicable.

Appendix C. List of Acronyms and Abbreviations

| Abbreviation | Definition |
|----------------------|--|
| AB | Aggregate Base-Class 2 |
| ADL | aerially deposited lead |
| AMM | Avoidance and Minimization Measure |
| APE | Area of Potential Effects |
| ARB | California Air Resources Board |
| BA | Biological Assessment |
| BC | black carbon |
| BMP | Best Management Practice |
| BO | Biological Opinion |
| BSA | Biological Study Area |
| Caltrans | California Department of Transportation |
| CDFW | California Department of Fish and Wildlife |
| CE | Categorical Exclusion |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFR | Code of Federal Regulations |
| CH ₄ | methane |
| CO ₂ | carbon dioxide |
| CO ₂ e | carbon dioxide equivalent |
| CRLF | California red-legged frog |
| CTP | California Transportation Plan |
| CTS | California tiger salamander |
| DPS | Distinct Population Segment |
| DSA | Disturbed Soil Area |
| ESA | Environmentally Sensitive Area |
| EO | Executive Order |
| FED | Final Environmental Document |
| FESA | Federal Endangered Species Act |
| FHWA | Federal Highway Administration |
| GHG | greenhouse gas |
| GWP | global warming potential |
| HFC | hydrofluorocarbon |
| HMA | hot mix asphalt |
| I- | Interstate |
| IPCC | Intergovernmental Panel on Climate Change |
| IS | Initial Study |
| ITP | Incidental Take Permit |
| LCFS | Low Carbon Fuel Standard |
| LOC | letter of concurrence |
| MM | mitigation measure |
| MMTCO ₂ e | million metric tons of carbon dioxide equivalent |
| ND | Negative Declaration |
| MPO | Metropolitan Planning Organization |

| | |
|------------------|--|
| MTC | Metropolitan Transportation Commission |
| MVP | maintenance vehicle pullout |
| N ₂ O | nitrous oxide |
| NAHC | Native American Heritage Commission |
| NEPA | National Environmental Policy Act |
| NES | Natural Environment Study |
| NOA | Notice of Availability |
| NOC | Notice of Completion |
| OCRS | Office of Cultural Resource Studies |
| PCE | Primary Constituent Elements |
| PM | post mile |
| PRC | Public Resources Code |
| RCEM | Road Construction Emissions Model |
| ROW | right-of-way |
| RTP | Regional Transportation Plan |
| RWQCB | Regional Water Quality Control Board |
| SB | Senate Bill |
| SCS | Sustainable Communities Strategy |
| SF ₆ | sulfur hexafluoride |
| SHPO | State Historic Preservation Officer |
| SLR | sea-level rise |
| SRA | State Responsibility Area |
| TMP | Traffic Management Plan |
| USC | United States Code |
| USDOT | Department of Transportation |
| USFWS | U.S. Fish and Wildlife Service |
| VMT | vehicle miles traveled |
| WPCP | Water Pollution Control Plan |

Appendix D. U.S. Fish and Wildlife Species List



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

April 09, 2020

Consultation Code: 08ESMF00-2019-SLI-3153

Event Code: 08ESMF00-2020-E-04937

Project Name: 4J940- Altamont Pass Roadside Safety Improvements

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2019-SLI-3153

Event Code: 08ESMF00-2020-E-04937

Project Name: 4J940- Altamont Pass Roadside Safety Improvements

Project Type: TRANSPORTATION

Project Description: The California Department of Transportation (Caltrans) Roadside Safety Improvement project aims to extend and pave gore areas and construct maintenance vehicle pullouts (MVPs) at 13 locations along Route 580 (I-580) and Route 205 (I-205). The project will improve maintenance worker safety by reducing the duration and frequency of maintenance worker exposure to freeway traffic as well as potential conflict with the traveling public. The project will involve grinding of pavement, trenching a maximum depth of 1 inch, and group disturbance.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.74064240849481N121.58300624713621W>



Counties: Alameda, CA

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

| NAME | STATUS |
|--|------------|
| San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873 | Endangered |

Reptiles

| NAME | STATUS |
|--|------------|
| Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5524 | Threatened |
| Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482 | Threatened |

Amphibians

| NAME | STATUS |
|---|------------|
| California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf | Threatened |
| California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076 | Threatened |

Fishes

| NAME | STATUS |
|---|------------|
| Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321 | Threatened |

Insects

| NAME | STATUS |
|---|------------|
| San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394 | Endangered |
| Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf | Threatened |

Crustaceans

| NAME | STATUS |
|---|------------|
| Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246 | Endangered |
| Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498 | Threatened |
| Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246 | Endangered |

Flowering Plants

| NAME | STATUS |
|---|------------|
| Large-flowered Fiddleneck <i>Amsinckia grandiflora</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5558 | Endangered |
| Palmate-bracted Bird's Beak <i>Cordylanthus palmatus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1616 | Endangered |

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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Appendix E. National Marine Fisheries Service Species List

From: [NMFSWCRCA Specieslist - NOAA Service Account](#)
To: [Baker, Carli@DOT](mailto:Baker_Carli@DOT)
Subject: Re: NMFS Species List Request: 43940 Roadside Safety Improvement Project
Date: Thursday, April 9, 2020 12:20:31 PM

EXTERNAL EMAIL. Links/attachments may not be safe.

Receipt of this message confirms that NMFS has received your email to nmfswcrca.specieslist@noaa.gov. If you are a federal agency (or representative) and have followed the steps outlined on the California Species List Tools web page (http://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html), you have generated an official Endangered Species Act species list.

Messages sent to this email address are not responded to directly. For project specific questions, please contact your local NMFS office.

Northern California/Klamath (Arcata) 707-822-7201

North-Central Coast (Santa Rosa) 707-387-0737

Southern California (Long Beach) 562-980-4000

California Central Valley (Sacramento) 916-930-3600

From: [Baker, Carli@DOT](mailto:Baker_Carli@DOT)
To: nmfs_wcrca.specieslist@noaa.gov
Subject: NMFS Species List Request: 4J940 Roadside Safety Improvement Project
Date: Thursday, April 9, 2020 12:20:00 PM

Hello,

Below you will find the results from a search of the NMFS Resources in California KMZ for the 4J940 project, which is located in the Altamont and Midway USGS 7.5 minute quadrangle.
This species list is requested by:

California Department of Transportation, District 4
111 Grand Ave, Oakland CA 94606
Attn: Carli Baker, Assoc. Environmental Planner, carli.baker@dot.ca.gov. 510-622-8799

Thank you for your time,

Carli Baker

Quad Name **Altamont**

Quad Number **37121-F6**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - X
Chinook Salmon EFH - X
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name Midway

Quad Number **37121-F5**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

MMPA Cetaceans -
MMPA Pinnipeds -

--

Carli Baker

[She/her/hers](#)

Associate Environmental Planner, Natural Sciences
Office of Biological Sciences & Permits
Division of Environmental Planning and Engineering
California Department of Transportation - District 4
510-622-8799

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Appendix F. U.S. Fish and Wildlife Service 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:
08ESMF00-2020-F-0752

March 26, 2020

Ms. Cristin Hallissy
California Department of Transportation
Environmental Division, MS-8E
111 Grand Avenue
Oakland, California 94612
cristin.hallissy@dot.ca.gov

Subject: Formal Consultation on the Interstate 580/205 Roadside Safety Improvement Project, Alameda County, California (Caltrans EA 4J940)

Dear Ms. Hallissy:

This letter is in response to the California Department of Transportation's (Caltrans) December 11, 2019, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Interstate 580/205 Roadside Safety Improvement Project (proposed project) in Alameda County, California. Your request was received by the Service on December 11, 2019. At issue are the proposed project's effects on the federally threatened California red-legged frog (*Rana draytonii*), threatened Central California Distinct Population Segment of the California tiger salamander (*Ambystoma californiense*, Central California tiger salamander), and endangered San Joaquin kit fox (*Vulpes macrotis mutica*). Critical habitat has been designated for the Central California tiger salamander and California red-legged frog but does not occur within the proposed action area. Critical habitat has not been designated for the San Joaquin kit fox. This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

Fixing America's Surface Transportation Act (FAST Act) was signed into law on December 4, 2015. Providing funding from 2016 to 2020, the FAST Act includes provisions to promote streamlined and accelerated project delivery. Caltrans is approved to participate in the FAST Act project delivery program through the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding (MOU). The MOU allows Caltrans to assume the Federal Highway Administration's (FHWA) responsibilities under NEPA as well as FHWA's consultation and coordination responsibilities under Federal environmental laws for most highway projects in California. Caltrans is exercising this authority as the Federal nexus for section 7 consultation under the Act on these projects.

The federal action on which we are consulting is to extend and pave gore areas and construct maintenance vehicle pullouts (MVPs) at 14 locations along Interstate 580 (I-580) and Interstate 205 (I-205) from North Vasco Road (post mile [PM] 9.0) near the City of Livermore in Alameda County to the Alameda-San Joaquin County line (PM 0.0). Pursuant to 50 CFR 402.12(j), you submitted a

biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect California red-legged frog and Central California tiger salamander.

In considering your request, we based our evaluation on the following:

- 1) A December 2019 site visit with Caltrans
- 2) A December 2019 Biological Assessment
- 3) Caltrans' February 5, 2020 response to the Service's January 3, 2020 request for additional information
- 4) The East Alameda Conservation Strategy (EACCS, ICF International 2010)
- 5) Relevant life history information for the subject species
- 6) Other information available to the Service

The Service concurs with Caltrans' determination that the proposed project is not likely to adversely affect San Joaquin kit fox based on the following: (1) the action area is very small, discrete locations along an 8-lane interstate highway; (2) All work will be done during daylight hours and there are a limited number of working days required to complete this project, therefore due to the nocturnality and low population density of the species in the vicinity, project encounters with the San Joaquin kit fox are very unlikely; (3) construction activities including staging, laydown and vehicle parking, will predominately occur within paved areas, and areas of disturbed habitat immediately adjacent to I-580; (4) Caltrans will implement construction and erosion control Best Management Practices (BMPs); (5) areas adjacent to sensitive habitat will be clearly demarked with temporary high-visibility fencing; (6) all on-site personnel will attend environmental awareness training prior to beginning project activities; and (7) 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. Caltrans will reinitiate formal consultation if San Joaquin kit fox individuals or sign of recent San Joaquin kit fox activity is observed in the project footprint.

The project description states that construction activities, including potential vegetation removal, will occur during the typical nesting season for a variety of species protected under the Migratory Bird Treaty Act (MBTA). Caltrans has proposed conservation measures to identify active nests and create appropriate disturbance buffers around them. Breeding birds are often secretive near their nests and nest sites are often inconspicuous and difficult to find. Effective discovery and avoidance is difficult to assure even under the direction of an experienced and skilled field biologist. The Service notes that "take" is not being issued for migratory birds for this project and we recommend Caltrans consult with the Service's Region 8 Migratory Bird Program.

The remainder of this document provides our biological opinion on the effects of the proposed project on California red-legged frog and Central California tiger salamander.

Consultation History

October 15, 2019 The Service received an electronic mail (e-mail) message from Caltrans requesting technical assistance on the proposed project. The message included project introductory material.

- December 4, 2019 The Service visited the proposed project site with Caltrans biologists for project orientation and to provide technical assistance.
- December 11, 2019 The Service received Caltrans' Biological Assessment via email.
- January 3, 2020 The Service sent Caltrans an e-mail message regarding our review of the Biological Assessment. The message included a request for additional information that was the equivalent of a 30-day letter.
- February 5, 2020 Caltrans submitted additional information to the Service.

BIOLOGICAL OPINION

Description of the Proposed Action

Project construction will occur at 14 discrete locations that were identified as having deficiencies in worker safety. Eight new Maintenance Vehicle Pullouts (MVPs) will be constructed within the project limits (Table 1) to increase maintenance worker's access to the shoulder. Six locations (Table 2) along the project limits will receive new concrete pavement beyond the unpaved gore areas, eliminating the need for maintenance workers to perform weed and litter control on foot and allowing the areas to become accessible to mechanical sweeping.

The Project does not currently include any major grading, or the construction of embankments or other structures to support MVP installation. Some minor grading or scraping may be needed to facilitate proper drainage, however any design changes that include these features will include time for re-initiation of consultation to determine the additional impacts of those activities.

Site Preparation

Prior to the initiation of construction activities, construction personnel will install Temporary Reinforced Silt Fencing and/or Temporary High Visibility Fencing along the border of the work area to exclude wildlife and protect environmentally sensitive areas (ESAs) as delineated by the project biologist. The fencing will remain in place throughout construction duration and will be inspected regularly and fully maintained. The fencing will be completely removed only when all construction equipment is removed from the job site.

Preconstruction surveys for special-status species will be conducted by a Service-approved Biologist immediately prior to the start of ground-disturbing activities. Visual encounter surveys will be conducted within all areas subject to ground-disturbing activities and areas immediately adjacent.

Maintenance Vehicle Pullouts (MVPs)

Eight MVPs will be constructed or re-established to provide additional space for safe exit off of the freeway mainline, thereby facilitating maintenance worker access to the shoulder and reducing worker exposure to high speed traffic.

At two locations (Table 1), there is existing pavement that corresponds to the dimensions of the proposed MVPS. In these locations, no additional ground disturbance will be needed and new asphalt concrete (AC) will be installed to ensure that the MVP is graded to match the newly overlaid shoulder area.

The other 6 locations will have new MVPs installed. To construct MVPs, existing vegetation will be cleared and grubbed. A backhoe will be used to excavate the existing substrate material to a depth of 0.85 feet for an area of approximately 972 square feet, totaling approximately 45 cubic yards of excavated material. A skip loader is then used to place a 0.5 ft layer of Aggregate Base-Class 2, which is followed by a paving machine which will pave the MVP with 0.25 ft hot mix asphalt (HMA). Finally, a roller will be used to compact the new HMA and aggregate base structural section. Completed MVPs will be 85 feet long and 12 feet wide, with a ten-foot wide work area around the limits of new paving for construction access. Erosion control will be applied as necessary around MVPs and any temporarily disturbed areas will be revegetated. Excavated soil will be tested and trucked to an appropriate disposal site that will be determined during the plans, specifications, and estimates phase of construction. No excavated materials will be staged within the Action Area for this Project.

Table 1. MVP Installation Location Details

| Location No. / MVP No. | Post Mile (PM) | Description |
|------------------------|----------------|------------------------|
| 1 / MVP #1 | 9.500 | WB Route 580 |
| 2a / MVP #2a* | 7.862 | EB 580 |
| 3 / MVP #2* | 6.550 | EB Route 580 |
| 5 / MVP #3 | 5.050 | EB Route 580 |
| 6 / MVP #4 | 4.100 | WB Route 580 |
| 7 / MVP #5 | 3.994 | EB Route 580 |
| 12 / MVP #6 | 0.65 | WB on-ramp from NB I-5 |
| 13 / MVP #7 | 0.30 | WB Route 205 |

*These locations currently have MVPs in place. Additional paving will occur to match the MVP surface with the newly paved mainline.

Gore and Reverse Gore Paving

At six locations, new concrete pavement will be installed at the tips of extended gore areas, which are areas between the off-ramps (gore) or on-ramps (reverse gore) and the freeway mainline. This will allow maintenance personnel to collect trash using a mechanical sweeper and eliminate the need to perform weed and litter control on foot.

As part of this activity, all proposed contrasting surface areas will be excavated beyond the gore to a depth of 9 inches from the original ground level. The excavated area will be replaced with a 4-inch layer of Aggregate Base-Class 2. A welded wire mesh will be placed over the aggregate base, and a 4-inch layer of concrete will be poured over the wire mesh. A ten-foot wide work area around the limits of new paving will be required for construction access.

Table 2. Gore and Reverse Gore Paving Location Details

| Location No. / Paving No. | Post Mile (PM) | Description |
|-----------------------------|----------------|---|
| 2 / Gore Paving #1 | 8.421 | WB I-580 Greenville Rd/Altamont Pass off-ramp |
| 4 / Reverse Gore Paving #1 | 5.691 | EB I-580 North Flynn Rd on-ramp |
| 8 / Gore Paving #2 | 1.701 | EB I-580 Grant Line Rd off-ramp |
| 9 / Reverse Gore Paving #2 | 1.661 | WB I-580 Grant Line Rd on-ramp |
| 10 / Reverse Gore Paving #1 | 1.381 | EB I-580 Grant Line Rd on-ramp |
| 11 / Gore Paving #1 | 1.281 | WB I-580 Grant Line Rd off-ramp |

Access and Staging Areas

All Project work locations will be accessed from the existing interstate infrastructure. Staging will occur exclusively on existing pavement by utilizing lane closures during non-peak hours. Staging strategies, particularly traffic handling, will be studied and evaluated in more detail in the Plans, Specifications, and Estimates phase of project delivery.

Project Schedule

The Project is scheduled to begin in Summer 2022 and conclude by the end of 2022. Caltrans estimates that each MVP will require three working days to complete, and each gore paving location will require two working days to complete, for a total of 36 working days. All work will occur between April 15 – October 15 to minimize potential for impacts to species. All work will be conducted within daylight hours.

Site Clean-up, Restoration, and Mitigation

Temporarily disturbed areas and staging areas will be cleaned up and recontoured to original grade or designed contours wherever feasible. Permanent erosion control, including soil stabilization measures such as hydroseeding and coir netting, will be applied to all temporarily affected areas to minimize erosion after construction. All construction-related materials, including Environmentally Sensitive Area fencing and exclusion fencing, will be removed after construction, site clean-up, and restoration activities are complete.

All areas that are temporarily affected during construction will be revegetated with an assemblage of native vegetation suitable for the area. Invasive, exotic plants will be controlled within the project footprint to the maximum extent practicable, pursuant to Executive Order 13112.

Conservation Measures

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

1. **Permits.** Caltrans will include a copy of the all relevant permits within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the *Conservation Measures* and *Terms and Conditions* of the Biological Opinion.
2. **Biological Monitor Approval.** Caltrans will submit the names and qualifications of proposed biological monitor(s) for Service approval prior to initiating construction activities. Only Service-Approved Biological monitors will implement the monitoring duties outlined in the Biological Opinion including delivery of the Worker Environmental Awareness Training Program.
3. **Preconstruction Surveys.** Prior to any ground disturbance, preconstruction surveys will be conducted by a Service-Approved Biological Monitor for the Central California tiger salamander and California red-legged frog. These efforts will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity. The entrances and other refuge features within the project limits will be collapsed or removed following investigation. The Service-Approved Biological Monitor will also survey and monitor for signs of San

Joaquin kit fox. If a kit fox or its sign is observed, the Service will be contacted to determine the available options and if reinitiation is appropriate.

4. **Biological Monitoring.** The Service-Approved Biological Monitor(s) will be on-site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in this BO. The Service-Approved Biological Monitor will keep copies of this BO in their possession when on-site. Through the Resident Engineer or their designee, the Service-Approved Biological Monitor(s) will be given the authority to communicate either verbally, by telephone, e-mail or hardcopy with all project personnel to ensure that take of listed species is minimized and the *Terms and Conditions* of this BO are fully implemented. Through the Resident Engineer or their designee, the Service-Approved Biological Monitor will have the authority to stop project activities to minimize take of special-status species or if they determine that the *Terms and Conditions* are not fully implemented. If the Service-Approved Biological Monitor exercises this authority, the Service will be notified by telephone and e-mail within 48 hours.
5. **Worker Environmental Awareness Training.** All construction personnel will attend an environmental education program delivered by the Service-Approved Biological Monitor prior to working on the project site. The program will focus on the conservation measures that are relevant to employee's personal responsibility and will include an explanation as how to best avoid take of the Central California tiger salamander and California red-legged frog. Distributed materials will include a pamphlet with distinguishing photographs of the Central California tiger salamander and California red-legged frog, their habitat requirements, compliance reminders, and relevant contact information. Documentation of the training, including sign-in sheets, will be kept on file and available upon request.
6. **Prevention of Wildlife Entrapment.** To prevent inadvertent entrapment of listed species during construction excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be completely covered at the close of each working day by plywood or similar materials. Alternatively, an additional 4-foot high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of listed species. If it is not feasible to cover an excavation or provide an additional 4-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped California red-legged frog or California tiger salamander is discovered, the Service-approved biologist will capture and relocate the animal. The Service will be notified of the incident by telephone and e-mail within 48 hours of the initial observation.
7. **Fencing.** Prior to ground disturbance, active areas within the project footprint will be delineated with temporary, high-visibility fencing to prevent the encroachment of construction personnel and equipment outside the described project footprint. The fencing will be removed after all construction equipment is removed from those segments of the project.
8. **Listed Species On-Site.** The Resident Engineer will immediately contact the Service-Approved Biological Monitor in the event that a Central California tiger salamander or California red-legged frog is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or is captured and relocated by a Service-Approved Biological

Monitor. The Service will be notified by telephone and email within 48 hours if a listed species is discovered within the action area.

9. **Work Window.** All work within suitable upland habitat for Central California tiger salamander and California red-legged frog will occur between April 15 and October 15.
10. **Water Quality Inspection.** Water quality inspector(s) will inspect the site after a rain event to ensure that the implementation of stormwater Best Management Practices (BMPs) are adequate.
11. **Vehicle Use.** Project employees will be required to comply with guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.
12. **Trash Control.** All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the work area.
13. **Firearms.** 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.
14. **Pets.** To prevent harassment, injury or mortality of sensitive species, no pets will be permitted on the project site.
15. **Storm Water Pollution Prevention Plan.** Dedicated fueling and refueling practices will be outlined as part of the project's Storm Water Pollution Prevention Plan (SWPPP). The SWPPP will comply with the Caltrans' Storm Water Management Plan (SWMP). The SWMP features guidance for Caltrans design staff to include provisions in construction contracts for measures to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges. Dedicated fueling areas will be protected from stormwater run-on and run-off and will be located at least 50 feet from downslope drainage facilities and water courses. Fueling will be performed on level-grade areas. On-site fueling will only be used where it is impractical to send vehicles and equipment off-site for fueling. When fueling must occur on-site, the contractor will designate an area to be used subject to the approval of the Caltrans Resident Engineer. Drip pans or absorbent pads will be used during on-site vehicle and equipment fueling.

Caltrans will implement temporary and permanent BMPs outlined in Section 13 of the Caltrans' 2018 Standard Specifications. Caltrans erosion control BMPs will be used to minimize wind- or water-related erosion. Caltrans will also implement the National Pollution Discharge Elimination System Statewide Storm Water Permit issued to them by the State Water Resources 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 be included in the contract, including, at a minimum:

- a. No discharge of pollutants from vehicle and equipment cleaning will be allowed into storm drains or water courses.

- b. Vehicle and equipment fueling and maintenance operations will be located at least 50 feet away from water courses.
 - c. Concrete wastes will be collected in washouts, and water from curing operations will be collected and disposed of and will not be allowed into water courses.
 - d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.
 - e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment, and temporary organic hydro-mulching will be applied to all unfinished disturbed and graded areas.
 - f. Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and re-seeded with a native seed mix appropriate for the area.
 - g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.
 - h. A Revegetation Plan will be prepared for restoration of temporary work areas.
16. **Prohibition of Monofilament Erosion Control.** Plastic monofilament netting (erosion control matting) or similar material will be prohibited from use on the project because the Central California tiger salamander and California red-legged frog may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
17. **Concrete Waste.** All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any aquatic habitat, culvert, or drainage feature.
18. **Service Access.** If requested, before, during, or upon completion of groundbreaking and construction activities, Caltrans will allow access by Service personnel into the project footprint to inspect the project and its activities.

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 proposed project, the action area encompasses the entirety of the Project Footprint and a 10-foot buffer to account for vibrational and sound disturbance. The action area is 2.55 acres and is entirely within the Caltrans right-of-way.

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or

indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the current rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the current condition of the species in the action area without the consequences to the listed species caused by the proposed action, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines all consequences to listed species that are caused by the proposed federal action; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-federal activities in the action area on the species. The *Effects of the Action* and *Cumulative Effects* are added to the *Environmental Baseline* and in light of the status of the species, the Service formulates its opinion as to whether the proposed action is likely to jeopardize the continued existence of the listed species.

Status of the Species

California Red-Legged Frog

Listing Status: The California red-legged frog was listed as a threatened species on May 23, 1996 (Service 1996). Critical habitat was designated for this species on April 13, 2006 (Service 2006), with revisions to the critical habitat designation published on March 17, 2010 (Service 2010). At that 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); dorsolateral folds are prominent on the back. The California red-legged frog is sexually dimorphic; the females are larger than the males (Dodd 2013a, b). California red-legged frog tadpoles range from 0.6 inch to 3.1 inches in length and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Current Status and Distribution: The historical range of the California red-legged frog extended from central Mendocino County and western Tehama County south in the California Coast Range to northern Baja California, Mexico, and in the Sierra Nevada/Cascade Ranges from Shasta County south to Madera County (Jennings and Hayes 1994). The species historically occurred from sea level to elevations of about 5,200 feet in 46 counties; however, currently the taxon is extant in 238 streams or drainages within only 22 counties, representing a loss of 70 percent of its former range (Service 2002). Isolated populations persist in several Sierra Nevada foothill locales and in Riverside County (Barry and Fellers 2013; Backlin et al. 2017; CDFW 2019; Gordon, R. and J. Bennett, pers. comm., 2017). The species is no longer considered extant in California's Central Valley due to significant declines caused by habitat modifications and exotic species (Fisher and Shaffer 1996). Currently, the California red-legged frog is widespread in the San Francisco Bay nine-county area (CDFW 2019). They are still locally abundant within the California coastal counties from Mendocino County to Los Angeles County and presumed extirpated in Orange and San Diego counties (CDFW 2019; Yang, D. and J. Martin, pers. comm., 2017; Gordon, R. and J. Bennett, pers.

comm., 2017). Baja California represents the southernmost edge of the species' current range (Peralta-García et al. 2016).

Barry and Fellers (2013) conducted a comprehensive study to determine the current range of the California red-legged frog in the Sierra Nevada, concluding that it differs little from its historical range; however, the current Sierra Nevada populations appear to be small and tend to fluctuate. Since 1991, eleven California red-legged frog populations have been discovered or confirmed, including eight probable breeding populations (Barry and Fellers 2013; Mabe, J., pers. comm., 2017). Microsatellite and mitochondrial DNA analysis by Richmond et al. (2014) confirmed the Sierra Nevada populations of the California red-legged frog are genetically distinct from each other, as well as from other populations throughout the range of this species. The research concluded that the Sierra Nevada populations are persisting at low levels of genetic diversity and no contemporary gene flow across populations exist. On a larger geographic scale, range contraction has left a substantial gap between Sierra Nevada and Coast Range populations, similar to the gap separating the Southern California and Baja California populations (Richmond et al. 2014).

Habitat and Life History:

Habitat

The California red-legged frog generally breeds in still or slow-moving water associated with emergent vegetation, such as cattails, tules (hardstem bulrush), or overhanging willows (Storer 1925; Fellers 2005). Aquatic breeding habitat predominantly includes permanent water sources such as streams, marshes, and natural and manmade ponds in valley bottoms and foothills (Jennings and Hayes 1994; Bulger et al. 2003; Stebbins 2003). Since the 1850's, manmade ponds may actually supplement stream pool breeding habitat and can be capable of supporting large populations of this species. Breeding sites may hold water only seasonally, but sufficient water must persist at the beginning of the breeding season and into late summer or early fall for tadpoles to successfully complete metamorphosis. Breeding habitat does not include deep lacustrine water habitat (e.g., deep lakes and reservoirs 50 acres or larger in size) (Service 2010). Within the coastal lagoon habitats, salinity is a significant factor on embryonic mortality or abnormalities (Jennings and Hayes 1990). Jennings and Hayes (1990) conducted laboratory studies and field observations concluding salinity levels above 4.5 parts per thousand detrimentally affected the California red-legged frog embryos. Aquatic breeding habitat does not need to be available every year, but it must be available at least once within the frog's lifespan for breeding to occur (Service 2010).

Non-breeding aquatic habitat consists of shallow (non-lacustrine) freshwater features not suitable as breeding habitat, such as seasonal streams, small seeps, springs, and ponds that dry too quickly to support breeding. Non-breeding aquatic and riparian habitat is essential for providing the space, food, and cover necessary to sustain the California red-legged frog. Riparian habitat consists of vegetation growing nearby, but not typically in, a body of water on which it depends, and usually extends from the bank of a pond or stream to the margins of the associated floodplain (Service 2010). Adult California red-legged frogs may avoid coastal habitat with salinity levels greater than 6.5 parts per thousand (Jennings and Hayes 1990).

Cover and refugia are important habitat characteristic preferences for the species (Halstead and Kleeman 2017). Refugia may include vegetation, organic debris, animal burrows, boulders, rocks, logjams, industrial debris, or any other object that provides cover. Agricultural features such as watering troughs, spring boxes, abandoned sheds, or haystacks may also be utilized by the species. Incised stream channels with portions narrower and depths greater than 18 inches may also provide important summer sheltering habitat. During periods of high water flow, California red-legged frogs are rarely observed; individuals may seek refuge from high flows in pockets or small mammal

burrows beneath banks stabilized by shrubby riparian growth (Jennings and Hayes 1994). Accessibility to cover 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.

Breeding

The California red-legged frog typically breeds between November and April; however, breeding may occur later in the Sierra Nevada Range (Barry 2002). Females deposit their egg masses on emergent vegetation, floating on or near the surface of the water. The California red-legged frog is often a prolific breeder, laying eggs during or shortly after large rainfall events in late winter and early spring. Egg masses containing 300-4,000 eggs hatch after six to fourteen days (Storer 1925; Jennings and Hayes 1994; Fellers 2005). Historically, the California red-legged frog in the Sierra Nevada likely bred within stream pools, which tend to be small with limited forage, constraining the size and number of populations (Barry and Fellers 2013).

California red-legged frog tadpoles undergo metamorphosis three to seven months following hatching. Most males reach sexual maturity in two years, while it takes approximately three years for females (Jennings and Hayes 1985; Fellers 2005). Under favorable conditions, California red-legged frogs may live eight to ten years (Jennings et al. 1992). Of the various life stages, tadpoles likely experience the highest mortality rates; only one percent of each egg mass completes metamorphosis (Jennings et al. 1992).

Diet

The California red-legged frog has a variable diet that changes with each of its life history stages. The feeding habits of the early stages are likely similar to other ranids, whose tadpoles feed on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005). Hayes and Tennant (1985) found invertebrates to be the most common food items of adult California red-legged frogs collected in southern California; however, they speculated that this was opportunistic and varied based on prey availability. Vertebrates, such as Pacific tree frogs and California mice, represented over half of the prey mass eaten by larger frogs, although invertebrates were the most numerous food items. Bishop et al. (2014) found that diet changed throughout the seasons based on prey available but that terrestrial invertebrate prey made up the majority of adult California red-legged frog diet regardless of season. Data was based on stable isotope analysis and stomach sampling of live frogs in Pacifica, California, and museum specimens from the San Francisco Bay Area. Juveniles appear to forage during both daytime and nighttime, whereas adults appear to feed at night (Hayes and Tennant 1985).

Movement

California red-legged frogs do not have a distinct breeding migration (Fellers 2005), rather they may move seasonally from non-breeding pools or refugia to breeding pools. Some individuals remain at breeding sites year-round while others disperse to neighboring water features or moist upland sites when breeding is complete and/or when breeding pools dry (Service 2002; Bulger et al. 2003; Fellers and Kleeman 2007; Tatarian and Tatarian 2008; Tatarian 2008). Studies in the several San Francisco Bay counties showed movements are typically along riparian corridors (Fellers and Kleeman 2007; Tatarian 2008). Although, some individuals, especially on rainy nights and in more mesic areas, travel without apparent regard to topography, vegetation type, or riparian corridors, and can move directly from one site to another through normally inhospitable habitats such as heavily grazed pastures or oak-grassland savannas (Bulger et al 2003).

California red-legged frogs show high site fidelity (Tatarian and Tatarian 2008) and typically do not move significant distances from breeding sites (Bulger et al. 2003; Fellers and Kleeman 2007; Tatarian and Tatarian 2008; Tatarian 2008). When traveling between aquatic sites, California red-

legged frogs typically travel less than 0.31 mile (Fellers and Kleeman 2007; Tatarian and Tatarian 2008), although they have been documented to move more than two miles in Santa Cruz County (Bulger et al. 2003). Various studies have found that the frogs typically do not make terrestrial forays further than 200 feet from aquatic habitat (Bulger et al. 2003; Fellers and Kleeman 2007; Tatarian and Tatarian 2008; Tatarian 2008). Upland movements are typically associated with precipitation events and usually last for one to four days (Tatarian 2008).

Threats: Factors associated with declining populations of the California red-legged frog throughout its range include degradation and loss of habitat through agriculture, urbanization, mining, overgrazing, recreation, timber harvesting, non-native species, impoundments, water diversions, erosion and siltation altering upland and aquatic habitat, degraded water quality, use of pesticides, and introduced predators (Service 2002, 2010). Urbanization often leaves isolated habitat fragments and creates barriers to frog dispersal.

Non-native species pose a major threat to the recovery of California red-legged frogs. Several researchers 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 Shaffer 1996). The decline of the California red-legged frog due to these non-native species has been attributed to predation, competition, and reproduction interference (Twedt 1993; Bury and Whelan 1984; Storer 1933; Emlen 1977; Kruse and Francis 1977; Jennings and Hayes 1990; Jennings 1993).

Chytridiomycosis, an infectious disease caused by the chytrid fungus, *Batrachochytrium dendrobatidis* (*Bd*), has been found to adversely affect amphibians globally (Davidson et al. 2003; Lips et al. 2006). While *Bd* prevalence in wild amphibian populations in California is unknown (Fellers et al. 2011), chytrid is expected to be widespread throughout much of the California red-legged frog's range. The chytrid fungus has been documented within the California red-legged frog populations at Point Reyes National Seashore, two properties in Santa Clara County, Yosemite National Park, Hughes Pond, Sailor Flat, Big Gun Diggings, and Spivey Pond (Padgett-Flohr and Hopkins 2010; Tatarian and Tatarian 2010; Fellers et al. 2011; Barry and Fellers 2013). However, no chytrid-related mortality has been reported in these populations, suggesting that California red-legged frogs are less vulnerable to the pathogenic effects of chytrid infection than other amphibian species (Tatarian and Tatarian 2010; Barry and Fellers 2013; Fellers et al. 2017). While chytrid infection may not directly lead to mortality in California red-legged frogs, Padgett-Flohr (2008) states that this infection may reduce overall fitness and could lead to long-term effects. Therefore, it is difficult to estimate the full extent and risk of chytridiomycosis to the California red-legged frog populations.

Negative effects to wildlife populations from roads and pavement may extend some distance from the actual road. The phenomenon can result from any of the effects already described in this Biological Opinion, such as vehicle-related mortality, habitat degradation, and invasive exotic species. Forman and Deblinger (1998, 2000) described the area affected as the "road effect" zone. Along a four-lane road in Massachusetts, they determined that this zone extend for an average of approximately 980 feet to either side of the road for an average total zone width of approximately 1,970 feet. They describe the boundaries of this zone as asymmetric and in some areas diminished wildlife use attributed to road effects was detected greater than 0.6 mile from Massachusetts Route 2. The "road-zone" effect can also be subtle. Van der Zande *et al.* (1980) reported that lapwings and black-tailed godwits feeding at 1,575-6,560 feet from roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of female bighorn sheep increase near roads (MacArthur *et al.* 1979). Trombulak and Frissell (2000) described another type of "road-zone" effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet

of roads, but elevated levels of metals in both soil and plants were detected at 660 feet of roads. The “road-zone” apparently varies with habitat type and traffic volume. Based on responses by birds, Forman and Deblinger (2000) estimated the effect zone along primary roads of 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The “road-zone” effect with regard to California red-legged frogs has not been adequately investigated.

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

Recovery Plan: The Recovery Plan for the California red-legged frog identifies eight recovery units (Service 2002). Based on various regional areas of the species’ range, the establishment of these recovery units is essential to its survival and recovery. 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, delineated core areas, designed to protect metapopulations, represent contiguous areas of moderate to high California red-legged frog densities. The management strategy identified within this Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

Central California Tiger Salamander

For the most recent comprehensive assessment of the species’ rangewide status, please refer to the 2017 Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (Service 2017) and the 2014 5-Year Review (Service 2014). No change in the species’ listing status was recommended in the 2014 5-year review. The referenced documents do not include the threat, recovery, survey data, and other relevant updates for the species since their issuance. Since that time, actions have been implemented that have resulted in additional adverse effects to the species. While there have been continued losses of Central California tiger salamander habitat throughout the five recovery units, including the East Bay Area unit where the proposed project is located, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the species.

Environmental Baseline

The action area includes segments of I-580 situated within a rural region of the East Bay. The proposed action area is located in the Altamont Hills, with the I-580 corridor bridging the Central and Livermore Valleys. Both the east and west bound directions have four lanes of travel with an open median of varying widths (up to 0.17 mile). Due to the recent lane additions, east bound I-580 includes several retaining walls along its north shoulder. As described in the EACCS, the I-580 corridor is a major barrier for the north-south movement of terrestrial wildlife in Alameda County, and maintaining a connection is crucial to the grassland habitat complex and the wildlife populations that depend on it (ICF International 2010). The area is dominated by annual grassland vegetation with pockets of scrub, wetlands, stock ponds, and riparian corridors. It is overwhelming rural, relatively unpopulated, and primarily utilized for livestock grazing and wind power generation. The EACCS provides a comprehensive description of the habitat values throughout the region (ICF International 2010).

The project extends from the eastern boundary of development in Livermore, through the rural Altamont Pass to the junction with I-205. Named waterways around the Action Area include Arroyo Las Positas and Mountain House Creek. The California Aqueduct flows under the I-205 to the east of the I-580/I-205 connector ramps. Mountain House Creek crosses areas around the Action Area several times through enclosed culverts. Various stock ponds are associated with the local industrial and grazing practices.

Beyond road mortality, baseline risks to wildlife and surrounding habitat also includes adverse effects generated from traffic related noise, exhaust, head-lighting, heavy metal and other solid deposition, toxic liquid discharges, and discarded waste. Chemicals also leach from pavement and are transported into the local environment. Paved surfaces absorb and reflect heat, creating elevated heat “islands”. It is also likely that noxious weeds have been introduced or spread to the I-580 ROW and surrounding environment through deposition from passing vehicles.

The following environmental baseline is consistent with what was described for the referenced I-580 and I-205 Pavement Rehabilitation Project (Service file 08ESMF00-2014-F-0311-R001).

Central California Tiger Salamander

The action area is located within the Central California tiger salamanders’ range and contains the upland grassland habitat associated with its life history. A map depicting the species’ range is included in the Service’s online profile for the species at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D01T>. The action area is also located within the DPS’s East Bay Recovery Unit (Unit 3) and the more specifically, it’s Concord/Livermore Management Unit (Service 2017).

The proposed action area is within the suitable Central California tiger salamander habitat modelling results completed for the EACCS (ICF International 2010) and has been consistently the subject of consultation for federal nexus projects within the area.

Caltrans did not conduct protocol or roadkill surveys for the Central California tiger salamander within the action area but there are numerous Central California tiger salamander occurrences in the California Natural Diversity Database (CNDDB) in the vicinity of the proposed project. The action area includes suitable dispersal habitat for the species. It is also within navigable dispersal distance, generally given as at least 1.24 miles, to suitable and confirmed breeding habitat. Caltrans informed the Service of three Central California tiger salamanders found within the roadway in April 2019

during construction of a former I-580 project. From the proposed construction footprint, there are ten CNNDDB California tiger salamander records within the potential dispersal distance of 1.3 miles (CDFW 2019). The three closest occurrences to work areas include breeding ponds and Mountain House Creek approximately 0.07 miles from Location 4, 0.11 miles from Location 5, and 0.39 miles from Location 9 (Central California tiger salamander occurrences 543; 1223, and 104; CDFW 2019). Although some of the records have roadway barriers preventing overland connectivity to the proposed footprint, there are other confirmed and potential breeding locations that do not have any roadway or other barriers preventing movement of dispersing individuals into the action area. Rolling grassland habitat with scattered breeding ponds is well represented in the vicinity and past surveys have confirmed their widespread occupation of the area. It must also be noted that past introduction of barred salamanders has resulted in hybrid individuals that have been detected in the Altamont Hills (Service 2017). Caltrans mapped 0.074 acres of Central California tiger salamander habitat (grassland vegetation type) that would be affected by ground disturbance associated with the proposed project.

The road effects zone applies to the Central California tiger salamander in the action area. Within the action area, the I-580 travel way includes eight lanes of traffic. As a result, over-road crossing potential for salamanders that enter the I-580 roadway are unlikely to escape vehicle collision. With few navigable under-crossings and no directional barriers to guide them there, there is little north-south connectivity across the I-580 corridor. The species' recovery plan describes the action area segment of I-580 as an impassable barrier creating an isolated metapopulation (Service 2017). The EACCS also notes, that I-580 largely precludes connectivity between breeding ponds that would otherwise be a strong basis for interaction between individuals on the north and south sides of the I-580 corridor (ICF International 2010). Head-lighting from night-time traffic is likely substantial. These baseline conditions likely create a risk for Central California tiger salamanders that diminishes with distance from the I-580 travel corridor.

The Central California tiger salamander is reasonably certain to occur within the action area due to: (1) the project being located within the species' range and current distribution; (2) the project area is modeled for the species' presence in the EACCS; (3) the habitat within the action area is similar to that which is found in nearby areas with confirmed Central California tiger salamander occupancy; (4) the species was recently found within the paved surfaces of the I-580 corridor; (5) individuals being found in locations well within the species' movement capabilities to the project footprint; (6) confirmed and suitable breeding habitat is located well within the species' known movement capabilities to the project footprint; (7) the action area being contiguous with an expanse of occupied landscape; (8) there are no significant barriers to salamander movement between confirmed occupied areas and the action area; (9) the lack of significant disturbance or history of significant threats to the species in the general vicinity; and (10) the biology and ecology of the animal.

California Red-Legged Frog

There is a high degree of overlap between the range, suitable habitat, and occupied habitat for California red-legged frog and Central California tiger salamander in Alameda County. As with the listed salamander, the proposed action area is located within the California red-legged frogs' range and contains the upland grassland habitat and the nearby aquatic breeding habitat associated with its life history. The proposed action area is also within the suitable California red-legged frog habitat modelling results completed for the EACCS (ICF International 2010) and has been consistently the subject of consultation for federal nexus projects within the area.

A map depicting the species' range is included in the Service's online profile for the species at <https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=2891#rangeInfo>. The proposed action area is also located within the frog's South and East San Francisco Bay Recovery Unit (Unit 4) and the more specifically, it's East San Francisco Core Unit (Service 2002, 2006). As noted in the species' Recovery Plan, Contra Costa and Alameda Counties contain the majority of known California red-legged frog localities within the San Francisco Bay area.

Caltrans did not conduct protocol or roadkill surveys for the California red-legged frog within the action area but there are numerous occurrences of the species in the CNDDDB in the vicinity of the proposed project. The California red-legged frog has similar breeding life history needs to the Central California tiger salamander, but utilize a greater diversity of aquatic habitats for breeding and non-breeding. The California red-legged frog also utilizes similar upland habitats for cover, movement, and dispersal to the Central California tiger salamander. Therefore, the action area includes suitable upland habitat for the species and is within navigable dispersal distance, generally given as at least 2 miles, to suitable and confirmed breeding habitat. From the proposed construction footprint, there are 20 CNDDDB records within the potential California red-legged frog dispersal distance of two miles. The nearest confirmed breeding location is a stock pond 0.52 miles from Location 7 (California red-legged frog occurrences 133; CDFW 2019), and there are no overland barriers between Location 7 and the occurrence. Caltrans mapped 0.074 acres of California red-legged frog habitat (grassland vegetation type) that would be affected by ground disturbance associated with the proposed project.

The road effects zone described for the Central California tiger salamander is true for the California red-legged frog.

The California red-legged frog is reasonably certain to occur within the action area due to: (1) the project being located within the species' range and current distribution; (2) the project area is modeled for the species' presence in the EACCS; (3) the habitat within the action area is similar to that which is found in nearby areas with confirmed California red-legged frog occupancy; (4) individuals being found in locations well within the species' movement capabilities to the project footprint; (5) confirmed and suitable breeding habitat is located well within the species' known movement capabilities to the project footprint; (6) the action area being contiguous with an expanse of occupied landscape; (7) there are no significant barriers to frog 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

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action.

The direct effects of the proposed project are those effects occurring within the action area during construction of the proposed project. For this project the direct effects are primarily associated with ground-disturbing activities including installing and removing Environmentally Sensitive Area (ESA) fencing, ground clearing and grubbing, Maintenance Vehicle Pullout and gore paving construction, erosion control measures, equipment staging, and parking. We do not expect work within the existing paved surface of the road or median to result in the modification of the ecological baseline function of those areas following construction. The listed frog and salamander may be injured or

killed during work in these areas but their use of these areas for dispersal and foraging are likely to remain unchanged following construction. All work activities required in grassland (0.074 acres) have the potential to injure or kill frogs and salamanders that may occupy the area during the action. The grassland vegetation within the project footprint includes vegetative cover and debris, and potentially contains soil cracks and small mammal burrows. Following construction, as noted previously in the Description of the Proposed Action section, the project proponent has included the commitment to restore all temporarily impacted habitat within less than one year of initial disturbance as a condition of the action. Therefore the annual vegetation, debris, and burrows are likely to be reestablished within a year. Frogs and salamanders are likely to continue utilizing these areas for dispersal, foraging, and cover. Therefore, the proposed project will not result in significant permanent habitat loss for the California red-legged frog or California tiger salamander.

Caltrans proposes to minimize construction related effects by implementing the *Conservation Measures* included in the project description section of this biological opinion. Effective implementation of *Conservation Measures* will likely minimize adverse effects to the California red-legged frog and California tiger salamander during construction. The proposed project has the potential to result in a variety of similar adverse effects to these two species.

The California red-legged frog and California tiger salamander could be encountered throughout the hardscape and landscape areas of the project footprint where they risk injury and mortality under staged and moving equipment/vehicles and ground disturbing activities.

The noise and vibration associated with the work will be disruptive and may result in California red-legged frogs and California tiger salamander avoiding the action area, therefore modifying their behavior. Noise and vibration may also result in frogs and salamanders taking cover in discreet locations rather than fleeing potential harm. This will make them more difficult to find, avoid, and rescue from harm's way. However, the duration of disturbance in any one given area will be relatively short. The project will take place between April 15 and October 15, when frogs and salamanders are less active and therefore less likely to be dispersing across the action area.

Educating project personnel will encourage compliance with the conservation measures and increase the possibility that California red-legged frogs and California tiger salamanders in the work area will be identified and addressed appropriately for avoidance. Worker education is limited by the effectiveness of the presentation and the willingness of the construction personnel to participate in compliance.

Pre-construction surveys by a Service-Approved Biological Monitor will assist in clearing California red-legged frogs and California tiger salamanders from the project footprint prior to the introduction of a potential construction-related threat. Biological clearance of the work areas prior to the start of each day's work and during construction will increase the chances of identifying frogs and salamanders in the work area that would be susceptible to injury. Biological clearance of work areas is limited by the experience of the biologist, the complexity and abundance of potential cover sites, the small size and inconspicuous nature of the species.

Despite being "cleared" prior to construction, California red-legged frogs and California tiger salamander could move into the work site undetected, in which case there is a high likelihood that they will be crushed or otherwise injured if not discovered by construction staff or the Service-Approved Biological Monitor. Continued monitoring of the work areas by the Service-approved Biological Monitor will minimize potential injury and mortality to California red-legged frogs and California tiger salamanders.

Proper trash disposal is often difficult to enforce and is a common non-compliance issue. Improperly disposed edible trash could attract predators, such as raccoons, crows, and ravens, to the site, which could subsequently prey on the California red-legged frog and California tiger salamander.

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

Discovery, capture, and relocation of individual California red-legged frogs and California tiger salamander may avoid injury or mortality due to construction activities; however, capturing and handling animals may result in stress and/or inadvertent injury during handling, containment, and transport. Relocation of animals can result in disorientation and increased risk of being exposed to other threats such as predation. California red-legged frogs and California tiger salamander are relatively easy to capture when moving in upland areas. The risks associated with capture and release will be minimized based on the experience level of the approved biological monitors and the use of prescribed methods.

California red-legged frogs, California tiger salamander, and their prey could also be affected by contamination due to chemical or sediment discharge. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. However, Caltrans proposes to reduce these risks by implementing BMPs that consist of refueling, oiling, or cleaning of vehicles and equipment a minimum of 50 feet from riparian and aquatic areas (or utilizing pads or other catchments to avoid potential discharges in cases where equipment cannot be moved); installing coir rolls, straw wattles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the aquatic habitat; and locating staging, storage and parking areas away from aquatic habitat.

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

The completed project is unlikely to increase the local risk of California red-legged frog and California tiger salamander mortality due to vehicle collision. The completed project will not provide wildlife with increased access to the roadway or result in the addition of structures such as barriers that may result in greater risk of being stranded in the roadway increasing their risk of being killed. Likewise, the road effects zone described in the baseline section is unlikely to change.

As noted previously in the Description of the Proposed Action section, the project proponent has also proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species of the proposed project's anticipated incidental take, resulting from the permanent loss of habitat described above. The compensatory habitat proposed will be in the form of 0.1 acres of off-site California red-legged frog and California tiger salamander habitat at a Service-approved conservation bank. The conservation bank will have a Service Area that covers the location of the

proposed action. The conservation bank credits will be purchased prior to the start of construction and proof of purchase of the credits will be shared with the Service.

This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory lands will provide suitable habitat commensurate with or better than habitat lost as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

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. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

Conclusion

After reviewing the current status of California tiger salamander and California red-legged frog, the environmental baseline for the action area, the effects of the proposed Interstate 580/205 Roadside Safety Improvement Project, and the cumulative effects, it is the Service's biological opinion that the Interstate 580/205 Roadside Safety Improvement Project, as proposed, is not likely to jeopardize the continued existence of the California tiger salamander and California red-legged frog. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following:

- 1) Adverse effects to the California tiger salamander and California red-legged frog will be reduced by implementation of the described Conservation Measures.
- 2) The project will result in the permanent loss of 0.009 acre of California tiger salamander and California red-legged frog upland habitat out of thousands of acres of California tiger salamander and California red-legged frog habitat range wide. This small loss of available habitat is not expected to result in an appreciable affect to the species' overall recovery potential or to the necessary life history components need to support the local population.
- 3) The project will result in the temporarily loss of 0.064 acre of California tiger salamander and California red-legged frog upland habitat. We expect temporarily affected areas to be re-occupied shortly following project completion once exclusion fencing has been removed. These areas will be subject to restoration. In the near term, these areas will provide functional habitat for foraging and dispersal. The grassland habitat is expected to provide baseline habitat functions within a year following construction. Therefore, the associated effects of the habitat loss will be temporal and likely insignificant in consideration of the species' overall recovery and the amount of habitat available for the local population.
- 4) The project will be completed in one construction season.

- 5) The handling and relocation of California tiger salamander and California red-legged frog as a conservation measure is not anticipated to substantially increase their risk of mortality or substantially interfere with their foraging, sheltering, and breeding activities.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior 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 the terms and conditions of this Incidental Take Statement.

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

Amount or Extent of Take

California tiger salamander

The Service anticipates that incidental take of the Central California tiger salamander may occur as a result of capture, injury, or mortality. Losses of Central California tiger salamander may be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, changes in water regime at their breeding ponds, or additional environmental disturbances. Furthermore, finding an injured or dead Central California tiger salamander is unlikely due to their relatively small body size, rapid carcass deterioration, and likelihood the remains will be removed by a scavenger or indistinguishable amongst the disturbed soil and debris. Therefore, we are providing a mechanism to quantify when take of this listed species would be considered to be exceeded as a result of implementation: we will use detection of one dead or injured subadult or adult Central California tiger salamander and the capture and relocation of three subadult or adult Central California tiger salamander as the level of injurious and lethal take permitted. We believe that if this level of take is exceeded then likely other Central California tiger salamander have also been adversely affected by the project but not detected. If more than one Central California tiger salamander sub-adult or adult is injured or killed as a result of the Interstate 580/205 Roadside Safety Improvement Project, or more than three subadult or adult Central California tiger salamander are captured and relocated, then take is exceeded and, as provided in 50 CFR §402.16, reinitiation of formal consultation would

be required to determine appropriate measures to further minimize the effect of take of listed species.

California Red-Legged Frog

The Service anticipates that incidental take of the California red-legged frog may occur as a result of capture, injury, or mortality. Losses of California red-legged frog may be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, changes in water regime at their breeding ponds, or additional environmental disturbances. Furthermore, finding an injured or dead California red-legged frog is unlikely due to their relatively small body size, cryptic coloration, rapid carcass deterioration, and likelihood the remains will be removed by a scavenger or indistinguishable amongst the disturbed soil and debris. Therefore, we are providing a mechanism to quantify when take of this listed species would be considered to be exceeded as a result of implementation: we will use detection of one dead or injured subadult or adult California red-legged frog and the capture and relocation of three subadult or adult California red-legged frogs as the level of injurious and lethal take permitted. We believe that if this level of take is exceeded then likely other California red-legged frog have also been adversely affected by the project but not detected. If more than one California red-legged frog sub-adult or adult is injured or killed as a result of the Interstate 580/205 Roadside Safety Improvement Project, or more than three subadult or adult California red-legged frog are captured and relocated, then take is exceeded and, as provided in 50 CFR §402.16, reinitiation of formal consultation would be required to determine appropriate measures to further minimize the effect of take of listed species.

Upon implementation of the following *Reasonable and Prudent Measures*, the incidental take of the California tiger salamander and California red-legged frog associated with the Interstate 580/205 Roadside Safety Improvement Project in proportion to the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species.

Reasonable and Prudent Measure

All necessary and appropriate measures to avoid or minimize effects on the California tiger salamander and California red-legged frog resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the California tiger salamander and California red-legged frog:

- 1) All conservation measures, as described in the biological assessment and restated here in the Project Description section of this biological opinion, shall be fully implemented and adhered to. Further, this reasonable and prudent measure shall be supplemented by the terms and conditions below.

Terms and Conditions

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

The following *Terms and Conditions* implement the *Reasonable and Prudent Measure*:

1. Caltrans shall include a copy of the all relevant permits within the construction bid package of the proposed project. The Resident Engineer or their designee shall be responsible for implementing the *Conservation Measures* and *Terms and Conditions* of this document.
2. At least 15 days prior to the onset of any ground-disturbing activities, including vegetation removal, Caltrans will submit to the Service, for approval, the name(s) and credentials of proposed biological monitors. Information included in a request for authorization will include, at a minimum: (1) relevant education; (2) relevant training concerning Central California tiger salamander and California red-legged frog identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized for such activities by the Service; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of BOs under which they were authorized to work with the Central California tiger salamander and California red-legged frog and at what level (such as construction monitoring versus handling), this will also include the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) a list of Federal Recovery Permits [10(a)1(A)] held or under which they are authorized to work with the Central California tiger salamander and California red-legged frog (to include permit number, authorized activities, and name of permit holder); and (6) any relevant professional references with contact information. No project construction will begin until Caltrans has received written Service approval for biologists to conduct specified activities.
3. Each Central California tiger salamander and California red-legged frog encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured animal if it is not in danger or (2) move the animal to a nearby location if it is in danger.

These two options are further described as follows:

- a. When a Central California tiger salamander and California red-legged frog is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the monitor needs to assess the situation in order to select a course of action that will minimize adverse effects to the individual. Contact the Service once the site is secure. The contacts for this situation are Ryan Olah (ryan_olah@fws.gov) or Meghan Bishop (meghan_bishop@fws.gov). They can also be reached at (916) 414-6623 and (916) 414-6737, respectively. Contact the Service prior to the start of construction to confirm the status of this contact information.

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

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

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

If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the salamander or frog shall not be moved outside of the area it would have traveled on its own. Captured salamanders, frogs, or snakes should be released as close to their capture location as feasible possible for their continued safety. Under no circumstances should an animal be relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission.

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

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

- i. All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, must be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water and/or an amphibian. Cleaned items should be rinsed with fresh water before leaving each site.
- ii. Boots, nets, traps, etc., must then be scrubbed with either a 70 percent ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6 percent sodium hypochlorite 3 solution and rinsed clean with water between sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland. All traces of the disinfectant must be removed before entering the next aquatic habitat.
- iii. Used cleaning materials (liquids, etc.) must be disposed of safely, and if necessary, taken back to the lab for proper disposal.
- iv. The Service-Approved Biological Monitor must limit the duration of handling and captivity. While in captivity, frogs or salamanders shall be kept individually in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket

or plastic container with a damp sponge. Containers used for holding or transporting should not contain any standing water.

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 reinstate formal consultation as per 50 CFR 402.16.

1. For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Caltrans shall provide a precise accounting of the total acreage of habitat impacted to the Service after completion of construction.
2. Caltrans shall immediately contact the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6623 to report direct encounters between listed species and project workers and their equipment whereby incidental take in the form of, harm, injury, or death occurs. If the encounter occurs after normal working hours, Caltrans shall contact the Coast-Bay Division Chief at the earliest possible opportunity the next working day. When injured or killed individuals of the listed species are found, Caltrans shall follow the steps outlined in the *Salvage and Disposition of Individuals* section below.
3. Sightings of any listed or sensitive animal species shall be reported to the CNDDB (<http://www.dfg.ca.gov/biogeodata/cnddb/>).
4. Construction compliance reports shall be addressed to the Coast-Bay Division Chief of the Endangered Species Program at the SFWO.
5. Caltrans shall submit post-construction compliance reports prepared by the Service-approved biologist to the Service within 60 calendar days following completion of each construction season or within 60 calendar days of any break in construction activity lasting more than 60 calendar days. This report shall detail (1) dates that relevant project activities occurred; (2) pertinent information concerning the success of the project in implementing avoidance and minimization measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the Central California tiger salamander, California red-legged frog, and San Joaquin kit fox; (5) occurrences of incidental take of any listed species; (6) documentation of employee environmental education; and (7) other pertinent information.

Salvage and Disposition of Individuals:

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 person is the Coast-Bay Division Chief of the Endangered Species Program at the SFWO at (916) 414-6623.

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 Central California Distinct Population Segment of the California Tiger Salamander (Service 2017), Recovery Plan for the California Red-legged Frog (Service 2002) 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, and San Joaquin kit fox, other listed species, and special-status species.
- 4) Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the Central California tiger salamander, California red-legged frog, and San Joaquin kit fox, 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, San Joaquin kit fox, other listed animals, and wildlife. Photographs, plans, and other information should be included in 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.
- 6) Adequate wildlife road mortality data is a critical factor in assessing where wildlife and the travelling public are most at risk due to animal-vehicle collision along California’s highways. Caltrans should make its wildlife road mortality data available or provide it to a database service such as the California Roadkill Observation System (<https://www.wildlifecrossing.net/california/>) to enhance road ecology-based planning, add to our resources of “best available science”, and increase public safety.
- 7) Caltrans should ensure that their container plants used for restoration are sourced from nurseries utilizing the Working Group for Phytophthoras in Native Habitats’ Guidelines to Minimize Phytophthora Pathogens in Restoration Nurseries (available at http://www.suddenoakdeath.org/wp-content/uploads/2016/04/Restoration.Nsy_Guidelines.final_092216.pdf).

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 Interstate 580/205 Roadside Safety Improvement Project. As provided in 50 CFR §402.16, reinitiation of consultation is required and shall be requested by the federal agency or by the Service where discretionary federal involvement or control over the action has been retained or is authorized by law, and:

- (a) If the amount or extent of taking specified in the incidental take statement is exceeded;
- (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or written concurrence; or
- (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Meghan Bishop (meghan_bishop@fws.gov) or Ryan Olah (ryan_olah@fws.gov), at the letterhead address or at (916) 414-6623 or both.

Sincerely,



Jennifer M. Norris, Ph.D.
Field Supervisor

cc:

Robert Stanley, California Department of Fish and Wildlife, Fairfield, California
John Yeakel and Cadi Baker, Caltrans District 4, Oakland, California

LITERATURE CITED

- Ashley, E.P., and J.E. Robinson. 1996. Road mortality of amphibians, reptiles and other wildlife on the Long Point Causeway, Lake Erie, Ontario. *Canadian Field Naturalist* 110:403–412.
- Backlin, A.R., J.Q. Richmond, E.A. Gallegos, C.K. Chistensen, and R.N. Fisher. 2017. An extirpated lineage of a threatened frog species resurfaces in southern California. *Oryx*: 1–5.
- Barry, S. 1992. Letter to Marvin L. Plenert, Regional Director, U.S. Fish and Wildlife Service, Portland, Oregon, regarding proposed listing.
- . 2002. Dobbins and Cottage/Deadwood Watersheds, Plumas National Forest, Herpetological Surveys, 2001–2002. Department of Zoology, University of California, Davis
- Barry, S.J. and G.M. Fellers. 2013. History and status of the California red-legged frog (*Rana draytonii*) in the Sierra Nevada, California, USA. *Herpetological Conservation and Biology* 8(2): 456–502.
- Bishop, M., R. Drewes, and V. Vredenburg. 2014. Food web linkages demonstrate importance of terrestrial prey for the threatened California red-legged frog. *Journal of Herpetology* 48:137–143.
- Bosch, J., I. Martinez-Solano, and M. Garcíaparis. 2001. Evidence of a chytrid fungus infection involved in the decline of the common midwife toad (*Alytes obstetricans*) in protected areas of central Spain. *Biological Conservation* 97:331–337.
- Bulger, J.B., N.J. Scott Jr., and R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. *Biological Conservation* 110(2003): 85–95.
- Bury, R.B. and J.A. Whelan. 1984. Ecology and management of the bullfrog. Fish and Wildlife Resource Publication 155.
- California Department of Fish and Wildlife (CDFW). 2019. BIOSIS. Natural Heritage Division, Sacramento, California.
- Carr, L.W., and L. Fahrig. 2001. Effect of road traffic on two amphibian species of differing vagility. *Conservation Biology* 15:1,071–1,078.
- Cooke, A.S. 1995. Road mortality of common toads (*Bufo bufo*) near a breeding site, 1974–1994. *Amphibia-Reptilia* 16:87–90.
- Davidson, E.W., M. Parris, J.O. Collins, J.E. Longcore, A.P. Pessier, and J. Brunner. 2003. Pathogenicity and transmission of *Chytridiomycosis* in tiger salamanders (*Ambystoma tigrinum*). *Copeia* 2003(3): 601–607.
- Dodd, C.K. 2013a. Frogs of the United States and Canada. Volume 1. John Hopkins University Press, Baltimore, Maryland.
- . 2013b. Frogs of the United States and Canada. Volume 2. John Hopkins University Press, Baltimore, Maryland.

- Drews, C. 1995. Road kills of animals by public traffic in Mikumi National Park, Tanzania, with notes on baboon mortality. *African Journal of Ecology* 33:89–100.
- Emlen, S.T. 1977. “Double clutching” and its possible significance in the bullfrog. *Copeia* 1977(4): 749–751.
- Fellers, G. 2005. *Rana draytonii* Baird and Girard, 1852b California red-legged frog. Pages 552–554 in M. Lannoo (editor). *Amphibian declines the conservation status of United States species*. University of California Press. Berkeley, California.
- Fellers, G.M., and P.M. Kleeman. 2007. California Red-Legged Frog (*Rana draytonii*) Movement and Habitat Use: Implications for Conservation. *Journal of Herpetology* 41: 276–286.
- Fellers, G.M., R.A. Cole, D.M. Reintz, and P.M. Kleeman. 2011. Amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) in coastal and montane California, USA Anurans. *Herpetological Conservation and Biology* 6(3): 383–394.
- Fellers, G.M., P.M. Fleeman, D.A.W. Miller, and B.J. Halstead. 2017. Population Trends, Survival, and Sampling Methodologies for a Population of *Rana draytonii*. *Journal of Herpetology* 51(4): 567–573.
- Fisher, R.N. and H.B. Shaffer. 1996. The decline of amphibians in California’s Great Central Valley. *Conservation Biology* 10(5): 1387–1397.
- Forman, T.T., and R.D. Deblinger. 1998. The ecological road-effect zone for transportation planning and a Massachusetts highway example. Pages 78–96 in G.L. Evink, P. Garrett, D. Zeigler, and J. Berry (editors). *Proceedings of the international conference on wildlife ecology and transportation*. Publication FL-ER-69-98. Florida Department of Transportation, Tallahassee.
- . 2000. The Ecological Road-Effect Zone of a Massachusetts (U.S.A) Suburban Highway. *Conservation Biology* 14:36–46.
- Halstead, B.J. and P.M. Kleeman. 2017. Frogs on the Beach: Ecology of California red-legged frogs (*Rana draytonii*) in Coastal Dune Drainages. *Herpetological Conservation and Biology* 12: 127–140.
- Hansen, L. 1982. Trafikdræbte dyr i Danmark (Road kills in Denmark, in Danish). *Dansk Ornitologisk Forenings Tidsskrift* 76:97–110.
- Hayes, M.P., M.R. Jennings, and G.B. Rathbun. 2006. *Rana Draytonii* (California Red-Legged Frog) Prey. *Herpetological Review* 37(4):449. Available at http://researcharchive.calacademy.org/research/bmammals/Rathbun/PDFs/Hayes_HerpReview_2006.pdf.
- Hayes, M.P. and M.R. Tennant. 1985. Diet and feeding behavior of the California red-legged frog *Rana aurora draytonii* (Ranidae). *The Southwestern Naturalist* 30(4):601–605.
- Hels, T., and E. Buchwald. 2001. The effect of road kills on amphibian populations. *Biological Conservation* 99:331–340.
- Hunt, L. 1993. Letter to Marvin L. Plenert, Regional Director, U.S. Fish and Wildlife Service, Portland, Oregon, regarding proposed listing.

- ICF International (ICF). 2010. East Alameda County Conservation Strategy. Final Draft. October. (ICF 00906.08.) San Jose, CA. Prepared for: East Alameda County Conservation Strategy Steering Committee, Livermore, CA.
- Jennings, M.R. 1993. Letter to Peter C. Sorensen, U.S. Fish and Wildlife Service, Sacramento, California.
- Jennings, M.R. and M.P. Hayes. 1985. Pre-1900 overharvest of California red-legged frogs (*Rana aurora draytonii*): The inducement for bullfrog (*Rana catesbeiana*) introduction. *Herpetological Review* 31(1): 94-103.
- . 1990. Final report of the status of the California red-legged frog (*Rana aurora draytonii*) in the Pescadero Marsh Natural Preserve. Final report prepared for the California Department of Parks and Recreation, Sacramento, California through Agreement (4-823-9018). Department of Herpetology, California Academy of Sciences, Golden Gate Park, San Francisco, California. 30 pages.
- . 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Rancho Cordova, California.
- Jennings, M.R., M.P. Hayes, and D.C. Holland. 1992. A petition to the U.S. Fish and Wildlife Service to place the California red-legged frog (*Rana aurora draytonii*) and the western pond turtle (*Clemmys marmorata*) on the List of Endangered and Threatened Wildlife and Plants. 21 pages.
- Kruse, K.C. and M.G. Francis. 1977. A predation deterrent in larvae of the bullfrog, *Rana catesbeiana*. *Transactions of the American Fisheries Society* 106(3): 248-252.
- Lips, K.R., F. Brem, R. Brenes, J.D. Reeve, R.A. Alford, J. Voyles, C. Carey, L. Livo, A.P. Pessier and J.P. Collins. 2006. Emerging infectious disease and the loss of biodiversity in a Neotropical amphibian community. *Proceedings of the National Academy of Sciences of the United States of America* 103(9): 3165-3170.
- MacArthur, R.A., R.H. Johnston, and V. Geist. 1979. Factors in influencing heart rate in free-ranging bighorn sheep: a physiological approach to the study of wildlife harassment. *Canadian Journal of Zoology* 57:2,010–2,021.
- Mallick, S.A., G.J. Hocking, and M.M. Driessen. 1998. Road-kills of the eastern barred bandicoot (*Perameles gunnii*) in Tasmania: an index of abundance. *Wildlife Research* 25:139–145.
- Moyle, P.B. 1976. Fish introductions in California: a history and impact of native fishes. *Biological Conservation* 9(1): 101-118.
- Munguira, M.L., and J.A. Thomas. 1992. Use of road verges by butterfly and moth populations, and the effect of roads on adult dispersal and mortality. *Journal of Applied Ecology* 29:316–329.
- Peralta-García, A., B.D. Hollingsworth, J.Q. Richmond, J.H. Valdez-Villavicentio, G. Ruiz-Campos, R.N. Fisher, P. Cruz-Hernandez, P. Galina-Tessaro. 2016. Status of the California red-legged frog (*Rana draytonii*) in the state of Baja California, México. *Herpetological Conservation and Biology* 11(1): 168-180.

- Padgett-Flohr, G. 2008. Pathogenicity of *Batrachochytrium dendrobatidis* in two threatened California amphibians: *Rana draytonii* and *Ambystoma californiense*. *Herpetological Conservation and Biology* 3(2): 182-191.
- Padgett-Flohr, G.E. and R.L. Hopkins, II. 2010. Landscape epidemiology of *Batrachochytrium dendrobatidis* in central California. *Ecography* 33: 688-697.
- Richmond, J.O., A.R. Backlin, P.J. Tatarian, B.G. Solvesky, R.N. Fisher. 2014. Population declines lead to replicate patterns of internal range structure at the tips of the distribution of the California red-legged frog (*Rana draytonii*). *Biological Conservation* 172: 128-137.
- Rosen, P.C., and C.H. Lowe. 1994. Highway mortality of snakes in the Sonoran desert of southern Arizona. *Biological Conservation* 68:143-148.
- Shaffer, H.B., G.M. Fellers, S.R. Voss, C. Oliver, and G.B. Pauley. 2010. Species boundaries, phylogeography, and conservation genetics of the red-legged frog (*Rana aurora/draytonii*) complex. *Molecular Ecology* 13:2667-2677.
- Stebbins, R.C. 2003. A field guide to western reptiles and amphibians. Houghton Mifflin. Boston, Massachusetts.
- Storer, T.I. 1925. A synopsis of the Amphibia of California. University of California Publications in Zoology 27: 1-342.
- _____. 1933. Frogs and their commercial use. California Department of Fish and Game 19(3): 203-213.
- Stuart, J.M., M.L. Watson, T.L. Brown, and C. Eustice. 2001. Plastic netting: an entanglement hazard to snakes and other wildlife. *Herpetological Review* 32(3):162-164.
- Tatarian, T.J. and G. Tatarian. 2008. California red-legged frog telemetry study; Hughes Pond, Plumas National Forest. Annual Report, Option Year 3 to: U.S. Fish and Wildlife Service, 2800 Cottage Way, Sacramento, California and U.S. Forest Service, Plumas National Forest, 875 Mitchell Avenue, Oroville, California.
- _____. 2010. Chytrid Infection of *Rana draytonii* in the Sierra Nevada, California, USA. *Herpetological Review* 41(3): 325-327.
- Tatarian, P.J. 2008. Movement patterns of California red-legged frogs (*Rana draytonii*) in an inland California environment. *Herpetological Conservation and Biology* 3(2): 155-169.
- Trombulak, S.C., and C.A. Frissell. 2000. The ecological effects of roads on terrestrial and aquatic communities: a review. *Conservation Biology* 14:18-30.
- Twedt, B. 1993. A comparative ecology of *Rana aurora* Baird and Girard and *Rana catesbeiana* Shaw at Freshwater Lagoon, Humboldt County, California. Master of Science thesis. Humboldt State University, Arcata, California. 53 pages plus appendix.
- U.S. Fish and Wildlife Service (Service). 1996. Endangered and threatened wildlife and plants; determination of threatened status for the California red-legged frog. Federal Register 61: 25813-25833.

- _____. 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Portland, Oregon. 340 pages.
- _____. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). Portland, Oregon. 173 pages.
- _____. 2006. Endangered and threatened wildlife and plants; designation of critical habitat for the California red-legged frog (*Rana aurora draytonii*), and special rule exemption associated with final listing for existing routine ranching activities; final rule. Federal Register 71(71):19244-19346.
- _____. 2010. Endangered and threatened wildlife and plants; revised designation of critical habitat for California red-legged frog; final rule. Federal Register 75: 12815-12959.
- _____. 2014. California Tiger Salamander Central California Distinct Population Segment (*Ambystoma californiense*), 5-Year Review. U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. v + 53 pp.
- _____. 2017. Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. v + 69 pp.
- Van der Zande, A.N., W.J. ter Keurs, and W.J. Van der Weijden. 1980. The impact of roads on the densities of four bird species in an open field habitat - evidence of a long-distance effect. Biological Conservation 18:299–321.
- Van Gelder, J.J. 1973. A quantitative approach to the mortality resulting from traffic in a population of *Bufo bufo* L. Oecologia 13:93–95.
- Vos, C.C., and J.P. Chardon. 1998. Effects of habitat fragmentation and road density on the distribution pattern of the moor frog, *Rana arvalis*. Journal of Applied Ecology 35:44–56.
- Weldon, C., L.H. du Preez, R. Muller, A.D. Hyatt, and R. Speare. 2004. Origin of the amphibian chytrid fungus. Emerging Infectious Diseases 10:2100-2105.
- Wright, A.H. and A.A. Wright. 1949. Handbook of frogs and toads in the United States and Canada. Comstock Publishing, Ithaca, New York.

PERSONAL COMMUNICATIONS

- Gordon, R. and J. Bennett. Electronic mail communication from Rebecca Gordon and Jesse Bennett, Service, Carlsbad FWO, to Valerie Hentges, Service, Sacramento FWO, dated October 12, 2017.
- Mabe, J. 2017. Phone conversation from Jeff Mabe, U.S. Forest Service, Eldorado National Forest, to Ian Vogel, Service, Sacramento FWO, dated June 6, 2017.
- Yang, D. and J. Martin. Electronic mail communication from Dou-Shuan Yang and Jacob Martin, Service, Ventura FWO, to Valerie Hentges, Service, Sacramento FWO, dated July 5, 2017.

Appendix G. List of Technical Studies

Biological Assessment: Interstate 580/205 Roadside Safety Improvements December 201

Comments from the Air/Noise/Energy Branch. February 21, 2020.

Comments from the Hazardous Waste Branch. February 13, 2020.

Construction Greenhouse Gas (GHG) Emissions Analysis Memorandum. October 10, 2019.

Location Hydraulics Study. October 15, 2019.

Natural Environmental Study: Interstate 580/205 Roadside Safety Improvements. February 2020.

Office of Cultural Resource Studies (OCRS) Section 106 review for Vegetation Control and Maintenance Vehicle Pullout (MVP) Project on Interstate 205 (I-205) and Interstate 580 (I-580), Alameda County. July 9, 2019.

Paleontology and Geology Environmental Study/Memorandum. October 23, 2019

Scenic Resource and Visual Impact Assessment Analysis Memorandum. August 28, 2019.

Section 4(f) Evaluation for Alameda County Roadside Safety Improvements Project. August 6, 2019.

Water Quality Study. October 2019.