Interstate 680 Roadway Rehabilitation Project

ALAMEDA COUNTY, CALIFORNIA
DISTRICT 4 – ALA – 680 (PM M12.4/R21.9)
EA #04-0J620
EFIS #0414000019

Initial Study with Proposed Negative Declaration

Prepared by the
State of California, Department of Transportation

October 2018
General Information about This Document

What’s in this document:
The California Department of Transportation (Caltrans), has prepared this Initial Study, which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Alameda County, California. The document explains why the project is being proposed, the alternatives being considered for the project, the existing environment that could be affected by the project, potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

• Read the document. Additional copies of the document and the related technical studies are available for review at:
  o Caltrans District 4 office at 111 Grand Avenue, Oakland, CA
  o Pleasanton Public Library, 400 Old Bernal Ave., Pleasanton, CA
  o Dublin Library, 200 Civic Plaza, Dublin, CA

• The document can also be accessed electronically at the following website:
  http://www.dot.ca.gov/d4/envdocs.htm

• Tell us what you think. If you have comments regarding the proposed project, please send your written comments to Caltrans by the deadline.

• Submit comments via U.S. mail to: Brian Gassner, California Department of Transportation, P.O. Box 23660, MS: 8B, Oakland, CA 94612

• Submit comments via email to: I680.PavementRehabProject@dot.ca.gov

• Submit comments by the deadline: December 20, 2018

What happens next:
After comments are received from the public and reviewing agencies, Caltrans may (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is obtained, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to California Department of Transportation, Attn: Brian Gassner, P.O. Box 23660, MS: 8B, Oakland, CA 94612; (510) 286-6198 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.
Rehabilitate pavement along 9.5 miles of Interstate 680, from the Koopman Road Undercrossing in the town of Sunol to the Alcosta Boulevard Overcrossing in the City of Dublin (Postmile R12.4 to Postmile R21.9)

INITIAL STUDY
with Proposed Negative Declaration

Submitted Pursuant to: (State) 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

Date

Stefan Galvez-Abadia, Office Chief
Department of Environmental Analysis
District 4
California Department of Transportation
CEQA Lead Agency

The following individual may be contacted for more information about this document:

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brian.gassner@dot.ca.gov
PROPOSED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description
The California Department of Transportation (Caltrans) proposes to resurface and restore the mainline and ramp pavement, including replacing approach slabs, on Interstate 680 (I-680) from the Koopman Road Undercrossing in the town of Sunol (Postmile R12.4) to the Alcosta Boulevard Overcrossing in the City of Dublin (Postmile R21.9). The project additionally proposes to repair or replace drainage systems; replace or upgrade guardrails; replace loop detectors; install shoulder backing; replace all gantries and signs; and upgrade curb ramps to current Americans with Disabilities Act (ADA) standards. The roadway will be rehabilitated within the same alignment, and all work will be done within the State Right of Way. There will be no increase in lane capacity, and no temporary or permanent acquisition of new Right of Way.

Determination
This proposed Negative Declaration (ND) is included to give notice to interested agencies and the public that it is Caltrans’ intent to adopt a ND for this project. This does not mean that Caltrans’ decision regarding the project is final. This ND is subject to change based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project, and pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment.

The proposed project would have no effect on air quality, agricultural lands and forest resources, geology and soils, land use and planning, mineral resources, noise, population and housing, public services and recreation, transportation and traffic, tribal cultural resources, utilities and service systems and mandatory findings of significance.

In addition, the proposed project would have less than significant effects to visual aesthetics, biological resources, cultural resources, hazardous waste, and hydrology/water quality.

________________________________   ______________________
Melanie Brent                          Date
Deputy District Director
District 4
California Department of Transportation
CEQA Lead Agency
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Chapter 1 – Proposed Project

1.1 Introduction

Caltrans proposes to resurface and restore the mainline and ramp pavement, including replacing approach slabs, on I-680 from the Koopman Road Undercrossing in the town of Sunol (PM R12.4) to the Alcosta Boulevard Overcrossing in the city of Dublin (PM R21.9). The total length of the project is 9.5 miles.

Figure 1. Project Vicinity Map

![Project Vicinity Map](image)

I-680 Pavement Rehabilitation  •  1
This project contains standardized project measures which are employed on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2.

This project is included in the Federal Transportation Improvement Program (FTIP) list of Roadway Preservation Projects programmed to be built in the fiscal year 2019/2020. Funding is from the State Highway Operation and Protection Program (SHOPP).

Caltrans is the Lead Agency under the California Environmental Quality Act (CEQA).

1.2 Purpose and Need

1.2.1 Background
I-680 is an important north-south corridor connecting Alameda and Santa Clara counties. It serves as a major commute route as well as being an interstate route connecting the South and East Bay Area with the rest of the Bay Area and beyond. Average daily traffic in 2015 ranged from 147,000 south of Bernal Avenue to 181,000 north of Interstate 580. Average daily traffic is projected to increase to between 162,700 and 204,200 vehicles by 2041, respectively.

1.2.2 Purpose
The purpose of this project is to correct existing roadway deficiencies to improve ride quality, enhance safety, and extend the pavement service life of I-680 along this heavily travelled corridor between Pleasanton and Dublin for a minimum of 20 years.

1.2.3 Need
Based on Caltrans pavement condition surveys, various portions of the freeway pavement are in an advanced phase of cracking and faulting. Cracking and faulting can lead to the formation of potholes and/or pavement failure. The pavement within the project area has deteriorated to the point that repaving would not be cost effective, and a rehabilitation strategy is needed.

1.3 Project Description
Caltrans proposes to resurface and restore the mainline and ramp pavement, including replacing approach slabs, on I-680 from the Koopman Road Undercrossing in the town of Sunol (PM R12.4) to the Alcosta Boulevard Overcrossing in the City of Dublin (PM R21.9). The project additionally proposes to repair or replace drainage systems; replace or upgrade guardrails; replace loop detectors; install shoulder backing; replace all gantries and signs; and upgrade curb ramps to current ADA standards. The roadway will be rehabilitated within the same alignment, and all work will be done within the State Right of Way. There will be no increase in lane capacity, and no temporary or permanent acquisition of new Right of Way.

1.3.1 Roadway Rehabilitation
The existing freeway pavement within the project limits consists of eight segments, with existing surface pavement a combination of Asphalt Concrete (AC) and Portland Cement Concrete (PCC). The project proposes to rehabilitate the eight segments of the roadway using two pavement strategies: 1) Precast PCC pavers fitted together end to end. This type of pavement can be installed in cooler weather, requires less maintenance and lasts longer than asphalt concrete; 2) Grind and Replace AC: the existing AC will be ground down and replaced with new AC.
Segments 1-3 (Postmiles 12.4 – 15.9; 3.5 miles): Remove existing pavement and replace with PCC on the mainline, and Grind and Replace AC on the shoulder and median. The expected service life of PCC is 40 years.

Segments 4-6 (Postmiles 15.9 – 19.7; 3.8 miles): Grind and Replace AC on the mainline and shoulder. The finished pavement profile will be raised slightly higher than the existing pavement. The expected service life of Grind and Replace AC is 20 years.

Segments 7-8 (Postmiles 19.7 – 21.9; 2.2 miles): The work will include using PCC for the mainline and Grind and Replace AC on the shoulder and median.
1.3.2 Drainage System Repair

The new raised pavement sections will require adjusting existing inlets to the new finished grade. Maximum depth of excavation for culvert replacements, where necessary, is estimated to be 6 feet. A total of 51 culverts will be cleaned and lined, or replaced.

New cross culverts will be installed by trenching or jacking. Pipe jacking, or microtunneling, means powerful hydraulic jacks push specially designed pipes through the ground behind a shield that excavates as it moves forward. This cost-effective method of culvert installation provides a flexible, structural, watertight, finished pipeline which requires little maintenance. All down drains will be removed and replaced. Rock Slope Protection (RSP) will be placed at the base of the down drains to minimize erosion. The slope of the roadway will be corrected to improve the flow of storm water off the travelled way.

1.3.3 Other Rehabilitation Activities

Replace and upgrade Metal Beam Guardrails (MBGR) to the current design standard Midwest Guardrail System (MGS), replace and upgrade existing concrete barriers in the median, replace guardrail-bridge connections and end treatments, replace loop detectors, upgrade roadway signs, raise overhead sign structures, replace all signs and gantries, and implement ADA curb requirements.

1.4 Permits and Approvals Needed

<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit/License/Agreement/Certification (PLAC)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States Fish and Wildlife Service (USFWS)</td>
<td>Section 7 Consultation for Threatened and Endangered Species</td>
<td>Biological Opinion expected from USFWS prior to the completion of the final environmental document (FED)</td>
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<tr>
<td>California Department of Fish and Wildlife</td>
<td>Section 2081 Agreement for Threatened and Endangered Species (Incidental Take Permit)</td>
<td>Application for the Section 2081 Agreement expected after FED approval.</td>
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Chapter 2 – Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered but no impacts were identified. As a result, there is no further discussion about these issues in this document.

- **Agricultural Lands and Forest Resources:** The land adjoining and surrounding the project is residential and urban or suburban in the northern half of the project. In the southern half of the project, the surrounding land is rural agricultural. The proposed project does not require permanent acquisition of right-of-way or conversion of farmland because all work will occur within the existing State Right of Way. Therefore, the proposed project would not result in impacts to farmlands. No timberland exists within the project limits.

- **Air Quality:** The proposed project is exempt from conformity determination under the Code of Federal Regulations 40 CFR 93.126. Therefore, an air quality study is not required.

- **Geology and Soils:** The proposed project would not impact geologic or soil conditions. The project will be located entirely on disturbed ground (artificial fill) on the highway and shoulder.

- **Land Use and Planning:** The proposed project would not physically divide an established community, because it will not change or impact existing land use. The roadway will be rehabilitated within the same alignment, and within the existing Right of Way. The proposed project will not conflict with any land use plan or habitat conservation plan.

- **Mineral Resources:** There are no mineral resources within the project area limits. Therefore, no mineral resources would be affected by the proposed project.

- **Noise and Vibration:** The proposed project does not qualify as a type 1 project under the Code of Federal Regulations 23 CFR 772 and the Caltrans Traffic Noise Analysis Protocol. Therefore, a noise study is not required (Comments from the Air/Noise/Energy Branch Memorandum of January 11, 2018, prepared by Caltrans District 4). Construction Noise levels will be minimized by avoiding night work and minimizing the number of equipment and vehicles near sensitive receptors per Caltrans Best Management Practices (BMPs) (Comments from the Air/Noise/Energy Branch Memorandum of September 13, 2018, prepared by Caltrans District 4). No structural impacts and no potential disruption to sensitive processes will result from construction vibration. (Construction-Related Vibration Assessment. September 19, 2018, prepared by Caltrans District 4).

- **Population and Housing:** The proposed project will not add capacity to the roadway and will not increase development or population as the project will be limited to rehabilitating the existing roadway. The proposed project would not displace any existing housing.
- **Public Services**: The proposed project will rehabilitate an existing roadway. Therefore, it will not impact access to public services.

- **Recreation**: The proposed project would not increase the use of existing neighborhood or regional parks. The proposed project does not include the construction of recreational facilities.

- **Transportation/Traffic Impacts**: The proposed project does not conflict with any transportation plans, bicycle and pedestrian plans, construction management programs, or local ordinances because all work will occur on the mainline of the Interstate. The project will rehabilitate the pavement on the existing roadway without changing its configuration. At locations where work will occur on the on-ramps which interface with local streets, a plan will be developed during the project design phase to ensure that bicyclists and pedestrians are accommodated and protected during construction.

- **Tribal Cultural Resources**: The proposed project would not cause a substantial adverse change in the significance of a tribal resource as defined in Public Resources Code section 21074.

- **Utilities and Service Systems**: The proposed project will not affect water supply, existing water utilities or require the construction of new wastewater facilities. The project will not impact utilities or wastewater and solid waste service systems.

- **Mandatory Findings of Significance**: The proposed project will not substantially reduce the habitat of any listed species. The proposed project does not threaten to eliminate a plant or animal community, nor will it substantially reduce the number or range of a rare or endangered plant or animal. The proposed project will not have any effect on important examples of the major periods of California history or prehistory. The proposed project has no considerable cumulative impacts. The proposed project will not have environmental effects which would cause substantial adverse effects on human beings.

2.1 **Human Environment**

2.1.1 **Visual/Aesthetics**

**Regulatory Setting**

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of aesthetic, natural, scenic and historic environmental qualities” (California Public Resources Code [PRC] Section 21001 [b]).

**Affected Environment**

The following analysis of potential impacts to visual resources is derived from the Visual Impact Study (July 2018), prepared by Caltrans District 4.

The proposed project site is in the Sunol Valley in the East Bay of the San Francisco Bay Area in California. The landscape is characterized by the rolling wooded hills of the Contra Costa range, contrasted with the flat terrain of the Sunol Valley. Land use within the corridor is a mix of developed residential and commercial, and undeveloped open space, with the southern half...
of the project corridor mostly protected open space and the northern half mostly developed. The project corridor is defined as the area of land that is visible from, adjacent to, and outside the highway right-of-way. It is determined by topography, vegetation, and viewing distance.

I-680 is a designated State Scenic Highway within the project limits. The project corridor offers scenic views to the nearby wooded hills of the Contra Costa range and more distant peaks to the north and east. The southern segments of the project corridor pass through regional open space, characterized by a relatively intact oak savannah landscape of native oak trees and naturalized grass species.

**Environmental Consequences**

The visual character after completion of the proposed project will be compatible with the existing visual character of the corridor. While tree and vegetation removal will be minimized, some tree removal may be unavoidable, and may be noticeable, especially in the short term. Visual character change will be moderate to low in the short-term, and low in the long-term.

Caltrans expects impacts to visual resources to be less than significant.

2.1.2 Cultural Resources

**Regulatory Setting**

The term "cultural resources," as used in this document, refers to the “built environment” (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including “historic properties,” “historic sites,” “historical resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the Federal Highway Administration (FHWA), the ACHP, the California State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the ACHP's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

CEQA requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as “unique” archaeological resources. California Public Resources Code (PRC) Section 5024.1 established the California Register of Historical Resources (CRHR) and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term “tribal cultural resources” to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify
tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in PRC Section 21083.2.

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires the Department to inventory state-owned structures in its rights-of-way.

Affected Environment

The following analysis of potential impacts to cultural resources is derived from the Close-Out Summary of Cultural Resource Section 106 Compliance for the Roadway Rehabilitation Project on Interstate 680 in Alameda County (August 10, 2018).

The Area of Potential Effects (APE) for the project was established in consultation with Douglas Bright, Caltrans PQS Principal Architectural Historian, Kristina Montgomery, Caltrans PQS Co-Principal Investigator-Historical Archaeology, and Caltrans Project Manager, Jack Siauw on March 1, 2018. The APE was established as the entirety of Caltrans’s Right of Way within the project’s post miles and the known reasonably anticipated boundaries of archaeological and cultural properties. The APE includes the resource study areas for cultural resources considered in this analysis.

A Historic Property Survey Report (HPSR) was prepared for this project and documents efforts to identify historic properties within the APE using research of records, pedestrian survey, and consultation efforts with local tribes and Native American parties. The Native American Heritage Commission (NAHC) was contacted to request a search of their Sacred Land Files. The NAHC responded with a list of interested Native American parties. Those parties were contacted via letter with project information and an invitation to consult with Caltrans on June 19, 2017. Follow-up phone calls were made to all parties on July 10, 2017.

The record search identified twenty-two state-owned bridges within Caltrans Right of Way. All twenty-two bridges have been listed as Category 5, meaning they were previously determined not eligible for listing in the NRHP in the Caltrans Historic Bridge Inventory. Those determinations remain valid.

The record search also identified one archaeological site mapped within Caltrans Right of Way. A survey of the archaeological site was completed in support of this project. It was determined that an Environmentally Sensitive Area (ESA) should be implemented to protect the archaeological site from potential construction impacts.

Environmental Consequences

In accordance with Stipulation X.B.1.a of the PA, Caltrans found the undertaking would result in a Finding of No Adverse Effect with Standard Conditions-ESA. As per this stipulation, one archaeological resource will be protected from construction-related impacts through the implementation of an ESA. The ESA will be included in the Environmental Commitments Record (ECR), on project plans, in the specifications, and in the Resident Engineer’s file. Caltrans’ Cultural Studies Office (CSO) had no objection to this finding and concurred on the implementation of an ESA on August 10, 2018.
If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. If remains are discovered during excavation, all work within 60 feet of the discovery will halt and Caltrans’ Cultural Resource Studies Office will be called. Caltrans Cultural Resource Studies Office staff will assess the remains and, if determined human, will contact the County Coroner as per Public Resources Code 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 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.

Caltrans expects that impacts to cultural resources will be less than significant.

2.2 Physical Environment

2.2.1 Hazardous Waste and Materials

Regulatory Setting

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement the Resource Conservation and Recovery Act of 1976 in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

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

Affected Environment

The following analysis of potential impacts as a result of hazardous waste and materials is derived from the Comments from the Hazardous Waste Branch Memorandum (January 11, 2018) prepared by Caltrans District 4, and email correspondence from Caltrans District 4 Branch Chief Christopher Wilson on September 6, 2018.

The affected environment for the study of hazardous waste and materials are the soils to be excavated, and the materials composing the existing environment that will be removed. The project is located on a nearly ten-mile section of I-680, which has been heavily studied.

Environmental Consequences

Site investigation data from past I-680 projects within the subject project limits indicate that contamination levels from leaded fuel emissions are limited. The soils to be excavated for the proposed roadway improvements, such as drainage upgrades, are expected to have
contaminant levels below all regulatory thresholds. The materials can be reused on-site without restrictions under these circumstances. AC grinding waste (including pavement striping) is not considered hazardous waste.

Guardrails to be removed within the project limits are supported by posts consisting of chemically treated wood, which is a regulated hazardous waste. Caltrans will store, transport and dispose of hazardous waste under 22 CA Code of Regs Div 4.5 Ch. 34 and Caltrans’ Standard Specifications.

Caltrans expects that impacts due to hazardous waste will be less than significant.

2.2.2 Hydrology and Water Quality

2.2.2.1 Hydrology and Floodplain

Regulatory Setting

The Federal Emergency Management Administration (FEMA) is the nationwide administrator of the National Flood Insurance Program (NFIP), which is a program that was established by the National Flood Insurance Act of 1968 to protect lives and property, and to reduce the financial burden of providing disaster assistance. Under the NFIP, FEMA has the lead responsibility for flood hazard assessment and mitigation, and it offers federally backed flood insurance to homeowners, renters, and business owners in communities that choose to participate in the program. FEMA has adopted the 100-year floodplain as the base flood standard for the NFIP. FEMA issues the Flood Insurance Rate Maps (FIRMs) for communities that participate in the NFIP. These FIRMs represent delineations of flood hazard zones.

In California, nearly all of the State’s flood prone communities participate in the NFIP, which is locally administered by the California Department of Water Resources (DWR) Division of Flood Management. Under California’s NFIP, communities have a mutual agreement with the State and Federal government to regulate floodplain development according to certain criteria and standards, which is further detailed in the NFIP.

Affected Environment

The following analysis of potential hydrology and floodplain impacts is derived from the Location Hydraulics Study (April 16, 2018), and the Amended Location Hydraulics Study (August 27, 2018).

The 100-year floodplain is within the Alameda Creek Basin. Three major crossings of I-680 occur within the project limits.

Environmental Consequences

The original Location Hydraulics Study (April 2018), stated that the 100-year water surface elevations do not encroach onto the freeway, but that limited mapping made it impossible to determine the extent of encroachment into State Right of Way. It was recommended to minimize the proposed change in pavement profile in the middle section (Segments 4-6) of the proposed project as a precaution.
This concern was taken into consideration by the design team in determining the pavement strategy in this section of the project (Segments 4-6). Grind and replace AC will raise the profile approximately 3 inches at the edge of the shoulder, rather than the typical 8.5 inches for AC Overlay rehabilitation.

The Amended Location Hydraulics Study (September 2018), completed after the pavement strategy was revised, states that the limited sliver fills associated with the 3-inch pavement overlay will have no significant impact on the base floodplain, where present.

The project will have a less than significant impact on the base floodplain, where present.

2.2.2.2 Water Quality and Storm Water Runoff

Regulatory Setting

The primary federal law regulating water quality is the Federal Clean Water Act (CWA), issued by the United States Environmental Protection Agency (U.S. EPA). The U.S. EPA delegated its authority in California to the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). Each RWQCB prepares and adopts its water quality control plan (Basin Plan), which is a master policy document for managing surface and groundwater quality in the region. The SWRCB and RWQCBs issue permits that implement the standards included in the Basin Plan as well as other requirements of the State Water Code and the CWA.

This project is under jurisdiction of the San Francisco Regional Water Quality Control Board.

Section 404 of the CWA regulates discharges to Waters of the US and is administered nationwide by the United States Army Corps of Engineers (USACE). CWA Section 401 requires that states certify 404 permits, and such 401 certifications is provided in California by the SWRCB or RWQCBs.

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit system, which is a framework for regulating municipal and industrial storm water discharges. The current Caltrans statewide NPDES storm water permit (Order No. 2012-0011-DWQ, as amended 2014-0077-DWQ), applies to Caltrans projects which completed their Project Initiation Document on or after July 1, 2013.

The statewide Construction General Permit (CGP) (2009-0009-DWQ, CAS000002, as amended by 2010-0014-DWQ and 2012-0006-DWQ) for construction activities applies to storm water discharges from land where clearing, grading, and excavation result in an acre or more of disturbed soil area.

Affected Environment

The following analysis of potential impacts to water quality is derived from the Water Quality and Storm water Runoff Report (September 7, 2018).

The proposed project is located in the South San Ramon Creek Sub-watershed within the Arroyo de la Laguna Watershed.
Runoff from the project area collects in drainage inlets and roadway side ditches, and flows through the drainage system until it discharges to Alameda Creek.

**Environmental Consequences**

Construction impacts to receiving waterbodies that should be addressed include turbidity and pH, or as listed in the CGP. These could result from the discharge of contaminants from concrete and sediment beyond the site perimeter.

Standard features that prevent or reduce impacts, temporary Construction Site BMPs will be deployed for sediment control and material management. These may include but are not limited to cover, check dam, drainage inlet protection, fiber roll, silt fence, concrete wash-out, and street sweeping. This project will treat approximately 5 acres of new impervious surfaces. Prior to commencement of construction activities, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared. The SWPPP addresses potential temporary impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable. Treatment BMPs (bioswales and solid waste screens) will address post-construction water quality impacts and remove pollutants from storm water runoff before it is discharged to local water bodies.

Caltrans expects that impacts to water quality will be less than significant.

**2.3 Biological Resources**

A Natural Environmental Study (NES) was completed for the project on September 6, 2018. As part of the study, a Biological Study Area (BSA) for the project was defined using the following criteria: the area that may be directly or indirectly affected by the proposed project, including all areas where project activities will occur and adjacent sensitive habitats. The BSA for the proposed project covers all of Caltrans ROW within the project area and is approximately 382 acres, of which 216 acres are paved roadway (Figure 3). Within the BSA 44 acres are suitable habitat for listed species.
Figure 3. Biological Study Area
2.3.1 Natural Communities of Special Concern
Habitat within the BSA includes: annual and perennial grassland, coast live oak woodland, and California Sycamore woodland as well as creek channels and other water features.

2.3.1.1 Wetlands and other Waters

Affected Environment

Hydrological resources found within the BSA can be found in the form of soil-banked ditches and concrete-lined ditches. Named waterways within the BSA include Laguna Creek, Arroyo de la Laguna, South San Ramon Creek, and Dublin Creek. Of these streams, only Arroyo de la Laguna and South San Ramon Creek cross the BSA as open channels. The remaining streams all pass beneath the BSA via culverts.

The project biology consultants conducted a wetland delineation on field visits during the late spring (May/June 2018). No wetlands were found within the BSA. The field delineation identified twelve other water features (ephemeral channels, creeks and creek tributaries) proposed to be jurisdictional, totaling 1.8 acres.

Environmental Consequences

No waters subject to USACE jurisdiction will be impacted.

2.3.2 Special-Status Plant Species

Affected Environment

Based on initial habitat mapping conducted in May 2018, 20 special-status plant species were considered to have at least some potential to occur within the BSA. Protocol-level surveys were completed between March and August 2012 for the I-680 Freeway Performance Initiative (FPI) Project according to the botanical survey guidelines of the USFWS (USFWS 1996b), CDFW (CDFG 2009), and CNPS (CNPS 2001). No federally or state-listed plants, or plants with California Rare Plant Ranks (RPR), were observed in the BSA.

Environmental Consequences

Based on the survey results, and the unlikelihood of substantial change in environment since these surveys, no special-status plant species are expected to occur within the BSA. Caltrans expects the impact to plant species to be less than significant.

2.3.3 Special-Status Animal Species

Affected Environment

According to the NES a total of 25 wildlife species were initially considered to have potential to occur within the BSA. A wildlife habitat assessment was conducted within the BSA in May 2018, and 13 of these species were dropped from consideration based on a lack of suitable habitat. The remaining 12 species have a low to high potential to occur within the BSA, including the following federally and/or state-listed species:

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- California tiger salamander (*Ambystoma californiense*)
- California red-legged frog (*Rana draytonii*)
- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
- Western pond turtle (*Actinemys marmorata*)
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)
- Pallid bat (*Antrozous pallidus*)
- Townsend’s big-eared bat (*Corynorhinus townsendii*)
- Yuma myotis (*Myotis yumanensis*)
- Great blue heron (*Ardea herodias*)
- Tricolored blackbird (*Agelaius tricolor*)
- Western burrowing owl (*Athene cunicularia hypugaea*)
- White-tailed kite (*Elanus leucurus*)

**CESA and/or FESA Listed Species**

Three species, California tiger salamander, California red-legged frog, and Alameda whipsnake, are listed as threatened or endangered under either the California Endangered Species Act (CESA), the Federal Endangered Species Act (FESA) or both. Under CESA or FESA, mitigation 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. Suitable habitat (annual and perennial grassland and coast live oak woodland) is identical for all three species within the proposed project limits. Because of the overlapping impacts to habitat, the proposed mitigation includes all three species.

1. **California Tiger Salamander**

The Central California Distinct Population Segment of California tiger salamander was listed as federally threatened in 2004 and as threatened under CESA, on May 20, 2010.

**Affected Environment**

There are 16 occurrences of California tiger salamander recorded within 2 miles of the BSA, seven of which are within the species’ known 1.3-mile dispersal range. All occurrences were documented in the southern end of the BSA, among undeveloped grassy hills south of State Route 84, in the vicinity of San Antonio Reservoir, Sunol Regional Wilderness, the town of Sunol, and the area south of Pleasanton.

There is no designated critical habitat for the Central California Distinct Population Segment of California tiger salamander within the BSA. There is no suitable breeding habitat for California tiger salamander within the BSA. All aquatic features are perennial streams or associated streamside wetlands, which flow too quickly for the species to breed successfully.

Suitable upland habitat is present in grassland and oak woodland habitats within the BSA. California ground squirrel burrows are relatively abundant on the grassy hillsides within and adjacent to the Caltrans Right of Way along I-680, and these could be utilized as upland areas of refuge where populations of species can survive through a period of unfavorable conditions. As such, California tiger salamanders have potential to occur in grassland and oak woodland habitats in the BSA between Bernal Avenue and Koopman Road.
California tiger salamander is not expected to occur within the BSA north of Bernal Avenue due to urban development on both sides of I-680.

2. **California red-legged frog**

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

**Affected Environment**

There are 10 occurrences of California red-legged frog recorded in the California Natural Diversity Database (CNDDB) within 2 miles of the BSA, three of which are within 1 mile. Several of these occurrences are located among the undeveloped grassy hills flanking the part of the BSA east of I-680, in the vicinity of San Antonio Reservoir, Sunol Regional Wilderness, and the town of Sunol. Several more are located in the hills north of I-580 west of Dublin, as well as the area east of Dublin and north of Pleasanton.

No critical habitat is designated for the California red-legged frog within the BSA. The nearest designated California red-legged frog critical habitat is located approximately 1.23 miles southeast of the southern portion of the BSA and approximately 1.2 miles west of the north portion of the BSA.

There are numerous ponds and streams within 1 mile of the BSA that could contain suitable breeding habitat. Adults and juveniles originating from these ponds and streams may potentially use the BSA for upland refuge. As such, California red-legged frog has potential to occur in grassland, oak woodland, riparian woodland, freshwater marsh, and creek channel habitats within the BSA.

3. **Alameda whipsnake**

The Alameda whipsnake is listed as threatened under both FESA and CESA. It was federally listed in 1997 and state listed in 1971.

**Affected Environment**

Due to the sensitivity of the species, the specific localities of Alameda whipsnake occurrences are suppressed in CNDDB, and only the quad in which each occurrence is located is given. There are two recorded occurrences of Alameda whipsnake within the three-quad CNDDB search area around the BSA.

There is no scrub habitat within the BSA that could harbor a resident population of Alameda whipsnake. However, grassland, oak woodland, and riparian woodland habitats within the BSA may all be used by individuals dispersing between other, more suitable, areas. They are not expected to occur in urbanized areas.

There are no critical habitat areas designated for Alameda whipsnake within the BSA. The nearest designated Alameda whipsnake critical habitat is adjacent to the west of the project area. This critical habitat unit generally includes all of the undeveloped hills west of I-680, north of Niles Canyon Road, and south of I-580. The closest area to the BSA is along an approximately one half-mile stretch between PM 13.4 and 14.1, located roughly 1 mile north of I-680 Pavement Rehabilitation  •  16
the Koopman Road exit. Alameda whipsnake has potential to occur in grassland, oak woodland, and riparian woodland habitats in the section between Bernal Avenue and Koopman Road of the BSA.

**Environmental Consequences to CESA or FESA Listed Species**

Excavation, fill, and other construction activities will impact approximately 2.5 acres of grassland and oak woodland habitats for California tiger salamander, California red-legged frog, and Alameda whipsnake. Temporary impacts will account for around 2.4 acres, and permanent impacts will be approximately 0.15 acres. The habitat within the PCA is considered to be of marginal quality for all three species because of the high levels of roadside disturbance associated with I-680. Typical breeding habitats for each species are not present within the PCA, and thus breeding behavior is not expected to be impacted.

California tiger salamander, California red-legged frog and Alameda whipsnake within the Project Construction Area (PCA) may suffer direct harassment, harm, injury or mortality as a result of construction activities. Project construction activities will impact grassland and oak woodland habitats in the BSA that provides potential aestivation (hibernation during dry conditions), foraging, and dispersal habitat for California tiger salamander and California red-legged frog, and potential foraging, migration and hibernation for Alameda whipsnake.

The proposed modifications to annual and perennial grassland and coast live oak woodland habitat within the BSA may have a potential adverse impact on the behavioral patterns of some individuals of California tiger salamanders and California red-legged frogs, including foraging, migration, and aestivation.

No impacts to creek channel habitat will occur as a result of this project. The traffic lanes of I-680 already present a complete passage barrier to all three species.

The project will not alter any of the existing crossings under I-680 that could be used by Alameda whipsnake, such as the Koopman Road underpass. Therefore, the project is not expected to contribute to further fragmentation of Alameda whipsnake populations.

Caltrans expects the impacts to special status animal species to be less than significant.

**Avoidance, Minimization, and/or Mitigation Measures for CESA or FESA Listed Species**

The AMMs listed in Section 2.3.4 below will reduce the potential for effects to California tiger salamander, California red-legged frog, and Alameda whipsnake during project construction. Table 1 shows the current estimate of impacts to suitable habitat within the range of the three species, and how the proposed mitigation acreage was calculated.

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Habitat Impact (Acres)</th>
<th>Compensation (Acres)</th>
<th>Total Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporary</td>
<td>Permanent</td>
<td>1:1 Temp ratio</td>
</tr>
<tr>
<td>Annual &amp; Perennial Grassland</td>
<td>1.70</td>
<td>0.02</td>
<td>1.70</td>
</tr>
<tr>
<td>Coast Live Oak Woodland</td>
<td>0.73</td>
<td>0.12</td>
<td>0.73</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2.43</strong></td>
<td><strong>0.14</strong></td>
<td><strong>2.43</strong></td>
</tr>
</tbody>
</table>

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Caltrans proposes that temporary impacts to CESA and/or FESA listed species of less than 2.5 acres will be addressed by on-site restoration of temporarily impacted areas. Caltrans proposes just under 0.5 acres of off-site compensation for permanent impacts.

The proposal is based on the current estimate of impacts to suitable habitat within the range of the three species. Caltrans proposes this compensatory mitigation for California tiger salamander, California red-legged frog, and Alameda whipsnake. This mitigation may be used to satisfy the conditions of multiple agencies and jurisdictions including CESA, and CEQA processes.

4. **Western pond turtle**

The western pond turtle (*Emys marmorata*) is a California species of special concern.

**Affected Environment**

There are six occurrences of western pond turtle recorded in the CNDDB within 2 miles of the BSA (CDFW 2018a), two of which are within 1 mile. These occurrences are all located in ponds and streams in relatively undeveloped areas.

Suitable aquatic habitat is present within and adjacent to the BSA at Arroyo de la Laguna, Laguna Creek, and South San Ramon Creek. Additionally, individuals travelling into uplands for nesting or dispersal from other streams or ponds in the vicinity may use grassland, oak woodland, riparian woodland, or freshwater marsh habitats within the BSA. Western pond turtles may occur within these habitats between I-580 and Koopman Road undercrossing. They are not expected to occur in more urbanized areas, though they may occur between Bernal Avenue and I-580 because suitable aquatic habitat is present in Arroyo de la Laguna, which is immediately adjacent to I-680 along this stretch.

**Environmental Consequences**

Direct impacts to western pond turtle may result from earth-moving activities. Indirect impacts may result from habitat exclusion, and construction activities could include water quality degradation from erosion or sediment loading. The water quality impacts are unlikely, given the proposed AMMs and Caltrans BMPs.

Caltrans expects impacts to western pond turtle to be less than significant.

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

The AMMs listed in Section 2.3.4, pre-construction surveys, including wildlife exclusion fencing, and Caltrans standard BMPs will reduce the potential for effects to western pond turtle during project construction.

5. **San Francisco dusky-footed woodrat**

The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a California species of special concern and is locally common in undisturbed portions of habitat throughout its range. It is a subspecies that occurs only in the southern half of the Bay Area (south of Golden Gate through the Santa Cruz Mountains to the Pajaro River and in the East Bay, south of the Suisun Bay along the western slope of the Diablo Range).
Affected Environment

There is one occurrence of San Francisco dusky-footed woodrat recorded in the CNDDB within 2 miles of the BSA. Another was recorded in 2006 approximately 1.5 miles northwest of the BSA, along Alameda Creek near the eastern end of Niles Canyon.

San Francisco dusky-footed woodrat nests were not observed during field reconnaissance in May 2018. However, they may occur in oak woodland and riparian woodland habitats within the BSA.

Environmental Consequences

Riparian and oak woodland habitats within the BSA provide habitat for woodrats. Construction could disturb the woodrats enough to cause nest abandonment.

Caltrans expects impacts to San Francisco dusky-footed woodrat to be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

The AMMs listed in Section 2.3.4, including woodrat surveys, and nest removal in permanent impact areas, will reduce the potential for effects to San Francisco dusky-footed woodrat during project construction.

6. Bat Species

Bats are widespread within California, and may be found in any habitat. Three special-status bat species were considered during the preparation of this report based on range, habitat, and recorded occurrences in the region: Pallid Bat, Townsend’s Big-eared Bat, and Yuma Myotis.

Affected Environment

A habitat assessment for bat species along I-680 was conducted for the I-680 FPI Project in 2013. The survey included sections of the current Project BSA.

No bats were observed in the habitat assessment, but all the bridges within the BSA were found to have suitable day roost and night roost habitat. Confirmed night roosts were observed at 10 bridges, as evidenced by urine staining and guano deposits. Based on the amount of urine staining and size of guano deposits, some night roosts appeared to be routinely used by many bats simultaneously, while others appeared to be used only occasionally by single bats or small groups. The most heavily used night roosts were located at the bridges over Arroyo de la Laguna.

Environmental Consequences

All work on bridges, the placement of concrete barrier on bridge deck, will be outside of potential bat roosting areas. Work areas for bridge work will also be away from the underside of bridges and potential roosting areas. Impacts to roosting bats are not anticipated and are considered highly unlikely.

Caltrans expects impacts to bats to be less than significant.
7. Migratory Bird Species

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

In addition to common bird species, several special-status bird species have at least some potential to nest and/or forage within the BSA, including:
- Cooper’s hawk (Accipiter cooperii)
- Sharp-shinned hawk (Accipiter striatus)
- Tricolored blackbird (Agelaius tricolor)
- Golden eagle (Aquila chrysaetos)
- Great blue heron (Ardea herodias)
- Western burrowing owl (Athene cunicularia)
- Ferruginous hawk (Buteo regalis)
- Northern harrier (Circus cyaneus)
- Yellow warbler (Dendroica petechia brewsteri)
- White-tailed kite (Elanus leucurus)
- California horned lark (Eremophila alpestris actia)
- Prairie falcon (Falco mexicanus)
- American peregrine falcon (Falco peregrinus anatum)
- Loggerhead shrike (Lanius ludovicianus)

Affected Environment

In general, habitat within the BSA is of marginal quality due to continual human disturbance from I-680. However, all land cover types within the BSA except for paved roads may be used by one or more bird species for nesting. Raptors and smaller bird species may nest in the trees comprising the woodland areas of the BSA, and many other birds may nest among grassland land cover types. Urban areas may also provide suitable nesting habitat in street trees and landscape plantings. Riparian areas are particularly attractive for nesting birds.

Bridges on I-680 provide habitat for several cliff and cavity-nesting bird species. During the habitat assessment for roosting bats, biologists observed cliff swallow mud nests attached to the undersides of several of the bridges in the BSA. In some bridges, northern rough-winged swallows were observed flying into the weep holes that allow drainage from the interior of box-girder bridges, and were presumably nesting inside. White-throated swifts, a crevice-nesting species that is commonly found nesting in freeway overpasses, were observed and heard at several bridges within the BSA. All of these bird species and their nests are protected under the MBTA and California Fish and Game Code. Nesting material such as dry grass and twigs was visible in many of the weep holes within the BSA, though some of these may have been nests of non-protected European starlings.

Environmental Consequences

The proposed project could result in temporary loss or disturbance of habitats that are used by nesting migratory birds. During the road rehabilitation, common migratory bird species may be
temporarily excluded due to habitat alteration or disturbed by noise from construction equipment.

Caltrans expects impacts to migratory birds to be less than significant.

2.3.4 General Avoidance, Minimization, and/or Mitigation Measures

1. Permits. Caltrans will include a copy of the BO and Incidental Take Permit 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 BO and the Incidental Take Permit.

2. Biological Monitoring. A USFWS/CDFW-approved biologist(s) will be on-site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. The biologist(s) will keep copies of applicable permits in their possession when onsite. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall be given the authority to communicate either verbally, by telephone, email or hardcopy with all project personnel to ensure that take of special-status 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 special-status 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.

3. 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.

4. Pre-construction Surveys. Prior to any ground disturbance, pre-construction surveys will be conducted by an agency-approved biologist for listed species. Exact timing requirement of pre-construction surveys to be determined in the biological permits. 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.

5. Construction Activities around Bat Roosts. Any area under a confirmed day or night bat roost that is within visual sight of bats will be designated as an ESA. To minimize impacts to day roosts during the non-volant period when young are present but cannot fly (May 1 to July 31), work should not occur directly under or adjacent to the roost. To minimize impacts to night roosts, construction activities should not occur immediately
around a roost site between 10:00 p.m. and sunrise, in particular during the period of highest night-roost use from spring to fall. Clearing of vegetation and grubbing around roosts is to be minimized wherever possible. Combustion equipment (e.g., pumps, generators, vehicles) should not be used immediately under the roost. The presence of personnel under roost sites should be minimized, particularly during the evening exodus. Lights should not be placed in a location where a roost site would be illuminated.

6. Prevention of Wildlife Entrapment. To prevent inadvertent entrapment of special-status species during construction, excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be 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 special-status 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/CDFW will be contacted by telephone for guidance. The USFWS/CDFW will be notified of the incident by telephone and electronic mail within 48 hours. Exact requirements to prevent wildlife entrapment will be specified in the biological permits.

7. Wildlife Exclusion Fencing. The limits of concrete barrier and drainage replacement activities within suitable habitat for special-status species will be delineated with high visibility wildlife exclusion fencing. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated project construction area.

8. Listed Species On-Site. The Resident Engineer will immediately contact the agency-approved project biologist(s) in the event that an Alameda whipsnake, California red-legged frog, or California tiger salamander is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency approved-protocol for removal has been established.

9. Work Window for California Tiger Salamander and California red-legged frog. All work within suitable habitat for California tiger salamander and Alameda whipsnake will occur between April 15 and October 15, when the species is unlikely to be active and there is less potential for an individual to enter the work area.

10. Survey 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, pre-construction surveys would be conducted within the BSA prior to clearing and grubbing of vegetation. Exact timing requirement for nesting bird surveys will be determined in the biological permits. If pre-construction surveys indicate the presence of active 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.

11. Pre-construction Surveys for Nesting Birds. Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of
construction for activities occurring during the breeding season (February 1 to September 30).

12. Buffer for Nesting Birds. If work is to occur within 100 feet, or as specified in the biological permits, of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species’ sensitivity to disturbance, and the intensity/type of potential disturbance.

13. Dusky-footed Woodrat Surveys. A qualified biologist will conduct a preconstruction survey of the BSA prior to the start of construction in woodland areas to determine if woodrat nests are present within areas of temporary and permanent impact. Timing requirement for Woodrat Surveys will be specified in the biological permits. The need for nest dismantling and relocation will be determined by Caltrans in coordination with CDFW.

14. Material Storage. California tiger salamanders, California red-legged frogs, and Alameda whipsnakes 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 immediately prior to being moved.

15. Water Quality Inspection. Biologist(s), in consultation with Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater BMPs are adequate.

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

17. Night Work. To the extent practicable, nighttime construction will be minimized.

18. Night Lighting. Artificial lighting of the proposed Project Construction Area (PCA) during nighttime hours will be minimized to the maximum extent practicable.

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

20. Caltrans 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 PCA 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.

21. 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.

22. 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 PCA to the maximum extent practicable, pursuant to Executive Order 13112.

Proposed FESA and CESA Mitigation

As shown in Table 1, Caltrans proposes to include compensatory mitigation for potential impacts to species listed by the FESA. Caltrans proposes that compensatory mitigation in the form of habitat restoration and preservation will be provided at a 1:1 ratio of mitigation acreage to impact acreage for temporary habitat impacts (on-site restoration), and a 3:1 ratio for permanent habitat impacts (off-site mitigation).

As part of the project, Caltrans will provide compensatory mitigation for impacts to habitat for California tiger salamander, California red-legged frog, and Alameda whipsnake. A portion of the overall mitigation acreage requirement will be satisfied by restoring temporarily impacted areas (on-site mitigation). The remaining acreage requirement will be satisfied either through purchase of credits at an approved mitigation bank, or through off-site mitigation. Since some species have similar habitat requirements, some mitigation acreage may be considered as having value for several species, and consequently would be applied as multi-species conservation credits when tracking Caltrans’ fulfillment of the proposed mitigation.

2.4 Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO₂), methane
(CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.¹ In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.² The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

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).

Regulatory Setting

This section outlines federal and 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.³ This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability.”⁴ 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. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

² https://www.arb.ca.gov/cc/inventory/data/data.htm
³ https://www.fhwa.dot.gov/environment/sustainability/resilience/
⁴ https://www.sustainablehighways.dot.gov/overview.aspx
The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation’s dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

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) Indian 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.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel 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 Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer’s average fuel economy for the portion of its vehicles produced for sale in the United States.

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

U.S. EPA, in conjunction with the National Highway Traffic Safety Administration (NHTSA), issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010 and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules’ long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered EPA to reopen the review and reconsider the mileage target.

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5 https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy
NHTSA and EPA issued a Final Rule for “Phase 2” for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO₂ emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

State

With the passage of legislation including State Senate and Assembly bills and executive orders, California has been innovative and proactive in addressing GHG emissions and climate change.

Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.
Executive Order S-3-05 (June 1, 2005): The goal of this executive order (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 32 in 2006 and SB 32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.” 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 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.

Executive Order 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.

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

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires 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.

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

Executive Order B-16-12 (March 2012) 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.

Executive Order B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order 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$_2$e). Finally, it 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.
Senate Bill 32, (SB 32) Chapter 249, 2016, 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.

Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. 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. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. 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. As part of its supporting documentation for the updated Scoping Plan, ARB released the GHG inventory for California. ARB is responsible for maintaining and updating California’s GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 5 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO2e. The 2018 edition of the GHG emissions inventory found total California emissions of 429 MMTCO2e for 2016.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMTCO2e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO2e.

FIGURE 4  2020 BUSINESS AS USUAL (BAU) EMISSIONS PROJECTION 2014 EDITION

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7 2018 Edition of the GHG Emission Inventory Released (July 2018): [https://www.arb.ca.gov/cc/inventory/data/data.htm](https://www.arb.ca.gov/cc/inventory/data/data.htm)
8 The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)
Project Analysis
An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG.\(^9\) In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best faith effort to describe the potential GHG emissions related to the proposed project.

Operational Emissions

The proposed project is a pavement rehabilitation project, which is a type of project most likely to have minimal or no increase in operational GHG emissions. This project would not add highway capacity or otherwise increase traffic volumes. Construction emissions will be unavoidable but the project will likely result in long-term GHG benefits due to improved operation from smoother pavement surfaces.

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\(^9\) This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).
Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, 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.

Table 2. Construction-related Greenhouse Gas Emissions

<table>
<thead>
<tr>
<th></th>
<th>Construction-related GHG Emissions</th>
<th>TOTAL</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Parameters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CO₂ (tons)</td>
<td>CH₄ (tons)</td>
</tr>
<tr>
<td>Annual</td>
<td>1309.94</td>
<td>0.17</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2619.87</td>
<td>0.33</td>
</tr>
</tbody>
</table>

The estimated total amount of CO₂ produced during construction in 24 months is 2619.87 tons. Specific project measures that will contribute to the reduction of construction GHG emissions are as follows:

1. Use electricity-operated equipment where possible.
2. Recycle construction debris to the maximum extent feasible.
3. Caltrans Standard Specification 14-9.02, Air Pollution Control, requires contractors to comply with all applicable air-pollution-control rules, regulations, ordinances, and statutes.

Greenhouse Gas Reduction Strategies

Statewide Efforts

In an effort to further the vision of California’s GHG reduction targets outlined by AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (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 farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state’s climate adaptation strategy, Safeguarding California.
The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown’s key pillars sets the ambitious goal of reducing today’s petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester 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 a new 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. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California’s future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

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 per capita
- 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 funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in Caltrans Activities to Address Climate Change (2013).

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 activities undertaken by Caltrans statewide 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.

1. Use lighter-colored pavement where feasible;
2. Tree and vegetation removal will be minimized. Replacement Highway Planting will be provided in all areas of highway planting removal where Right of Way allows. Trees provide cooling shade and absorb CO₂.
3. Use electricity-operated equipment where possible during construction.
4. Recycle construction debris to the maximum extent feasible.
5. Caltrans Standard Specification 14-9.02, Air Pollution Control, requires contractors to comply with all applicable with air-pollution-control rules, regulations, ordinances, and statutes.

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

**Federal Efforts**
At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011,10 outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing 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.”11

To further the DOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).12 This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation’s transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.13

**State Efforts**
On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California’s vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea-level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise

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10 https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience
12 https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm
13 https://www.fhwa.dot.gov/environment/sustainability/resilience/
Assessment Report)\textsuperscript{14} was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed The California Climate Adaptation Strategy (Dec 2009),\textsuperscript{15} which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as Safeguarding California: Reducing Climate Risk (Safeguarding California Plan).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the State of California Sea-Level Rise Interim Guidance Document (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided “guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California,” specifically, “information and recommendations to enhance consistency across agencies in their development of approaches to SLR.”\textsuperscript{16}

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation, and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

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.

\textsuperscript{15} \url{http://www.climatechange.ca.gov/adaptation/strategy/index.html}
\textsuperscript{16} \url{http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/}
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.

Consultation in accordance Section 106 with interested Native American parties was initiated via a letter detailing the project description and location on June 19, 2017. Follow-up phone calls were placed to each party on July 10, 2017.

Technical Assistance with USFWS was requested on August 8, 2018.
Chapter 4 – List of Preparers

This document was prepared by the following Caltrans District 4 staff and consultants:

Caltrans District 4 Department staff


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Ellen Doudna, Environmental Planner, Office of Environmental Analysis. Contribution: Coordination of Environmental Review; Preparation of Environmental Document.

Brian Gassner, Senior Environmental Planner, Branch Chief, Office of Environmental Analysis. Contribution: Environmental Document Review; Project Environmental Review Oversight.


Daisy Laurino, Transportation Engineer, Office of Environmental Engineering. Contribution: Construction-Related Vibration Assessment; Comments from the Air/Noise/Energy Branch Memorandum of September 13, 2018.


Mark Morancy, Senior Transportation Engineer, Office of Hydraulics. Contribution: Location Hydraulics Study.

Jack Siauw, Project Manager, Office of Project Management Alameda County. Contribution: Project Manager.

Craig Tomimatsu, Senior Transportation Engineer, Office of Hydraulics. Contribution: Amended Location Hydraulics Study Memorandum.
Christopher Wilson, Senior Transportation Engineer, Office of Environmental Engineering. Contribution: Comments from the Hazardous Waste Memorandum; email correspondence on standard special provisions for the Environmental Commitments Record.

John Yeakel, Senior Environmental Planner Natural Sciences, Branch Chief, Office of Biological Sciences and Permits. Contribution: Biological Study Review and Project Biological Review Oversight.

Garcia and Associates, Consultants

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Meera Velu, Biologist. Contribution: Natural Environmental Study

Cynthia Breene, Biologist. Contribution: Vegetation Typing, Wildlife Habitat Assessment

Constance Ganong, Botanist. Contribution: Vegetation Typing, Wetland Delineation

Sumudu Welaratna, Biologist. Contribution: Vegetation Typing, Wetland Delineation
Chapter 5 – Distribution List

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Representative Mike Honda
United States House of Representatives 17th District
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Ellen Corbett
California State Senate – 10th District
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Bill Quirk
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Rob Bonta
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City Hall
455 East Calaveras Boulevard
Milpitas, CA 95035

Mayor Lily Mei
City of Fremont
3300 Capitol Ave.
Fremont, CA 94538

Mayor Jerry Thorne
City of Pleasanton
200 Old Bernal Avenue
Pleasanton, CA 94566

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Federal Agencies

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

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

US Army Corps of Engineers, Sacramento District
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Sacramento, CA 95814

U.S. Fish and Wildlife Service
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Sacramento, CA 95825
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Sacramento, CA 95812-3044

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Chief Executive Officer
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San Francisco, CA 94109

California Air Resources Board
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Sacramento, CA 95812

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Sacramento, CA 95814

California Department of Fish & Wildlife
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Sacramento, CA 92298

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California Public Utilities Commission
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Sacramento, CA 95812

Native American Heritage Commission
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Regional Water Quality Control Board
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Oakland, CA 94612

California Department of Housing and
Community Development
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Sacramento, CA 95833

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Metropolitan Transportation Commission
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Oakland, CA 94607

East Bay Regional Park District
Chris Barton, Senior Planner
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Alameda County
Clerk of the Board of Supervisors
1221 Oak Street, Suite 536
Oakland, CA 94612
Alameda County
Public Works Agency Director
Daniel Woldensenbet
399 Elmhurst Street
Hayward, CA 94544

Local Agencies

Steve Kirkpatrick, City Engineer
City of Pleasanton
123 Main Street
Pleasanton, CA 94566

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

Jim Pierson, Public Works Director
City of Fremont
P.O. Box 5006
Fremont, CA 94537
Appendix A. CEQA Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (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 Chapters 1 and 2 for a detailed discussion of these features. For a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.
I. AESTHETICS: Would the project:

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

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

c) Substantially degrade the existing visual character or quality of the site and its surroundings? ☐ ☐ ☒ ☒

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

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

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? ☐ ☐ ☒ ☒

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

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? ☐ ☐ ☒ ☒

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

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? ☐ ☐ ☒ ☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

<table>
<thead>
<tr>
<th>a) Conflict with or obstruct implementation of the applicable air quality plan?</th>
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<td>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</td>
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<tr>
<td>c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?</td>
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<td>d) Expose sensitive receptors to substantial pollutant concentrations?</td>
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<td>e) Create objectionable odors affecting a substantial number of people?</td>
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<td>No Impact</td>
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IV. BIOLOGICAL RESOURCES: Would the project:

<p>| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | Potentially Significant Impact |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | Potentially Significant Impact |</p>
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<td>c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</td>
<td>[ ] Potentially Significant Impact</td>
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<tr>
<td>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?</td>
<td>[ ] Potentially Significant Impact</td>
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<td>e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</td>
<td>[ ] Potentially Significant Impact</td>
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<tr>
<td>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?</td>
<td>[ ] Potentially Significant Impact</td>
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**V. CULTURAL RESOURCES:** Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? [ ] Potentially Significant Impact | [ ] Less Than Significant with Mitigation | [ ] Less Than Significant Impact | [x] No Impact

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? [ ] Potentially Significant Impact | [ ] Less Than Significant with Mitigation | [x] Less Than Significant Impact | [ ] No Impact

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? [ ] Potentially Significant Impact | [ ] Less Than Significant with Mitigation | [ ] Less Than Significant Impact | [x] No Impact

d) Disturb any human remains, including those interred outside of dedicated cemeteries? [ ] Potentially Significant Impact | [ ] Less Than Significant with Mitigation | [x] Less Than Significant Impact | [ ] No Impact

**VI. GEOLOGY AND SOILS:** Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

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? [ ] Potentially Significant Impact | [ ] Less Than Significant with Mitigation | [ ] Less Than Significant Impact | [x] No Impact

ii) Strong seismic ground shaking? [ ] Potentially Significant Impact | [ ] Less Than Significant with Mitigation | [ ] Less Than Significant Impact | [x] No Impact

iii) Seismic-related ground failure, including liquefaction? [ ] Potentially Significant Impact | [ ] Less Than Significant with Mitigation | [ ] Less Than Significant Impact | [x] No Impact
iv) Landslides?

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

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?

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

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?

VII. GREENHOUSE GAS EMISSIONS: Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this project. The analysis included in the climate change section of this document provides the public and decision-makers as much information about the project as possible. It is Caltrans’ determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project’s direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the climate change section of the document.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

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

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

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
### IX. HYDROLOGY AND WATER QUALITY

Would the project:

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<td>d)</td>
<td>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?</td>
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<td>e)</td>
<td>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?</td>
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<td>f)</td>
<td>For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?</td>
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<td>g)</td>
<td>Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</td>
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<td>h)</td>
<td>Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?</td>
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|   | Violate any water quality standards or waste discharge requirements? | ☐ | ☐ | ☐ | ☒ |
| b) | Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☐ | ☒ |
| c) | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? | ☐ | ☐ | ☐ | ☒ |
| d) | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? | ☐ | ☐ | ☐ | ☒ |
| e) | Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | ☐ | ☐ | ☒ | ☐ |
| f) | Otherwise substantially degrade water quality? | ☐ | ☐ | ☐ | ☒ |
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

j) Inundation by seiche, tsunami, or mudflow

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

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?

XII. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
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<td>d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
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<td>e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?</td>
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<td>f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?</td>
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**XIII. POPULATION AND HOUSING:** Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

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

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

**XIV. PUBLIC SERVICES:**

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

- Fire protection? ☐ ☐ ☐ ☒
- Police protection? ☐ ☐ ☐ ☒
- Schools? ☐ ☐ ☐ ☒
- Parks? ☐ ☐ ☐ ☒
- Other public facilities? ☐ ☐ ☐ ☒
**XV. RECREATION:**

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?  

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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?  

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**XVI. TRANSPORTATION/TRAFFIC:** Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?  

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b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?  

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c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?  

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

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e) Result in inadequate emergency access?  

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f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?  

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**XVII. 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

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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.

XVIII. UTILITIES AND SERVICE SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? ☐ ☐ ☐ ☒

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ☐ ☐ ☐ ☒

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ☐ ☐ ☐ ☒

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? ☐ ☐ ☐ ☒

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments? ☐ ☐ ☐ ☒

f) Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs? ☐ ☐ ☐ ☒

g) Comply with federal, state, and local statutes and regulations related to solid waste? ☐ ☐ ☐ ☒
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**XIX. MANDATORY FINDINGS OF SIGNIFICANCE**

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

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)?

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

The proposed project will not substantially reduce the habitat of any listed species. The proposed project does not threaten to eliminate a plant or animal community, nor will it substantially reduce the number or range of a rare or endangered plant or animal. The proposed project will not have any effect on important examples of the major periods of California history or prehistory. The proposed project has no considerable cumulative impacts. The proposed project will not have environmental effects that would cause substantial adverse effects on human beings.
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Appendix B. Title VI 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 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, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

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, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone (916) 324-8379, TTY 711, email Title.VI@dot.ca.gov, or visit the website www.dot.ca.gov.

Laurie Berman  
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability."
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Appendix C. Avoidance, Minimization and/or Mitigation Measures

Below are the summaries of the avoidance, minimization and/or mitigation measures that would be used in the project. Avoidance and minimization measures (AMMs) are listed below, followed by Mitigation for impacts to Biological Resources. For detailed description of the following measures, refer to the appropriate topic section in Chapter 2.

To ensure that the environmental measures identified in this document are executed at the appropriate times, the following AMMs will 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 contained in the ECR are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable, as prescribed in the ECR.

Avoidance and Minimization Measures

Visual/Aesthetics

1. Bridge barriers will be open “see-through” type barriers to minimize obstruction of view.
2. Tree and vegetation removal will be minimized to the extent feasible.
3. Trees and vegetation outside of clearing and grubbing limits shall be protected from the contractor’s operations, equipment, and materials storage.
4. Replacement Highway Planting will be provided in all areas of highway planting removal where Right of Way allows. Where replacement planting is not possible at the removal location, replacement will be provided in adjacent planting areas along the project corridor.
5. Replaced or upgraded guardrail will be treated to reduce glare and blend with the environment, equivalent to existing treated guardrail within the project corridor.
6. Construction activities in residential areas should limit all construction lighting to within the area of work and avoid light trespass through directional lighting, shielding, and other measures as needed.

Cultural Resources

1. An ESA) will be established to protect the archaeological resource as per Standard Special Provision (SSP) 14-1.02 which will be delineated on project plans and within the specification and estimates package. The ESA will be delineated on the ground with Temporary high-visibility fencing. No construction related activities or staging is permitted within the ESA.
2. If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.
3. If remains are discovered during excavation, all work within 60 feet of the discovery will halt and Caltrans’ Cultural Resource Studies Office will be called. Caltrans Cultural Resource Studies Office staff will assess the remains and, if determined human, will
contact the County Coroner as per Public Resources Code 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 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.

**Hazardous Waste and Materials**


**Hydrology and Floodplain**

1. Within the floodplain, the pavement strategy will minimize change in pavement profile to avoid placing additional fill into the floodplain.

**Water Quality and Stormwater Runoff**

1. To prevent or reduce impacts, temporary Construction Site Best Management Practices (BMPs) will be deployed for sediment control and material management. These include cover, check dam, drainage inlet protection, fiber roll, silt fence, concrete wash-out, and street sweeping.

2. Treatment BMPs address post-construction water quality impacts and remove pollutants from storm water runoff before it is discharged to receiving waters. This project will need to treat 5.3 acres of new impervious surface. The preferred treatment technologies usually include bio-filtration strips and swales or infiltration trench.

3. Prior to commencement of construction activities, a SWPPP will be prepared by the Contractor and approved by Caltrans. The SWPPP addresses potential temporary impacts via implementation of appropriate BMPs, such as those mentioned above, to the Maximum Extent Practicable.

4. Disturbed soil areas will be stabilized by paving or erosion control.

**Biological Resources**

1. Permits. Caltrans will include a copy of the BO and ITP 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.
2. **Biological Monitoring.** A USFWS/CDFW-approved biologist(s) will be on-site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. The biologist(s) will keep copies of applicable permits in their possession when onsite. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall be given the authority to communicate either verbally, by telephone, email or hardcopy with all project personnel to ensure that take of special-status 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 special-status 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.

3. **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.

4. **Pre-construction Surveys.** Prior to any ground disturbance, pre-construction surveys will be conducted by an agency-approved biologist for listed species. Survey timing requirement to be determined in the biological permits. 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.

5. **Construction Activities around Bat Roosts.** Any area under a confirmed day or night bat roost that is within visual sight of bats will be designated as an ESA. To minimize impacts to day roosts during the non-volant period when young are present but cannot fly (May 1 to July 31), work should not occur directly under or adjacent to the roost. To minimize impacts to night roosts, construction activities should not occur immediately around a roost site between 10:00 p.m. and sunrise, in particular during the period of highest night-roost use from spring to fall. Clearing of vegetation and grubbing around roosts is to be minimized wherever possible. Combustion equipment (e.g., pumps, generators, vehicles) should not be used immediately under the roost. The presence of personnel under roost sites should be minimized, particularly during the evening exodus. Lights should not be placed in a location where a roost site would be illuminated.

6. **Prevention of Wildlife Entrapment.** To prevent inadvertent entrapment of special-status species during construction, excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be 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 special-status 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/CDFW will be contacted by telephone for guidance. The USFWS/CDFW will be notified of the incident by telephone and electronic mail within 48 hours. Exact requirements to prevent wildlife entrapment will be specified in the biological permits.

7. Wildlife Exclusion Fencing. The limits of concrete barrier and drainage replacement activities within suitable habitat for special-status species will be delineated with high visibility wildlife exclusion fencing. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated project construction area.

8. Listed Species On-Site. The Resident Engineer will immediately contact the agency-approved project biologist(s) in the event that an Alameda whipsnake, California red-legged frog, or California tiger salamander is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency approved-protocol for removal has been established.

9. Work Window for California Tiger Salamander and California red-legged frog. All work within suitable habitat for California tiger salamander and Alameda whipsnake will occur between April 15 and October 15, when the species is unlikely to be active and there is less potential for an individual to enter the work area.

10. Survey 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, pre-construction surveys would be conducted within the BSA prior to clearing and grubbing of vegetation. Exact timing requirement for nesting bird surveys will be determined in the biological permits. If pre-construction surveys indicate the presence of active 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.

11. Pre-construction Surveys for Nesting Birds. Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 1 to September 30).

12. Buffer for Nesting Birds. If work is to occur within 100 feet, or as specified in the biological permits, of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species’ sensitivity to disturbance, and the intensity/type of potential disturbance.

13. Dusky-footed Woodrat Surveys. A qualified biologist will conduct a preconstruction survey of the BSA prior to the start of construction in woodland areas to determine if woodrat nests are present within areas of temporary and permanent impact. Timing requirement for Woodrat Surveys will be specified in the biological permits. The need for...
nest dismantling and relocation will be determined by Caltrans in coordination with CDFW.

14. Material Storage. California tiger salamanders, California red-legged frogs, and Alameda whipsnakes 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 immediately prior to being moved.

15. Water Quality Inspection. Biologist(s), in consultation with Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater BMPs are adequate.

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

17. Night Work. To the extent practicable, nighttime construction will be minimized.

18. Night Lighting. Artificial lighting of the proposed Project Construction Area (PCA) during nighttime hours will be minimized to the maximum extent practicable.

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

20. Caltrans 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 PCA 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.
21. 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.

22. 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 PCA to the maximum extent practicable, pursuant to Executive Order 13112.

Proposed FESA and CESA Mitigation

As shown in the table below, Caltrans proposes to include compensatory mitigation for potential impacts to species listed by the FESA. Caltrans proposes that compensatory mitigation in the form of habitat restoration and preservation will be provided at a 1:1 ratio of mitigation acreage to impact acreage for temporary habitat impacts (on-site restoration), and a 3:1 ratio for permanent habitat impacts (off-site mitigation).

As part of the project, Caltrans will provide compensatory mitigation for impacts to habitat for California tiger salamander, California red-legged frog, and Alameda whipsnake. A portion of the overall mitigation acreage requirement will be satisfied by restoring temporarily impacted areas (on-site mitigation). The remaining acreage requirement will be satisfied either through purchase of credits at an approved mitigation bank, or through off-site mitigation. Since some species have similar habitat requirements, some mitigation acreage may be considered as having value for several species, and consequently would be applied as multi-species conservation credits when tracking Caltrans’ fulfillment of the proposed mitigation.

### Proposed Mitigation for Impacts to CESA or FESA Listed Species

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Habitat Impact (Acres)</th>
<th>Compensation (Acres)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Temporary</td>
<td>Permanent</td>
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<tr>
<td>Annual &amp; Perennial Grassland</td>
<td>1.70</td>
<td>0.02</td>
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<tr>
<td>Coast Live Oak Woodland</td>
<td>0.73</td>
<td>0.12</td>
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<tr>
<td>Total</td>
<td>2.43</td>
<td>0.14</td>
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## Appendix D. List of Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>AC</td>
<td>Asphalt Concrete</td>
</tr>
<tr>
<td>ACHP</td>
<td>Advisory Council on Historic Preservation</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
</tr>
<tr>
<td>AMMs</td>
<td>avoidance and minimization measures</td>
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<tr>
<td>APE</td>
<td>Area of Potential Effects</td>
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<tr>
<td>BA</td>
<td>Biological Assessment</td>
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<tr>
<td>BMP</td>
<td>Best Management Practice</td>
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<tr>
<td>BO</td>
<td>Biological Opinion</td>
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<tr>
<td>BSA</td>
<td>Biological Study Area</td>
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<tr>
<td>Caltrans</td>
<td>California Department of Transportation</td>
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<td>CAPM</td>
<td>Capital Preventive Maintenance</td>
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<td>CDFG</td>
<td>California Department of Fish and Game</td>
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<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
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<td>CEQA</td>
<td>California Environmental Quality Act</td>
</tr>
<tr>
<td>CESA</td>
<td>California Endangered Species Act</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>CNDDDB</td>
<td>California Natural Diversity Database</td>
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<td>CNPS</td>
<td>California Native Plant Society</td>
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<td>CRHR</td>
<td>California Register of Historic Resources</td>
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<td>CSO</td>
<td>Caltrans Cultural Studies Office</td>
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<tr>
<td>CWA</td>
<td>Clean Water Act</td>
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<tr>
<td>DSA</td>
<td>Disturbed Soil Area</td>
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<tr>
<td>DWR</td>
<td>California Department of Water Resources</td>
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<td>ECR</td>
<td>Environmental Commitments Record</td>
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<tr>
<td>EP</td>
<td>edge of pavement</td>
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<tr>
<td>ESA</td>
<td>environmentally sensitive area</td>
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<tr>
<td>FEMA</td>
<td>Federal Emergency Management Administration</td>
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<tr>
<td>FG</td>
<td>Finished Grade</td>
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<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
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<tr>
<td>FIRM</td>
<td>Flood Insurance Rate Maps</td>
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<tr>
<td>FTIP</td>
<td>Federal Transportation Improvement Program</td>
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<tr>
<td>HMA</td>
<td>Hot Mix Asphalt</td>
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<tr>
<td>HPSR</td>
<td>Historic Property Survey Report</td>
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<tr>
<td>MBGR</td>
<td>Metal Beam Guardrail</td>
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<td>MBTA</td>
<td>Migratory Bird Treaty Act</td>
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<td>MGS</td>
<td>Midwest Guardrail System</td>
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<td>MND</td>
<td>Mitigated Negative Declaration</td>
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<td>NAHC</td>
<td>Native American Heritage Commission</td>
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<tr>
<td>NB</td>
<td>Northbound</td>
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<td>NES</td>
<td>Natural Environment Study</td>
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<td>NFIP</td>
<td>National Flood Insurance Program</td>
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<td>National Marine Fisheries Service</td>
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<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
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<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
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<tr>
<td>OWUS</td>
<td>Other Waters of the U.S.</td>
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<tr>
<td>PA</td>
<td>First Amended Section 106 Programmatic Agreement</td>
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<tr>
<td>PCA</td>
<td>Project Construction area</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Form</td>
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<td>---------</td>
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<tr>
<td>PCC</td>
<td>Portland Cement Concrete</td>
</tr>
<tr>
<td>PID</td>
<td>Project Initiation Document</td>
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<tr>
<td>PJCP</td>
<td>Precast Jointed Concrete Pavement</td>
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<tr>
<td>PLAC</td>
<td>Permits Licenses Agreements Certificates</td>
</tr>
<tr>
<td>PRC</td>
<td>Public Resources Code</td>
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<tr>
<td>PM</td>
<td>Post Mile</td>
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<tr>
<td>PQS</td>
<td>Professionally Qualified Staff</td>
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<tr>
<td>ROW</td>
<td>right-of-way</td>
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<tr>
<td>RSP</td>
<td>Rock Slope Protection</td>
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<tr>
<td>RWQCBs</td>
<td>Regional Water Quality Control Boards</td>
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<tr>
<td>SB</td>
<td>Southbound</td>
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<tr>
<td>SHOPP</td>
<td>State Highway Operation and Protection Program</td>
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<td>SHPO</td>
<td>State Historic Preservation Officer</td>
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<td>SSP</td>
<td>Standard Special Provision</td>
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<td>SWPPP</td>
<td>Storm Water Pollution Prevention Plan</td>
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<td>SWRCB</td>
<td>State Water Resources Control Board</td>
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<td>USACE</td>
<td>U.S. Army Corps of Engineers</td>
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<td>USEPA</td>
<td>U.S. Environmental Protection Agency</td>
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<td>USFWS</td>
<td>U.S. Fish and Wildlife Service</td>
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List of Technical Studies

Comments from the Air/Noise/Energy Branch Memorandum. January 11, 2018

Comments from the Hazardous Waste Branch Memorandum. January 11, 2018

Location Hydraulics Study. April 16, 2018


Geologic and Paleontologic Environmental Study/Memorandum. August 6, 2018

Environmentally Sensitive Area (ESA) Action Plan. August 2, 2018

Historic Properties Survey Report (HPSR). August 2, 2018

Close-Out Summary of Cultural Resource Section 106 Compliance for the Roadway Rehabilitation Project on Interstate 680 in Alameda County. August 10, 2018

VIA Amendment August 22, 2018

Amended Location Hydraulics Study. August 27, 2018

Natural Environmental Study: Interstate 680 Roadway Rehabilitation Project. September 6, 2018

Email from Hazardous Waste Branch Chief Chris Wilson. September 6, 2108

Water Quality and Stormwater Runoff Report. September 7, 2018

Construction-Related Vibration Assessment. September 19, 2018

Construction Greenhouse Gas Analysis. September 13, 2018

Comments from the Air/Noise/Energy Branch Memorandum. September 13, 2018