Merced State Route 140 Guardrail Upgrade

From the Stanislaus and Merced County line to 2 miles west of the town of Planada
Merced County, California
District 10-MER-140-PM 0.00/42.07
Project ID 10-1300-0108/EA 10-0Y110
SCH # 2017072004

Initial Study with Mitigated Negative Declaration/Environmental Assessment
with Finding of No Significant Impact

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S.C. 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

October 2017
General Information About This Document

A line in the right margin indicates where text has been changed in the document since the draft Initial Study/Environmental Assessment was circulated for public review and comment.

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 write to or call Caltrans, Attn: Jaycee Azevedo, Environmental Planning, 1976 East Dr. Martin Luther King Jr. Blvd., Stockton, CA 95205; 209-941-1919 (Voice), or use the California Relay Service 1-800-735-2929 (TTY), 1-800-735-2929 (Voice), or 711.
Upgrade guardrail at 12 locations along State Route 140
in Merced County between post miles 0.00 to 42.07

INITIAL STUDY with Mitigated Negative Declaration/
ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation

10/3/17
Date of Approval

Michelle Ray
Office Chief, Central Region
Environmental North
California Department of Transportation
NEPA and CEQA Lead Agency

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Finding of No Significant Impact (FONSI)

CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT

for the

State Route 140 Merced Guardrail Upgrade

The California Department of Transportation (Caltrans) has determined that the Build Alternative will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA), which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA and incorporated technical reports.

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by the Federal Highway Administration and Caltrans.

Date

Michelle Ray
Office Chief, Central Region
Environmental North
District 10
California Department of Transportation
Mitigated Negative Declaration
Pursuant to: Division 13, Public Resources Code

Project Description
The California Department of Transportation (Caltrans) proposes to upgrade guardrail and other existing safety devices at 12 locations along State Route 140 in Merced County between post miles 0.00 and 42.07.

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

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

The proposed project would have no effect on aesthetics, agriculture and forest resources, air quality, geology and soils, hazardous waste and materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems.

The proposed project would have less than significant effects on cultural resources, tribal cultural resources, and the San Joaquin kit fox and valley elderberry longhorn beetle with avoidance and minimization measures.

In addition, the proposed project would have less than significant effects on biological resources because the following mitigation measure would reduce potential effects to insignificance:

- Caltrans is proposing to compensate for the permanent loss of 1.31 acres of upland habitat suitable for the giant garter snake by purchasing 2.62 acres worth of credits at a U.S. Fish and Wildlife Service-approved conservation bank whose service area covers the project area. This will be completed prior to project construction.

Michelle Ray
Office Chief, Central Region
Environmental North
District 10
California Department of Transportation

10/3/17
Date

Merced 140 Guardrail Upgrade • v
Table of Contents

Finding of No Significant Impact (FONSI) ................................................................. iii
Table of Contents ........................................................................................................ vii
List of Figures ............................................................................................................ viii
List of Tables ............................................................................................................. viii

Chapter 1  Proposed Project .................................................................................. 1
   1.1  Introduction .................................................................................................... 1
   1.2  Purpose and Need ........................................................................................... 4
       1.2.1  Purpose .................................................................................................... 4
       1.2.2  Need ........................................................................................................ 4
   1.3  Project Description ......................................................................................... 4
   1.4  Project Alternatives ........................................................................................ 4
       1.4.1  Build Alternative ..................................................................................... 4
       1.4.2  No-Build (No-Action) Alternative .......................................................... 7
       1.4.3  Alternatives Considered But Rejected .................................................... 7
   1.5  Permits and Approvals Needed ...................................................................... 7

Chapter 2  Affected Environment, Environmental Consequences, and
          Avoidance, Minimization, and/or Mitigation Measures ............................................... 9
   2.1  Human Environment .................................................................................... 11
       2.1.1  Utilities .................................................................................................. 11
       2.1.2  Cultural Resources ................................................................................ 12
   2.2  Biological Environment ............................................................................... 16
       2.2.1  Natural Communities ............................................................................ 16
       2.2.2  Animal Species ..................................................................................... 19
       2.2.3  Threatened and Endangered Species .................................................... 23
       2.2.4  Invasive Species .................................................................................... 35
   2.3  Construction Impacts .................................................................................... 36
   2.4  Climate Change ............................................................................................. 37

Chapter 3  Comments and Coordination ................................................................ 51

Chapter 4  List of Preparers ................................................................................ 63

Chapter 5  Distribution List ................................................................................ 65

Appendix A  California Environmental Quality Act Checklist .......................... 67

Appendix B  Resources Evaluated Relative to the Requirements of Section 4(f) .. 77

Appendix C  Title VI Policy Statement ................................................................. 79

Appendix D  Minimization and/or Mitigation Summary ........................................ 81

Appendix E  List of Acronyms ............................................................................. 87

Appendix F  USFWS Species List ....................................................................... 89

Appendix G  CNDDDB Species List .................................................................... 99

Appendix H  CNPS Species List .......................................................................... 103

Appendix I  NOAA Species List .......................................................................... 105

Appendix J  Giant Garter Snake Impact Area Mapping ...................................... 109

Merced 140 Guardrail Upgrade • vii
Appendix K  San Joaquin Kit Fox Impact Area Mapping ........................................ 117
Appendix L  Valley Elderberry Beetle Impact Area Mapping ................................ 119
Appendix M  Federal Endangered Species Act Findings ........................................ 121
Appendix N  USFWS Biological Opinion ................................................................. 123
Appendix O  Project Site Photos ............................................................................. 143
Appendix P  Project Layouts .................................................................................... 147
List of Technical Studies ......................................................................................... 161

List of Figures

Figure 1-1  Project Vicinity Map ............................................................................. 2
Figure 1-2  Project Location Map ........................................................................... 3
Figure 2-1  2020 Business as Usual (BAU) Emissions Projection 2014 Edition ...... 44
Figure 2-2  Governor’s Climate Change Pillars: 2030 Greenhouse Gas Reduction
          Goals .................................................................................................................. 46

List of Tables

Table 1.1  Guardrail Locations ................................................................................. 3
Table 1.2  Permits and Approvals Required ............................................................. 8
Table 2.1  Historic-Era Resources Within the Study Area ....................................... 14
Table 2.2  Biological Habitat Communities at Each Location ................................ 17
Table 2.3  Potential Area of Impact to Giant Garter Snake Terrestrial Habitats (acres)
          ......................................................................................................................... 28
Table 2.4  Potential Area of Impact to San Joaquin Kit Fox Foraging Habitat (acres)
          ......................................................................................................................... 29
Table 3.1  Summary of Native American Consultation (as of August 31, 2017) ...... 53
Chapter 1 Proposed Project

1.1 Introduction

National Environmental Policy Act (NEPA) Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 U.S. Code 327 for more than five years, beginning July 1, 2007 and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Barack Obama on July 6, 2012 amended 23 U.S. Code 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a Memorandum of Understanding pursuant to 23 U.S. Code 327 (NEPA Assignment MOU) with the Federal Highway Administration. The NEPA Assignment MOU became effective October 1, 2012 and was renewed on December 23, 2016 for a term of five years. In summary, the Department continues to assume Federal Highway Administration responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, the Federal Highway Administration assigned and the Department assumed all of the United States Department of Transportation (USDOT) Secretary’s responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that the Federal Highway Administration assigned to the Department under the 23 U.S. Code 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

The California Department of Transportation (Caltrans), as the lead agency under both the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA), proposes to upgrade guardrail and existing traffic safety devices on State Route (SR) 140 in Merced County at 12 locations between post miles 0.00 and 42.07 (see Figure 1-1, Figure 1-2 and Table 1.1).

The proposed project was amended into the Merced County Association of Governments’ (MCAG) 2014/15–2017/18 Federal Transportation Improvement Program (FTIP) under Amendment 13 on April 26, 2016. The project is also included in the 2014 State Highway Operations and Protection Program under program code 201.015 (Collision Severity Reduction).
Figure 1-1 Project Vicinity Map
Figure 1-2 Project Location Map

Table 1.1 Guardrail Locations

<table>
<thead>
<tr>
<th>Location</th>
<th>Name of Structure</th>
<th>Post Mile</th>
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<tbody>
<tr>
<td>1</td>
<td>I-5/SR-140 Separation</td>
<td>0.01</td>
</tr>
<tr>
<td>2</td>
<td>Delta Mendota Canal</td>
<td>0.58</td>
</tr>
<tr>
<td>3</td>
<td>West Branch Mud Slough</td>
<td>10.31</td>
</tr>
<tr>
<td>4</td>
<td>Mud Slough Overflow</td>
<td>10.64</td>
</tr>
<tr>
<td>5</td>
<td>North Branch Mud Slough</td>
<td>11.32</td>
</tr>
<tr>
<td>6</td>
<td>San Joaquin River</td>
<td>11.79</td>
</tr>
<tr>
<td>7</td>
<td>Cross Culvert</td>
<td>17.59</td>
</tr>
<tr>
<td>8</td>
<td>East Side Irrigation Canal</td>
<td>18.52</td>
</tr>
<tr>
<td>9</td>
<td>Black Rascal Creek</td>
<td>31.60</td>
</tr>
<tr>
<td>10</td>
<td>Bear Creek Bridge</td>
<td>32.95</td>
</tr>
<tr>
<td>11</td>
<td>El Capitan Canal Bridge</td>
<td>34.51</td>
</tr>
<tr>
<td>12</td>
<td>Roadside Fixed Object</td>
<td>41.97</td>
</tr>
</tbody>
</table>
1.2 Purpose and Need

1.2.1 Purpose

The purpose of this project is to bring SR 140 up to current Caltrans standards.

1.2.2 Need

In a report dated December 11, 2012, the Caltrans District 10 Traffic Safety Office identified existing traffic safety devices at 12 locations along SR 140 that do not meet current Caltrans standards.

1.3 Project Description

Caltrans proposes to upgrade guardrail and other existing safety devices at 12 locations along SR 140. Table 1.1 shows the location number, structure name, and post miles of each location.

1.4 Project Alternatives

One Build Alternative and a No-Build Alternative are under consideration.

1.4.1 Build Alternative

The project proposes to upgrade existing metal beam guardrail, terminal systems, end treatments, and crash cushions. Work is proposed at 11 bridge locations and one culvert crossing. The work proposed for each location is outlined below. There is no permanent right-of-way acquisition anticipated. Temporary construction easements will be required and determined during the construction phase. The project is anticipated to cost $7.7 million for the 2019 funding year.

Construction is expected to occur during the summer of 2020 and will take approximately 90 working days to complete. No night work is anticipated, and one-way traffic control will be used during construction.

Location 1: Interstate 5/State Route 140 Separation Bridge #39-0182-PM 0.01

- Construct concrete barrier transition
- Reconstruct side slopes
- Upgrade existing metal beam guardrail and end treatments
- Remove and replace asphalt-concrete dike
- Construct overside drains
- Apply compost erosion control to all disturbed soil areas
• Apply 2 inches of Portland Cement Concrete (PCC) for vegetation control under guardrail
• Install traffic count station

**Location 2: Delta Mendota Canal Bridge #39-0168-PM 0.58**
• Replace existing guardrail with a cast-in-drilled hole pile at all four corners of the bridge
• Grade side slopes
• Upgrade guardrail end treatments
• Relocate utilities within the existing right-of-way
• Apply compost erosion control to all disturbed soil areas
• Apply 2 inches of PCC as a vegetation control under guardrail

**Location 3: West Branch Mud Slough Bridge #39-0090-PM 10.31**
• Replace existing guardrail with a cast-in-drilled hole pile at all four corners of the bridge
• Reconstruct side slopes; average depth of imported fill would be 2 to 10 inches
• Upgrade guardrail end treatments
• Apply compost erosion control to all disturbed soil areas
• Apply 2 inches of PCC as a vegetation control under guardrail

**Location 4: Mud Slough Overflow Bridge #39-0107-PM 10.64**
• Construct concrete barrier transition
• Construct retaining wall parallel to the roadway approximately 6 to 8 feet off the edge of pavement
• Grade between retaining wall and guardrail
• Upgrade existing metal beam guardrail and end treatments
• Remove and replace asphalt-concrete dike
• Construct overside drains
• Apply compost erosion control to all disturbed soil areas
• Apply 2 inches of PCC as a vegetation control under guardrail

**Location 5: North Branch Mud Slough Bridge #39-0091-PM 11.32**
• Construct concrete barrier transition
• Construct retaining wall parallel to the roadway approximately 6 to 8 feet off the edge of pavement
• Grade between retaining wall and guardrail
• Upgrade existing metal beam guardrail and end treatments
• Remove and replace asphalt-concrete dike
• Relocate utilities within the existing right-of-way
• Apply compost erosion control to all disturbed soil areas
• Apply 2 inches of PCC as a vegetation control under guardrail
**Location 6: San Joaquin River Bridge #39-0092-PM 11.79**
- Construct concrete barrier transition
- Reconstruct side slopes
- Upgrade existing metal beam guardrail and end treatments
- Remove and replace asphalt-concrete dike
- Construct overside drains
- Apply compost erosion control to all disturbed soil areas
- Apply 2 inches of PCC as a vegetation control under guardrail

**Location 7: Cross Culvert-MER-140-PM 17.59**
- Remove existing headwall
- Remove existing guardrail
- Grade side slopes
- Apply compost erosion control to all disturbed areas

**Location 8: East Side Irrigation Canal Bridge #39-0093-PM 18.52**
- Construct concrete barrier transition
- Reconstruct side slopes
- Upgrade existing metal beam guardrail and end treatments
- Apply compost erosion control to all disturbed soil areas
- Apply 2 inches of PCC as a vegetation control under guardrail

**Location 9: Black Rascal Creek Bridge #39-0094-PM 31.60**
- Construct concrete barrier transition
- Upgrade existing metal beam guardrail and end treatments
- Grade side slopes
- Remove and replace asphalt-concrete dike
- Relocate utilities within the existing right-of-way
- Apply compost erosion control to all disturbed soil areas
- Apply 2 inches of PCC as a vegetation control under guardrail

**Location 10: Bear Creek Bridge #39-0095-PM 32.95**
- Construct concrete barrier transition
- Grade side slopes
- Upgrade existing metal beam guardrail and end treatments
- Upgrade crash cushion
- Relocate utilities within the existing right-of-way
- Apply compost erosion control to all disturbed soil areas
- Install crash cushion
- Apply 2 inches of PCC as a vegetation control under guardrail
Location 11: El Capitan Canal Bridge #39-0097-PM 34.51
- Modify existing barrier/parapet wall ends to install a new guardrail
- Grade side slopes
- Upgrade existing metal beam guardrail and end treatments
- Relocate utilities within the existing right-of-way
- Apply compost erosion control to all disturbed soil areas
- Apply 2 inches of PCC as a vegetation control under guardrail
- Install crash cushion
- Apply aesthetic treatment to bridge rail

Location 12: Roadside Fixed Object-MER-140-PM 42.0
- Upgrade existing metal beam guardrail and end treatments
- Construct retaining wall parallel to the roadway approximately 14 feet off the edge of pavement
- Existing extinguishable message sign will be replaced with a changeable message sign
- Pave maintenance vehicle pullout
- Grade around new guardrail and side slopes
- Relocate utilities within the existing right-of-way
- Apply erosion control to all disturbed soil areas using compost
- Apply 2 inches of PCC as a vegetation control under guardrail

1.4.2 No-Build (No-Action) Alternative
The No-Build Alternative would not upgrade the existing guardrails, end treatments, and crash cushions at the 12 project locations. The No-Build Alternative would not address the project’s purpose and need.

1.4.3 Alternatives Considered But Rejected
Side slope reconstruction was previously proposed at Locations 4 and 5, but a retaining wall design was chosen instead. The side slope design would have expanded the project footprint into the adjacent wetlands and Waters of the United States at Locations 4 and 5. The retaining wall design was chosen because it eliminated impacts to wetlands and Waters of the United States, because these permanent impacts would occur between the retaining wall and guardrail.

1.5 Permits and Approvals Needed
The following permits, reviews, and approvals would be required for the proposed project’s construction:
### Table 1.2 Permits and Approvals Required

<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit/Approval</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td>Biological Opinion for Section 7 consultation for federally listed threatened and endangered species</td>
<td>Formal consultation was initiated with the U.S. Fish and Wildlife Service in August 8, 2016. A Biological Opinion was received on September 15, 2017.</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife</td>
<td>Fish and Game Code Section 1602 Streambed Alteration Agreement</td>
<td>Application for the 1602 permit will be submitted during the design phase of the project.</td>
</tr>
<tr>
<td>State Historic Preservation Officer</td>
<td>Finding of No Adverse Effect concurrence with non-standard conditions</td>
<td>State Historic Preservation Officer concurred with Caltrans’ findings on September 12, 2017.</td>
</tr>
</tbody>
</table>
Chapter 2  Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

As part of the scoping and environmental analysis done for the project, the following environmental issues were considered, but no effects were identified. So, there is no further discussion of these issues in this document.

- **Land Use/Consistency with the Merced County General Plan** — The project would not change the land use designation for any properties located along the project limits. This project does not promote the construction of additional Highway Interchange Centers; therefore, the existing agricultural land use designation surrounding the project areas can be maintained. This would be consistent with Merced County’s 2030 General Plan.

- **Wild and Scenic Rivers** — There are no National or California Wild and Scenic Rivers in the vicinity of the project. The closest National Wild and Scenic River and California Wild and Scenic River is the Merced River, located about 26 miles northeast of project location 12 (SR 140, post mile 42.1).

- **Parks and Recreational Facilities** — There are two parks within the project vicinity: the Great Valley Grasslands State Park and San Luis National Wildlife Refuge. These parks are next to project locations 3, 4, 5, and 6. However, the project will not directly or indirectly impact the parks or park access. (Field Visit, May 2016)

- **Coastal Zone** — The project is approximately 38 miles inland from the Pacific Ocean, well outside the coastal zone.

- **Farmlands/Timberlands** — No additional permanent right-of-way will be acquired for this project; therefore, no farmlands or timberlands will be affected by the project. (Field Visit, May 2016)

- **Community Character and Cohesion** — Due to the project scope, which involves upgrading existing structures with no change in alignment or capacity of the roadway, there are no anticipated impacts to community character and cohesion. (Field Visit, May 2016)

- **Relocations and Real Property Acquisition** — The project will not relocate or acquire any properties. (Field Visit, May 2016)

- **Environmental Justice** — There are no minority populations that will be adversely affected by the project. (Field Visit, May 2016)
• Traffic and Transportation/Pedestrian and Bicycle Facilities — The project would not change the existing alignment or capacity of SR 140; therefore, the project would not have any permanent impacts to traffic. During construction, temporary lane closures will be necessary. One-lane, one-way reversing traffic control will be used at most locations to maintain the flow of traffic during construction.

• Visual/Aesthetics — A section of SR 140 is an officially designated State Scenic Highway, however the proposed project does not include this area. A Scenic Resource Evaluation was prepared for this project, and it was determined that the project would not affect the scenic qualities of the two wildlife refuges and multiple water bodies in the area. (Scenic Resource Evaluation, January 2017)

• Hydrology and Floodplain — The proposed project would not affect the existing floodplain.

• Water Quality and Storm Water Runoff — The project has been determined to be at low risk to increase sediment flow and will not disturb greater than 1.0 acre of soil at any contiguous sites within one-quarter mile apart. (Air, Noise, and Water Compliance Memo, May 2016)

• Geology, Soils, Seismicity, and Topography — Excavation associated with this type of project will require only shallow trenching or shallow drilled borings. Potential impacts to geology, soils, seismicity, and topography would be minimal.

• Paleontology — Excavation associated with this type of project is typically shallow trenching or shallow drilled borings, so the potential to encounter significant paleontological resources is unlikely. (Paleontology Identification Report, December 2014)

• Hazardous Waste and Materials — Due to structural drilling that would occur in project construction, Caltrans hazardous waste Standard Special Provisions would be included in the construction contract. (Initial Site Assessment Addendum, June 2017)

• Air Quality — According to 40 Code of Federal Regulations Section 93.126, Table 2, the improvements proposed for this project are exempt from an air quality conformity determination. (Air, Noise, and Water Compliance Memo, May 2016)

• Noise and Vibration — The project is not considered a Type I project as defined under 23 Code of Federal Regulations 772. Therefore, the project is exempt from Caltrans Traffic Noise Analysis Protocol or any further analysis. (Air, Noise, and Water Compliance Memo, May 2016)

• Section 4(f) — Cultural sites; CA-MER-6 and Delta Mendota Canal and parks; San Luis National Wildlife Refuge and Great Valley Grasslands State Park are Section 4(f) resources located near the project, but not impacted by the project. See Appendix B. (Field Visit, May 2016)

• Wetlands and Waters of the United States (U.S.) — Wetlands and other Waters of the U.S. are present within the biological study area. However, the limited
construction areas will not impact either wetlands or Waters of the U.S. (Natural Environment Study, March 2017)

- Plant Species — There will be no impact to special-status plant species. (Natural Environment Study, March 2017)

- Cumulative Impacts — According to the Merced County 2014 Regional Transportation Plan, there are no major transportation projects scheduled for this portion of SR 140 for the next 20 years. Also, the Merced County General Plan does not identify any major developments that will take place on this stretch of SR 140 at this time.

2.1 Human Environment

2.1.1 Utilities

Affected Environment

Utilities
Four utility companies operate within the project limits: Pacific Gas & Electric Company, AT&T, and Cablevision. The affected utilities may involve, but are not limited to, electricity, gas, fiber optics, telephone and television.

Emergency Services
The Merced County Fire Department provides fire protection, emergency medical and rescue service to the area. The Merced County Sheriff’s Department provides law enforcement to the area and uses SR 140 to access its rural areas of jurisdiction in central Merced County. The California Highway Patrol is responsible for traffic enforcement on SR 140.

Environmental Consequences

Utilities
Utilities within the project will be temporarily relocated for construction of the project. Specifically, Pacific Gas & Electric Company power lines will be de-energized during construction. Caltrans will work with Pacific Gas & Electric Company to determine where and when the power lines will be de-energized.

Emergency Services
The project will not have a permanent impact on fire protection, law enforcement, and emergency services. SR 140 will remain open during construction, as one-way reversing traffic control will enable traffic to pass through the project areas.

Avoidance, Minimization, and/or Mitigation Measures
The following avoidance and minimization measures will prevent temporary impacts to utilities and emergency services:
Utilities

- Utilities will be relocated to accommodate construction of the project. All utility relocation work will be done by the affected utility companies. Utility users will be informed of the date and time in advance of any service disruptions.

Emergency Services

- A traffic management plan will be developed to minimize delays and maximize safety during construction. The traffic management plan may include, but is not limited to, the following:
  1. Release of information through brochures and mailers, press releases, and notices from the Caltrans public information office.
  2. Use of fixed and portable changeable message signs.
  3. Incident management through the Construction Zone Enhancement Enforcement Program and the transportation management plan.

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 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. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with Federal Highway Administration involvement. The PA implements the Advisory Council on Historic Preservation’s regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The Federal Highway Administration’s responsibilities under the PA have been assigned
to the Department as part of the Surface Transportation Project Delivery Program (23 U.S. Code 327).

The California Environmental Quality Act (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 Section 5024.1 established the California Register of Historical Resources and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the California Register of Historical Resources and, therefore, a historical resource. Historical resources are defined in Public Resources Code 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 Public Resources Code Section 21074(a), a tribal cultural resource is a California Register of Historical Resources 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 Public Resources Code Section 21083.2.

Public Resources Code Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the National Register of Historic Places listing criteria. It further requires the Department to inventory state-owned structures in its rights-of-way. Procedures for compliance with Public Resources Code Section 5024 are outlined in a Memorandum of Understanding (MOU) between the Department and State Historic Preservation Officer, effective January 1, 2015. For most federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of Public Resources Code Section 5024.

**Affected Environment**

A Historic Property Survey Report/Archaeological Survey Report (HPSR/ASR) was prepared in September 2016 to identify potential significant cultural resources within the Area of Potential Effects (APE).

The proposed project is delineated as a 42.1-mile-long segment of SR 140 in Merced County. Work is being undertaken at 12 locations along this stretch of highway. The Area of Potential Effects was determined at each location based upon the maximum extent of project-related activities that could potentially have temporary or permanent impacts and the width of the existing Caltrans right-of-way. Entire archaeological sites were also included within the Area of Potential Effects in areas where the site was in close proximity to work being conducted. The vertical Area of Potential Effects for the project is 6.56 feet, to account for potential guardrail.

Eight pedestrian archaeological surveys were conducted by Caltrans archaeologists between April 2013 and March 2016. At each location, a mixed-strategy survey was used to cover existing right-of-way, potential staging areas, and easements within the study area. The purpose of the surveys was to identify and record cultural resources
within the proposed project area for the completion of the Historic Property Survey Report/Archaeological Survey Report.

Caltrans sent a request to the Native American Heritage Commission (NAHC) for a search of the commission’s Sacred Lands Inventory File and for a current Native American consultation list in August 2015. The search of the Sacred Lands Inventory File came up negative, and the commission provided a contact list of Native Americans. Caltrans has contacted the Native American community and will continue to coordinate throughout the life of the project.

Initial consultation letters were sent in September 2015 to the Gustine Historical Society and Merced County Historical Society to solicit any information regarding cultural resources that could be within the proposed project’s study area. As of the time of this document, the only reply was from the Gustine Historical Society, responding with no concerns regarding the project.

Caltrans requested and received an archaeological records search from the Central California Information Center (CCIC). Information regarding previous identification or evaluation efforts of known cultural resources within a mile of the study area was requested. In addition, Caltrans archaeologists performed a search of the Caltrans Cultural Resource Database (CCRD).

The CCIC record search indicated 12 cultural resources within the Area of Potential Effects. Of those cultural resources, two were prehistoric archaeological sites, nine were historic-era resources, and one was a proposed historic district. Tables 2.1 show the name and location of historic-era resources identified in the record search within the project study area.

Table 2.1 Historic-Era Resources Within the Study Area

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta-Mendota Canal</td>
<td>Location 2</td>
</tr>
<tr>
<td>West Mud Branch Slough Bridge</td>
<td>Location 3</td>
</tr>
<tr>
<td>Mud Slough Overflow Bridge</td>
<td>Location 4</td>
</tr>
<tr>
<td>East Side Canal</td>
<td>Location 8</td>
</tr>
<tr>
<td>Black Rascal Creek Bridge</td>
<td>Location 9</td>
</tr>
<tr>
<td>Proposed Merced Irrigation District (MID)</td>
<td>Locations 9/10/11/12</td>
</tr>
<tr>
<td>Black Rascal Creek/Canal</td>
<td>Location 9</td>
</tr>
<tr>
<td>Bear Creek Bridge</td>
<td>Location 10</td>
</tr>
<tr>
<td>El Capitan Canal</td>
<td>Location 11</td>
</tr>
<tr>
<td>El Capitan Canal Bridge</td>
<td>Location 11</td>
</tr>
</tbody>
</table>
Although archaeological site CA-MER-6 is eligible under Criterion D for the National Register of Historic Places, Caltrans has determined that there is no potential of damaging intact archaeological deposits because construction activities will take place in roadway fill and sterile deposits.

**Environmental Consequences**

Of the 12 cultural resources that lie within the Area of Potential Effects, CA-MER-6 and the Delta-Mendota Canal are eligible for inclusion in the National Register of Historic Places. For the purposes of this project, the Delta-Mendota Canal is considered eligible for inclusion in the National Register of Historic Places, in accordance with Section 106 Programmatic Agreement Stipulation VIII.C.4. The project is not anticipated to affect this resource.

Caltrans has determined that there will be no adverse effect to CA-MER-6. To ensure potential effects remain non-adverse, Caltrans will establish an environmentally sensitive area (ESA) with temporary fencing to designate the boundary within the Caltrans right-of-way. Caltrans will also have a qualified archaeologist and Native American monitor onsite during construction to ensure the integrity of the environmentally sensitive area and look for any unanticipated resources that might become exposed through construction activities.

A Finding of Effect document was prepared in August 2017 that assessed adverse effects in accordance with the Criteria of Adverse Effect as defined in 36 Code of Federal Regulations 800.5. After consideration of the definition, criteria, and examples of Adverse Effects presented in 36 Code of Federal Regulations 800.5(a)(2), it was determined that the proposed undertaking will have no adverse effect on any historic properties.

Caltrans received State Historic Preservation Officer concurrence on these findings on September 12, 2017.

There are no cultural Section 4(f) resources within the project vicinity that will be impacted by this project.

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 human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to California Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission, which would then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains would contact the Caltrans archaeologist or district Native American coordinator at Caltrans District 10, so that he or she may work with the
Avoidance, Minimization, and/or Mitigation Measures

- Establishment of an environmentally sensitive area (ESA) will be designated by environmentally sensitive area fencing within Caltrans’ right-of-way. An environmentally sensitive area will cover the boundary of the cultural sites at CA-MER-6, which will prevent the contractor from accessing the sites during construction.

- An archaeologist and Native American monitor will be onsite during construction to ensure the integrity of the environmentally sensitive area and observe any unanticipated discoveries that might become exposed through construction activities.

2.2 Biological Environment

2.2.1 Natural Communities

Regulatory Setting
This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors, essential fish habitat, and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species section 2.2.3.

Affected Environment
A Natural Environment Study (NES) was prepared for the project in March 2017. The purpose of this document is to provide technical information to determine the extent of the proposed project’s impact on threatened, endangered, or listed species.

Caltrans biologists visited the project site six times between May 2015 and June 2016 to perform pedestrian (walk-through) surveys for biological resources.

The biological study area consists of the project footprint and a 100-foot buffer around the area directly impacted by the project. The project footprint is defined as the area where construction is proposed to take place. The biological study area also includes lands within Caltrans’ right-of-way that could potentially be affected by...
project construction and/or land determined necessary to include in order to perform an adequate analysis of the project impacts.

Table 2.2 describes the habitats found within the biological study area for each location.

<table>
<thead>
<tr>
<th>Location Number</th>
<th>Habitat Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 and 2</td>
<td>Nonnative grasslands</td>
</tr>
<tr>
<td>3, 4 and 5</td>
<td>Nonnative grasslands, cismontane alkali marsh, coastal and freshwater marsh, and valley sink scrub</td>
</tr>
<tr>
<td>6</td>
<td>Nonnative grasslands, great valley cottonwood riparian forest along the banks of the San Joaquin River</td>
</tr>
<tr>
<td>7</td>
<td>Nonnative grasslands and agriculture</td>
</tr>
<tr>
<td>8</td>
<td>Nonnative grasslands, agriculture, and great valley cottonwood riparian forest</td>
</tr>
<tr>
<td>11 and 12</td>
<td>Urban, residential, and agriculture</td>
</tr>
</tbody>
</table>

**Annual/Nonnative Grasslands**
Annual grassland habitat occurs mostly on flat plains to gently rolling foothills within a Mediterranean climate. Introduced annual grasses are the dominant species.

**Cismontane Alkali Marsh**
Cismontane alkali marshes are characterized by standing water or saturated soil present during most of the year. They are often somewhat salty due to the high evaporation and low freshwater input during the summer.

**Coastal and Valley Freshwater Marsh**
The coastal and valley freshwater marsh is characterized by the presence of dominant, perennial, emergent monocot (single-leaf) vegetation up to 16 feet tall in slow-moving and permanently flooded freshwater areas.

**Valley Sink Scrub**
Valley sink scrub consists of open to dense succulent shrublands dominated by the alkali-tolerant goosefoot (*Chenopodiaceae*) plant species. Understories are sparse but dominated by red brome. Heavy saline soils or alkaline clay lakebeds or playas are present with white salty crust on the surface.

**Great Valley Cottonwood Riparian Forest**
Great valley cottonwood riparian forests consist of dense broadleafed winter deciduous riparian forest that is dominated by cottonwood (*Populus fremontii*) and Goodding’s black willow (*Salix gooddingii*) with abundant vegetation underneath.
This habitat prefers fine-grained alluvial soils near perennial streams that can provide subsurface moisture during the year.

**Agricultural**

Agricultural lands next to the project area consist mostly of fallow agricultural fields, orchards, vineyards and irrigated row crops. These areas within the biological study area are highly disturbed and provide minimal habitat for terrestrial wildlife.

**Urban and Residential**

Urban and residential lands within the study area consist of a building, parking lots, sidewalks and roads that support little or no natural vegetation. These areas are not suitable for most wildlife species due to frequent disturbance, feral (wild) and domesticated cats and dogs, and the lack of foraging, nesting and breeding areas.

**Waterways**

The limits of the project cross over several waterways that include rivers, ephemeral creeks, sloughs and canals such as the San Joaquin River, Los Banos Creek, East Side Irrigation Canal, Bear Creek, Black Rascal Creek and El Capitan Canal. All waters connect directly or indirectly to the San Joaquin River.

**Essential Fish Habitat**

Essential Fish Habitat has been defined for the purposes of the Magnuson-Stevens Act as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (Natural Environment Study, 2017). The National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries Service) has further added the following interpretations to clarify this definition:

- “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate.
- “Substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities.
- “Necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem.
- “Spawning, breeding, feeding, or growth to maturity” covers the full life cycle of a species.

Adverse effect means any effect that reduces quality and/or quantity of Essential Fish Habitat, and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), or site-specific or habitat-wide effects, including individual, cumulative, or synergistic consequences of actions.

Essential Fish Habitat consultation with the NOAA Fisheries is required regarding any federal agency action that may adversely affect Essential Fish Habitat, including
actions that occur outside Essential Fish Habitat, such as certain upstream and upslope activities.

**Environmental Consequences**

**Waterways**

The project would not impact the bed or channel of the waterways listed in the previous section. However, the project would have permanent impacts to the banks of the waterways adjacent to Locations 3, 4, 5, 6, 7, 8, 9, and 10.

**Essential Fish Habitat**

Essential Fish Habitat has been identified at Locations 3, 4, 5, 6, 8, 9 and 10. Each of these channels are linked to the San Joaquin River, which is considered Essential Fish Habitat for Pacific Coast salmon. Most of the upland habitat, potentially affected, presently consists of nonnative and/or invasive vegetation. Although migrating salmonids may travel through these waters to reach suitable spawning areas, there is no suitable spawning substrate within the waterways in the biological study area. No direct impacts to Essential Fish Habitat is anticipated.

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

**Waterways**

Consultation with the California Department of Fish and Wildlife will be initiated during final design if Caltrans determines a 1602 Streambed Alteration Agreement is required for construction-related work along the bank of Locations 3, 4, 5, 6, 8, 9 and 10.

**Essential Fish Habitat**

- Prior to the start of construction activities, the project biologist will conduct a worker awareness training session for all construction personnel, which will describe the listed species and their habitat requirements, the specific measures being taken to protect individuals of listed species in the project area, and the boundaries within which project activities will be restricted.
- To avoid potential indirect impacts to the corridors of Essential Fish Habitat, silt fencing will be installed to avoid any runoff or contamination of adjacent waterways.

2.2.2 **Animal Species**

**Regulatory Setting**

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries Service) and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not
Species listed or proposed for listing as threatened or endangered are discussed in Section 2.2.3 below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

**Affected Environment**

A Natural Environment Study (NES) was completed in March 2017. The biological study areas (BSA) are defined as the project footprint with a 100-foot buffer around each of the locations to identify potential impacts to habitats or species as a result of the proposed project. The project footprint consists of the areas that will be temporarily or permanently affected by the proposed construction activities.

**Migratory Birds**

The federal Migratory Bird Treaty Act (MBTA) (Title 16, U.S. Code, Section 703), prohibits killing, possessing, or trading migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Most native bird species are covered by this act. In addition, Title 50 of the Code of Federal Regulations, Part 10, protects nesting birds.

The U.S. Fish and Wildlife Service Information for Planning and Conservation (IPaC) species query identified 23 migratory bird species with the potential to occur within the biological study area.

During surveys conducted in 2015 and 2016, the following bird species were observed:

- Cliff swallows (*Petrochelidon pyrrhonota*) nesting on bridge structures at Locations 2, 3, 4, 5, 6, 8, and 10.

- Great egrets (*Ardea alba*) at Location 8.
• Swainson’s hawk (*Buteo swainsoni*) at Location 8.
• European starling (*Sturnus vulgaris*) at Location 9.
• Western scrub jay (*Aphelocoma californica*) at Location 9.
• House finch (*Haemorhous mexicanus*) at Location 9.
• House sparrow (*Passer domesticus*) at Locations 9 and 10.
• Western kingbird (*Tyrannus verticalis*) Location 10.
• Red-tailed hawk (*Buteo jamaicensis*) Location 10.
• Black phoebe (*Sayornis nigricans*) Location 10.
• Mourning dove (*Zenaida macroura*) at Location 10.

**Yuma Myotis and Other Bat Species**

The Yuma myotis (*Myotis yumanensis*) is not a state or federally listed threatened or endangered species, but is listed as a low-medium priority with the Western Working Bat Group. Critical habitat for this species has not been identified.

The Yuma myotis is found throughout most of California at lower elevations where it occurs in a wide variety of habitats, including the desert Southwest and Pacific Coast canyons. However, optimal habitats are open forests and woodlands with water sources nearby. This small myotis species has an average wingspan of 9-10 inches and weight of 0.1-0.2 ounces. These bats have short tan or brown fur on top and white or buff underparts.

These bats usually forage over water sources, feeding on a variety of small flying insects including moths, flies, mosquitos, beetles, mayflies, termites, and caddis flies. They are efficient foragers and may follow regular foraging routes.

The Yuma myotis is known to use buildings, trees, mines, caves, rock crevices, and bridges for day roosts. Night roosts are usually associated with buildings, bridges or other human-made structures.

Several of the bridges in the biological study area provide potential bat roosting habitat. No bats were observed under any of the bridges at all locations during surveys in 2015 and 2016 by Caltrans biologists. However, the Yuma myotis and/or other bat species commonly use the undersides of bridges for roosting habitat and could occupy the bridges prior to construction.
Environmental Consequences

Migratory Birds

No tree removal is anticipated during construction. Project-related activities are not anticipated to result in harmful impacts to nesting birds or their nests, eggs and young with the implementation avoidance and minimization measures discussed in next section.

Due to cast-in-drilled hole piles being drilled close to the bridges at Locations 2 and 3, bird exclusionary devices will be installed prior to migratory bird nesting season.

Yuma Myotis and Other Bat Species

Permanent and temporary impacts are not anticipated for this species as a result of the project construction. With the implementation of the avoidance and minimization efforts discussed in the next section, and due to the work taking place outside the bridge structure, the project is not expected to impact roosting bats.

Due to cast-in-drilled hole piles being drilled close to the bridges at Locations 2 and 3, bat exclusionary devices will be installed prior to bats roosting.

Avoidance, Minimization, and/or Mitigation Measures

No compensatory mitigation is required. The following measures are avoidance and minimization measures for each species:

Migratory Birds

- Exclusionary devices for swallows will be installed on the bridges at Locations 2 and 3 prior the nesting season.
- Clearing and grubbing will be completed outside of the nesting season, unless deemed unfeasible to avoid unnecessary impacts to migratory birds.
- Migratory bird surveys will be completed prior to the start of construction if commencement occurs during the nesting season, or prior to any clearing and grubbing during the nesting season.
- The migratory bird preconstruction survey will include clearing all vegetative substrate as well as bare ground.
- Any nests discovered during the preconstruction surveys may be Environmentally Sensitive Area-protected with an appropriate construction buffer determined by a qualified biologist, and may include consultation with the California Department of Fish and Wildlife to avoid impacts to young birds until they are able to fledge from the nest.

Yuma Myotis and Other Bat Species

- Exclusionary devices for bats will be installed on the bridges at Location 2 and 3 before they are able to roost.
• Preconstruction surveys will be conducted to inspect the undersides of the bridges. If bats are detected within the roost at the time of construction or hibernation sites are found, a biological monitor may be required to ensure no unanticipated impacts to the bats occur.

2.2.3 Threatened and Endangered Species

Regulatory Setting
The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 U.S. Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries Service) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the CDFW. For species listed under both the FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone.
established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

**Affected Environment**

To identify potential occurrences for special-status species within the project area, the California Department of Fish and Wildlife’s California Natural Diversity Database (CNDDB) (Appendix G) was researched. In addition, the California Native Plant Society (CNPS) *Electronic Inventory of Rare and Endangered Plants* was queried for a list of sensitive plant species potentially occurring within the Biological Study Areas (Appendix H).

A Biological Assessment (BA) was prepared, and Section 7 formal consultation was initiated with the U.S. Fish and Wildlife Service in August 2016 for potential effects to a federally listed species. In addition, Caltrans initiated informal consultation with the National Marine Fisheries Service (NMFS) and received a National Marine Fisheries Service (NMFS) species list in May 2016. This list was updated on June 28, 2017 using NFMS’s California Species List Tool from their website (Appendix I). Caltrans also submitted a Biological Assessment to the National Marine Fisheries Service in August 2016. Following the BA submittal, Caltrans Design made changes to the scope of work to minimize impacts to all the waterways within the project area; Caltrans retracted the request for informal consultation in March 2017 due to the proposed project no longer impacting any waterways or associated NFMS-covered habitats.

The Biological Opinion was received from USFWS on September 15, 2017, which concluded formal consultation. The USFWS concurred with Caltrans’ findings that the proposed project may affect, but is not likely to adversely affect either the San Joaquin kit fox or the valley elderberry longhorn beetle, and may affect, and is likely to adversely affect the giant garter snake. In addition, USFWS agreed with Caltrans’ proposed avoidance, minimization, and mitigation measures for the previously mentioned species.

An official species list of federally endangered or threatened species that may be affected by the proposed project was requested from the U.S. Fish and Wildlife Service on September 15, 2015 and updated on February 28, 2017 using the U.S. Fish and Wildlife Service’s IPaC website. An updated USFWS IPaC list was obtained on September 19, 2017 (Appendix F). A Natural Environment Study was completed for the project in March 2017.

**Giant Garter Snake**

The giant garter snake (*Thamnophis gigas*) is endemic to the Central Valley wetlands of California and is listed as state and federally threatened. This snake is active when water temperatures are at 68°Fahrenheit or warmer and is dormant underground when
its aquatic habitat is below this temperature. Fish and frogs make up a large portion of the diet of the giant garter snake.

The giant garter snake populations of the San Joaquin Valley are now tiny disconnected remnants due to widespread destruction of wetland and habitat. The giant garter snake has been extirpated from 98 percent of its former San Joaquin Valley habitat.

In addition to habitat loss and fragmentation, introduced predators such as the American bullfrog may also be suppressing recovery. Attempts are underway to restore artificial wetlands to provide quality habitat for the giant garter snake, but it is too early to know if these efforts will help significantly recover this threatened species.

Protocol-level surveys were not conducted for this species. No giant garter snakes were observed within the biological study area during summer surveys in 2015 and 2016.

Within the biological study area of Locations 3, 4, 5, 6, 8, 9 and 10, the freshwater marshes and vegetated irrigation canals provide adequate habitat for the giant garter snake as do corridors in between habitats. These areas are consistently inundated with water and emergent vegetation that make them suitable for escape cover and foraging habitat for the species. Also, these areas contain small burrows on the banks of the wetland that may provide cover during the species’ dormancy period.

Critical habitat for the giant garter snake has not been identified within the biological study area or project limits.

San Joaquin Kit Fox
The San Joaquin kit fox (Vulpes macrotis mutica) is federally listed as endangered and state listed as threatened. The San Joaquin kit fox is the smallest canid species in North America. These foxes average 31 inches long and about 12 inches tall at their shoulders. They have a small slim body, relatively long ears set close together, narrow nose and a long bushy tail tapering slightly toward a black tip. They typically carry their tail low and straight. Coat color varies from buff, tan, grizzled or yellow-grey.

The San Joaquin kit fox is found in the southern half of California in annual grassland or grassy open stages of vegetation dominated by scattered shrubs and brush. This kit fox is mainly carnivorous, feeding on desert cottontails, rodents, insects, reptiles, birds, bird eggs and vegetation. Kit foxes dig their own dens in open level areas with loose-textured soils supporting scattered, shrubby vegetation. They are active all year long, mostly nocturnal, but occasionally can be seen during the daytime in cool weather. Litters averaging 4 pups are born from February to April.

Protocol surveys were not conducted for this species. All 12 location areas were walked by Caltrans biologists to determine the presence of San Joaquin kit fox and
assess the habitat. The San Joaquin kit fox was not observed in the biological study area during any of the surveys in 2015 and 2016.

Critical habitat has not been designated for the San Joaquin kit fox.

At Location 1, the annual/nonnative grasslands within the biological study area provides suitable foraging habitat for the San Joaquin kit fox. Ground squirrel burrows were observed in the overpass embankments during surveys in 2016. No dens or sign of kit fox was observed at any of the locations in 2015 and 2016.

Locations 2-12 do not contain suitable habitat for San Joaquin kit fox denning or foraging. However, there have been recorded occurrences of the San Joaquin kit fox within 3 miles of Locations 3-8 in 1986 and Location 12 in 2001.

**Valley Elderberry Longhorn Beetle**

The Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is federally listed as threatened. Valley elderberry longhorn beetles range from Redding to Merced County, into the western foothills of the Sierra Nevada, and into the eastern foothills of the Coast Range. Critical habitat is designated for the Valley elderberry longhorn beetle in Sacramento County; essential habitat for the recovery of the species also exists in Solano County. The Valley elderberry longhorn beetle is typically found in mature riparian vegetation associated with large river systems, but its range extends from the Central Valley floor to 3,000 feet in elevation.

The beetle is dependent on its host plant, blue elderberry (*Sambucus nigra ssp. Caerulea*), which is a common component of Central Valley riparian forests. Valley elderberry longhorn beetle larvae feed and mature within elderberry stems 1 inch in diameter or larger and then exit prior to metamorphosing to the pupal stage. The life cycle takes 1 to 2 years to complete. The beetle spends most of its life in the larval stage, living within the stems of an elderberry plant. Adults emerge from late March through June, about the same time the elderberry produces flowers. The larval beetles cannot be detected within the stems, and the adult stage is short-lived; generally the only evidence of beetle use is the exit holes in the stems created by the emerging larvae. Consequently, alley elderberry longhorn beetles are assumed to be present within stems of sufficient size (i.e., 1 inch in diameter or larger at ground level) anywhere within the beetle’s known range.

There are no occurrences of the Valley elderberry longhorn beetle within 5 miles of the project. The closest occurrence is from 1999, about 7 miles to the north along the south bank of the Merced River, near the town of Livingston. Surveys for elderberry shrubs were conducted on June 20, 2016. The survey area included the biological study area and lands outside of the biological study area within 50 feet of the limits of work. A cluster of elderberry that have stems greater than 1 inch in diameter was identified within 40 feet of the existing pavement and shoulder in between a field of cultivated tomatoes and a strip of nonnative grasses on the top of the bank of Bear Creek at Location 10. Exit holes for the Valley elderberry longhorn beetle were not observed. See Appendix I for a map of the elderberry site at Location 10.
**Swainson’s Hawk**
The Swainson’s hawk (*Buteo swainsoni*), a state threatened species, is a summer migrant in the Central Valley and Sacramento Valley, Klamath Basin, northeastern Plateau, and Lassen, Kern, Mono, and Inyo counties. Individuals migrate north to California in March through May and return to South America in September through October.

Swainson’s hawks breed and forage in large expanses of grasslands, agricultural lands, and alfalfa fields. They nest in tall trees such as oaks, cottonwoods, walnuts, and willows, usually near rivers or streams next to their foraging areas. They usually prey on small mammals (especially voles), lizards, birds, and insects. Breeding occurs from late March to late August, with peak activity in late May through July. Nests are composed of a platform of sticks, bark, and fresh leaves built in a tree or bush, or on a utility pole from 4-100 feet above ground. Formerly abundant in California, their population has declined from the loss of nesting and foraging habitat.

Swainson’s hawks are well documented in the area. Numerous records of the Swainson’s hawk were identified within a 10-mile radius of the biological study area. Suitable foraging habitat is present in the biological study area. Suitable nesting habitat is present within the biological study area of Locations 6, 7, 8, 9, 10 and 12.

In 2016, an active Swainson’s hawk nest was observed within the biological study area at Location 8. Two adult Swainson’s hawks were seen in the nest and actively foraging in the area.

**Tricolored Blackbird**
The tricolored blackbird (*Agelaius tricolor*) is a medium-sized blackbird that closely resembles the common red-winged blackbird. The species was given an emergency endangered status under the California Endangered Species Act (CESA) in December 2014, but this protection expired in June 2015. As the writing of this document, the tricolored blackbird is a candidate for endangered status under CESA, but does not have any CESA protections. If the tricolored blackbird is listed between now and construction, Caltrans will coordinate with the California Department of Fish and Wildlife on how to protect this species. It is also protected under the Migratory Bird Treaty Act as amended in 1985 (50 Code of Federal Regulations Part 10 13708).

Male tricolored blackbirds are glossy black overall, with a bright scarlet wing patch in the shoulder area (epaulet) banded in white. Females are dark brown with darker grey and brown streaks. Older females also develop an orange-red epaulet. Both sexes have long, narrow, pointy bills, and narrow, pointed wings.

Tricolored blackbirds nest in large, dense colonies, typically in wetlands or marshy areas dominated by cattails or bulrushes with willows, nettles, mustards, blackberries, thistles, and mallows. In more recent decades, they have formed colonies in grain fields, and they also frequent dairies. They focus their diet on various grains, but will also consume a variety of plant and animal foods in a variety of habitats that include
shrub lands, pastures, wetlands, and rice paddies. Populations of tricolored blackbirds occur throughout the Central Valley, and a distinct sub-population occurs at scattered locations in Southern California, south of the Tehachapi Range.

The tricolored blackbird historically was one of the most numerous birds in California, with population estimates from the 1930s in the range of 2-3 million birds. Since that time, habitat loss, nest colony predation, deliberate elimination as an agricultural pest, and conflicts with agricultural practices have led to the steep declines. The 2014 statewide population estimate was only 145,000 birds, a 44 percent decline from the estimated 258,000 population in 2008. This information prompted the emergency “endangered” listing by the California Fish and Game Commission.

There are 11 recorded occurrences within 5 miles of the biological study area with dates ranging from 1971 to 2005. All of the occurrences are considered valid except for one, about 1 mile north of Location 2; that occurrence is thought to be extirpated or possibly confused with a different location.

There is suitable nesting and foraging habitats within the biological study areas at Locations 1, 3, 4, 5, 6, 7, 8, 9 and 10. However, these habitats do not fall within the limits of the proposed project impact areas.

The tricolored blackbird was not observed during surveys in 2015 and 2016.

**Environmental Consequences**

**Giant Garter Snake**

Permanent and temporary impacts are anticipated to occur to giant garter snake low-quality terrestrial habitat due to construction of the proposed project. No impacts to giant garter snake aquatic habitat are anticipated. Table 2.3 identifies the impacts for each of the project location that have potential terrestrial habitat.

| Table 2.3 Potential Area of Impact to Giant Garter Snake Terrestrial Habitats (acres) |
|---------------------------------|------------------|------------------|
| **Location** | **Terrestrial Habitat** | **Permanent** | **Temporary** |
| Location 3 | Terrestrial Habitat | 0.230 | 0 |
| Location 4 | Terrestrial Habitat | 0.182 | 0 |
| Location 5 | Terrestrial Habitat | 0.183 | 0 |
| Location 6 | Terrestrial Habitat | 0.056 | 0.113 |
| Location 8 | Terrestrial Habitat | 0.307 | 0.186 |
| Location 9 | Terrestrial Habitat | 0.236 | 0 |
| Location 10 | Terrestrial Habitat | 0.119 | 0.133 |
| **Total** | | 1.313 | 0.432 |
Permanent impacts to terrestrial habitat will result from grading and/or reconstruction of slopes during construction. Although this action will permanently alter the composition of the slopes, once construction is complete these areas will be reseeded with a native seed mix and will be restored to pre-project conditions.

Construction is anticipated to take no more than 2 weeks at each location. Disturbance or mortality from construction activities will be minimized by restricting work to the giant garter snake active season (May 1 to October 1).

Overall impacts to the area will be minimal and of short duration. The likelihood that giant garter snakes will use the burrows directly next to the highly traveled SR 140 is low when there is an abundance of higher quality adjacent habitat in the area.

Indirect effects are not anticipated due to the short duration of work and the terrestrial habitat’s return to preconstruction condition. The proposed project will not alter habitat conditions for the giant garter snake that are currently present throughout the project’s sites. Take of the species is not anticipated.

The Federal Endangered Species Act determination for giant garter snake for this project is “may affect, likely to adversely affect.” Compensatory mitigation is proposed due to permanent impacts to giant garter snake terrestrial habitat and is discussed in the Avoidance, Minimization, and Mitigation section.

See Appendix H for project impact maps for the giant garter snake habitat at Locations 3, 4, 5, 6, 8, 9, and 10.

San Joaquin Kit Fox

Permanent and temporary impacts to San Joaquin kit fox suitable foraging habitat is anticipated to occur as a result of project construction at Location 1. See Table 2.4 for a breakdown of impacts. See Appendix J for project impact mapping for the San Joaquin kit fox at Location 1.

<table>
<thead>
<tr>
<th>Table 2.4  Potential Area of Impact to San Joaquin Kit Fox Foraging Habitat (acres)</th>
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<tbody>
<tr>
<td>Location 1</td>
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<tr>
<td>Permanent</td>
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Any direct and indirect effects of the project to San Joaquin kit foxes would be limited to dispersing or transient individuals, and also would be of limited duration, occurring only during construction. Also, the project would not contribute to an increase in mortality (over baseline conditions) of the San Joaquin kit fox after construction is complete. The impact to habitat is low in comparison to the total available potential foraging and denning habitat that is available in the area. The
habitat quality within the project area is low, in comparison to the abundant adjacent higher quality habitat. Although grading and/or reconstruction of slopes will change the current conditions onsite, with reseeding, the function of the habitat after construction will be very similar to what existed before construction activities.

Implementation of the avoidance and minimization measures described in the next section will minimize both temporary and permanent impacts to the San Joaquin kit fox. The Federal Endangered Species Act determination for the San Joaquin kit fox is “may affect, not likely to adversely affect.” No compensatory mitigation for this species is required because the impacts to San Joaquin kit fox are already less than significant without mitigation. Take of the species is not anticipated.

**Valley Elderberry Longhorn Beetle**

Per the U.S. Fish and Wildlife Service Valley elderberry longhorn beetle guidelines, complete avoidance of the beetle consists of no ground-disturbing activities within 100 feet of the drip line of any elderberry shrub providing suitable Valley elderberry longhorn beetle habitat. Although the project will work within 40 feet of the elderberry shrub, no impacts to the Valley elderberry longhorn beetle are expected due to the implementation of the minimization measures, the absence of Valley elderberry longhorn beetle exit holes, and no vegetation removal or impacts to the root system in the vicinity near the elderberry shrub.

No compensatory mitigation for Valley elderberry longhorn beetle is required. The Federal Endangered Species Act determination for the Valley elderberry longhorn beetle is “may affect, not likely to adversely affect.” Take of the species is not anticipated.

**Swainson’s Hawk**

The Swainson’s hawk nest observed during the 2016 surveys is adjacent to Location 8, which is next to the highly traveled SR 140. The nest is exposed to constant traffic. Due to the close proximity to continuous traffic, there is a low potential that construction activities will disturb the Swainson’s hawks in this area.

Due to the implementation of avoidance and minimization measures, no compensatory mitigation is proposed for the Swainson’s hawk. Take of the species is not anticipated.

**Tricolored Blackbird**

The proposed project will disturb ruderal vegetation within 5 feet of the guardrails. With the implementation of minimization measures, there will be no direct or indirect impacts to the tricolored blackbird or its nesting and foraging habitat. If it is determined that there are nesting tricolored blackbirds in these areas, construction could potentially indirectly affect this species.
Avoidance, Minimization, and/or Mitigation Measures

Giant Garter Snake

Compensatory mitigation is proposed for potential impacts to giant garter snake habitat. Caltrans proposes to compensate for the permanent loss of 1.31 acres of upland habitat suitable for the giant garter snake (comprising seven of the total 12 locations) by purchasing 2.62 acres worth of credits at a U.S. Fish and Wildlife Service-approved bank whose service area covers the project area (using a 2:1 ratio [acre:acre]; 1.31 acre x 2 = 2.62 acres). This will be completed prior to project groundbreaking.

Caltrans will implement avoidance and minimization measures for the giant garter snake in consultation with the U.S. Fish and Wildlife Service.

- All construction activities will occur within the active season for giant garter snake (approximately May 1 to October 1) when the species is more likely to be moving around and can more easily avoid being disturbed.
  - In the unlikely event that work needs to occur outside of the active season, ground-disturbing activities must first be initiated during active season (prior to September 15). This way, no habitat within the construction areas will remain available for the giant garter snake to use as refugia during the inactive season; this will stop individuals from moving into active construction zones where they could be disturbed, injured, or killed by construction activities, equipment, and crews.

- A qualified biologist(s) will conduct preconstruction surveys for the species at Locations 3-6 and 8-10 no more than 24 hours prior to the start of groundbreaking; the biologist(s) also will identify areas with the potential to encounter a giant garter snake. Caltrans will provide the U.S. Fish and Wildlife Service with a written report that sufficiently documents the survey efforts. If construction stops for a period of two weeks or longer, a new preconstruction survey will be completed no more than 24 hours prior to reinitiation of work.

- Prior to the start of work, and following preconstruction surveys, temporary silt fencing (or other such fencing materials that will not entangle the giant garter snake), will be installed around the project limits at Locations 3-6 and 8-10 to prevent the species from entering the work areas. Fencing will be inspected by the contractor before the start of each work day and maintained until the project is completed. Fencing will be buried at least 6 inches below the ground to prevent giant garter snakes from attempting to burrow or move under the fence.

- Prior to the start of work, a qualified biologist(s) will provide worker environmental awareness training for all construction personnel, covering the status of the giant garter snake, how to identify the species and its habitats, the importance of avoiding impacts to the species, and what to do if an individual is encountered during construction.
• A qualified biologist(s) will be present onsite to monitor all construction activities in areas with the potential to encounter a giant garter snake.

• Standard construction best management practices will be implemented throughout the course of construction in order to avoid adverse effects to water quality.

• To avoid entangling the giant garter snake, erosion control methods will not utilize tightly woven fiber netting or similar materials.

• If a live giant garter snake is encountered at any point during preconstruction or construction activities, work will stop in the vicinity of the individual and the qualified biologist(s) will monitor the giant garter snake and allow it to move away unharmed, and of its own accord without being disturbed. Caltrans will notify the U.S. Fish and Wildlife Service of any encounter and provide a summary of the dates(s), location(s), description of the habitat in which it was found, and any other pertinent information.

• The parts of the project area that are affected temporarily will be re-contoured and re-vegetated with an appropriate, weed-free native plant seed mixture following the completion of construction.

San Joaquin Kit Fox

No compensatory mitigation is proposed, and Caltrans will implement measures based on the January 2011 U.S. Fish and Wildlife Service Standardized Recommendations that are appropriate for the proposed project:

• Preconstruction surveys will be conducted no more than 30 days prior to the beginning of ground disturbance and/or construction activities. Surveys for the San Joaquin kit fox and its dens will be performed throughout the Location 1 footprint, as well as within 200 feet of the footprint.
  
  o Prior to the start of ground disturbance and/or construction, Caltrans will submit to the U.S. Fish and Wildlife Service a letter report and map showing the results of the surveys and the location of any potential and/or known dens.

• A qualified biologist(s) will conduct an environmental awareness training program for all construction personnel, including contractors, subcontractors, and contractor’s representatives, covering the status of the San Joaquin kit fox, how to identify the species and its habitats, and the importance of avoiding impacts to the species. New construction personnel who are added to the project after the training is first conducted also will be required to take the training.

• A qualified biologist(s) will be available on-call during all construction periods throughout the life of the project.

• Disturbance to any potential, known, or natal dens identified during preconstruction survey and/or construction will be avoided. If any dens are discovered either within the project footprint or within 200 feet of the footprint, Caltrans will stop work immediately and notify U.S. Fish and Wildlife Service for further guidance.
Potential dens that are located at least 50 feet from construction will be protected by a 50-foot exclusion zone. Known dens that are located at least 100 feet from construction will be protected by a 100-foot exclusion zone. In instances where 50-foot or 100-foot exclusion zones cannot be maintained, potential and/or known dens will be monitored for three consecutive nights using tracking medium and/or a remote sensor camera, and once they are verified to be unoccupied, reduced exclusion zones (determined in coordination with the U.S. Fish and Wildlife Service) will be established. The exclusion zones will be demarcated by types of fencing or flagging that do not entangle the San Joaquin kit fox or prevent entering/exiting. Acceptable fencing designs include wooden posts connected with caution tape, orange construction cones, or orange construction fencing with a mesh size measuring less than 2 inches in diameter and with frequent gaps in the fence-line.

• To prevent the inadvertent entrapment of the San Joaquin kit or other animals during construction, all excavated, steep-walled holes or trenches measuring more than 2 feet deep will either be covered at the close of each working day using plywood or similar materials, or will be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped wildlife.

• All construction pipes, culverts, or similar structures with a diameter of 2 inches or greater that are stored on the construction site for one or more overnight periods will be thoroughly inspected for the species before burying, capping, or otherwise using the structures. If a San Joaquin kit fox is discovered during this inspection, the structure will not be disturbed until the individual leaves on its own accord.

• All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site in order to reduce the potential for attracting predator species.

• To eliminate the potential for harassment or injury to, or death of, the San Joaquin kit fox resulting from the presence of pets and firearms, neither (with the exception of firearms carried by authorized law enforcement officials) will be allowed on the project site.

• All daytime construction activities will cease one-half hour before sunset and will not begin prior to one-half hour before sunrise; this way, no work will occur between dusk and dawn when the San Joaquin kit fox is most active.

• To avoid entangling the San Joaquin kit fox, erosion control methods will not utilize tightly woven fiber netting or similar materials.

• In the event that the San Joaquin kit fox, or signs of its presence, is detected, the contractor will immediately notify Caltrans’ Resident Engineer, who will notify the qualified biologist(s). Caltrans will notify the Service as soon as possible.
Valley Elderberry Longhorn Beetle

No compensatory mitigation is proposed, and Caltrans will implement measures based on the January 2011 U.S. Fish and Wildlife Service Standardized Recommendations that are appropriate for the proposed project:

- A qualified biologist(s) will conduct an environmental awareness training program for all construction personnel, including contractors, subcontractors, and contractors’ representatives, covering the status of the Valley elderberry longhorn beetle, its host plant and habitat, and the importance of avoiding damage to the shrubs. New construction personnel who are added to the project after the training is first conducted also will be required to take the training.

- Construction at Location 10 will be conducted outside the flight season of the Valley elderberry longhorn beetle (which is defined as the period from March to July) in order to avoid effects to the species.

- Caltrans will install environmentally sensitive area (ESA) fencing around the elderberry shrubs to protect them from encroachment by construction equipment, vehicles, and personnel.

- No work will occur within 20 feet of the dripline of the elderberry shrub cluster.

Swainson’s Hawk

No compensatory mitigation is proposed and Caltrans will implement the following measures:

- If construction occurs during the nesting season (February 15–September 1), Swainson’s hawk preconstruction surveys will be conducted within 30 days prior to construction to determine if Swainson’s hawks are nesting within 0.5 mile of any of the biological study areas.

- If Swainson’s hawks are observed nesting within 0.5 mile of the project, a 600-foot-radius no-work buffer will be designated by an environmentally sensitive area fence around the nest tree wherever the no-work buffer may overlap the project construction limits. If construction activities occur within the 600-feet no-work buffer, the nest tree will be monitored by a qualified biologist during construction activities in proximity to the nest until the birds have fledged.

Tricolored Blackbird

- Preconstruction surveys will be conducted within the project impact areas to determine any presence of the tricolored blackbird.

- A qualified biologist will be present at the construction site in areas that have the potential for nesting tricolored blackbirds, during construction activities.
2.2.4 Invasive Species

**Regulatory Setting**

On February 3, 1999, President William J. Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the State’s invasive species list maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

**Affected Environment**

Five nonnative plant species—red brome (*Bromus madritensis rubens*), yellow star thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), giant reed (*Arundo donax*) and Himalayan blackberry (*Rubus armeniacus*)—were observed in and adjacent to the biological study area and within the areas of construction. These plant species are rated as highly invasive and may have severe ecological impacts (Natural Environment Study, March 2017).

**Environmental Consequences**

The proposed project is not expected to result in a substantial increase in invasive species in the biological study areas because only limited disturbance would occur with project implementation. Much of the area that would be affected by project activities would be either covered in hardscape (i.e., the SR 140 paved road shoulders) or reseeded with native seed following construction activities. These actions would inhibit the growth of weeds in these disturbed areas.

Also, special provisions intended to reduce the spread of invasive species will be included in the construction contract.

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

In compliance with the Executive Order on Invasive Species, Executive Order 13112, and guidance from the Federal Highway Administration, the landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the washing vehicles and equipment before being brought onsite, visual inspections of equipment for invasive species, and avoiding staging and work in areas with invasive species, if possible.
2.3 Construction Impacts

Construction activities for the project would cause temporary impacts for access/traffic circulation, air quality, water quality and hazardous waste. These impacts would not be substantial.

Traffic
The project would interfere with local traffic, causing minor delays. During construction, temporary lane closures will be necessary. One-lane, one-way reversing traffic control will be used at most locations to maintain the flow of traffic during construction. Pedestrian and bicycle facilities will remain open during construction. Fire and safety service providers, and local businesses, would therefore not experience substantial impacts. A detailed Traffic Management Plan would be required for the Build Alternative because of the need to maintain traffic flow through the project site. The Traffic Management Plan would cover the coordination of activities with locals, establishment of a community outreach plan, and temporary lane closures.

Air Quality
During construction, the project would generate temporary noise, dust, and air pollutants. Exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors.

Caltrans Standard Specifications pertaining to dust control and dust palliative requirement are a required part of all construction contracts and should effectively reduce and control emission impacts during construction. The provisions of Caltrans Standard Specifications, Section 14-9.02 “Air Pollution Control” and Section 10-5 “Dust Control” require the contractor to comply with the San Joaquin Valley Unified Air Pollution Control District’s rules, ordinances, and regulations. With all the appropriate Caltrans measures in place, temporary construction-related impacts would be minimized.

Water Quality
This is a maintenance project that includes minor ground-disturbance activities. It has the potential of impacting short-term water quality in the area. However, no long-term water quality impacts are anticipated.

All short-term water quality impacts will be addressed in the design and construction phases of the project. To address any potential impacts, best management practices (BMPs) would be selected and implemented in accordance with the Project Planning and Design Guide. The contractor, as required in Caltrans Standard Specifications 13-1 Water Pollution, must address all potential water quality impacts that may occur during construction.
Since the project disturbs less than one acre of soil, a Water Pollution Control Program would be prepared by the contractor in accordance with Caltrans Standard Specifications 13-1 Water Pollution.

Any potential impacts (erosion, accidental spills of hazardous material and disruption of natural drainage patterns) would be addressed, eliminated or minimized to the maximum extent practicable during design and construction by incorporating the appropriate permanent and temporary best management practices into the project.

By incorporating proper and accepted engineering practices and best management practices, the project would not produce substantial impacts to water quality during construction or its operation.

**Hazardous Waste**

During construction, there is the potential to encounter non-hazardous concentrations of aerially deposited lead (ADL) in the soil. The Caltrans Standard Special Provision pertaining to Earth Material Containing Lead, 7-1.02K (6) (j) (iii), will be added to the construction contract. A lead compliance plan is required, and all soil must be redistributed onsite.

The guardrail at some of the locations have been painted with old paint and may contain lead. At structures where existing paint systems will be disturbed, testing the paint prior to disposal will be required and a lead compliance plan will be prepared. The Caltrans Standard Special Provision pertaining to lead paint disturbance, 14-11.08, will be added to the construction contract.

Guardrail installation at some locations may require drilling into concrete structures. Asbestos-containing building materials have been known to occur in bridge concrete. The Caltrans Non-Standard Special Provision pertaining to sampling and removal of asbestos-containing building materials (14-11.11) will be added to the construction contract.

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are concerned mostly with the emissions of greenhouse gases generated by human activity, including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).
In the U.S., the main source of greenhouse gas emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of greenhouse gas emissions. The dominant greenhouse gas emitted is carbon dioxide, 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” is a term for reducing greenhouse gas emissions to reduce or “mitigate” the impacts of climate change. “Adaptation” refers to 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 greenhouse gas emissions from transportation sources.

**Federal**

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

The National Environmental Policy Act (NEPA) (42 U.S. Code 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 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. The Federal Highway Administration 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. This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability.” 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.

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2. [https://www.arb.ca.gov/cc/inventory/data/data.htm](https://www.arb.ca.gov/cc/inventory/data/data.htm)
Various efforts have been made at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

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 gives 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 main 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 U.S. Code 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.

Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, 74 Federal Register 52117 (October 8, 2009): This federal order set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. It instituted as policy of the United States that federal agencies measure, report, and reduce their greenhouse gas emissions from direct and indirect activities.

Executive Order 13693, Planning for Federal Sustainability, 80 Federal Register 15869 (March 2015). This order reaffirms the policy of the United States that federal agencies measure, report, and reduce their greenhouse gas emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and greenhouse gas emissions. It builds on the adaptation and resiliency goals in previous executive orders to ensure agency operations and facilities prepare for impacts of climate change. This order revokes Executive Order 13514.

U.S. EPA’s authority to regulate greenhouse gas emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled
that greenhouse gases 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, the U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six greenhouse gases constitute a threat to public health and welfare. Therefore, 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.

The U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of greenhouse gas emission standards for new cars and light-duty vehicles in April 2010\(^5\) 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 the 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 the NHTSA, EPA, and Air Resources Board will decide on Corporate Average Fuel Economy and greenhouse gas emissions standard stringency for model years 2022–2025. The 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 Donald Trump ordered the EPA to reopen the review and reconsider the mileage target.\(^6\)

The 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 carbon dioxide 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 greenhouse gas emissions and climate change.

Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order S-3-05 (June 1, 2005): The goal of this executive order is to reduce California’s greenhouse gas 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 Senate Bill 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 greenhouse gas emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that the Air Resources Board create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.” The Legislature also intended that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020 (Health and Safety Code Section 38551(b)). The law requires the Air Resources Board to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas reductions.

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

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard (LCFS) for California. Under this order, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by the year 2020. The Air Resources Board 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 greenhouse gas 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 greenhouse gas emissions. The amendments became effective on March 18, 2010.
Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the Air Resources Board 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): This order requires State entities under the direction of the Governor, including the Air Resources Board, 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): This order establishes an interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets. It also directs the Air Resources Board to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO2e). 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: This bill codifies the greenhouse gas reduction targets established in Executive Order 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 greenhouse gas emissions in California. AB 32 required the Air Resources Board to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing greenhouse gas emissions to 1990 levels by 2020. The Scoping Plan was first approved by the Air Resources Board in 2008 and must be updated every 5 years. The Air Resources Board approved the First Update to the Climate Change Scoping Plan on May 22, 2014. The Air Resources Board is moving forward with a discussion draft of an updated Scoping Plan that will reflect the 2030 target established in Executive Order B-30-15 and SB 32.
The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce greenhouse gas emissions. As part of its supporting documentation for the Draft Scoping Plan, the Air Resources Board released the greenhouse gas inventory for California.\(^7\) The Air Resources Board is responsible for maintaining and updating California’s Greenhouse Gas 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 2-1 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists the Air Resources Board in demonstrating progress toward meeting the 2020 goal of 431 MMTCO\(_2\)e.\(^8\) The 2017 edition of the greenhouse gas emissions inventory (released June 2017) found total California emissions of 440.4 MMTCO\(_2\)e, showing progress toward meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Climate Change 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 MMTCO\(_2\)e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO\(_2\)e.

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\(^7\) 2017 Edition of the GHG Emission Inventory Released (June 2016): https://www.arb.ca.gov/cc/inventory/data/data.htm

\(^8\) The revised target using Global Warming Potentials (GWP) from the IPCC Forth Assessment Report (AR4)
Project Analysis

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of greenhouse gas. 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.

Greenhouse gas 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 greenhouse gas emissions related to the proposed project.

Source: https://www.arb.ca.gov/cc/inventory/data/bau.htm

Figure 2-1  2020 Business as Usual (BAU) Emissions Projection 2014 Edition
**Operational Emissions**
Because this is a guardrail upgrade project and is not capacity-increasing, it is not expected to generate operational greenhouse gas emissions. However, construction equipment will generate some emissions during construction.

**Construction Emissions**
Construction greenhouse gas emissions would result from material processing, onsite 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 improved traffic management plans and changes in materials, the greenhouse gas emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Construction Climate Change Emissions, carbon dioxide (CO2), were estimated by using the Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, version 8.1.0. The project is expected to take six working months for 12 locations and produce 4.23 metric tons of CO2 during construction.

All construction contracts include Caltrans Standard Specifications that require compliance with all Air Resources Board and local air district rules, regulations, ordinances, and statutes, some of which can contribute to reducing construction greenhouse gas emissions.

**CEQA Conclusion**
While the proposed project will result in a slight increase in greenhouse gas emissions during construction, it is anticipated that the project would not result in any increase in operational greenhouse gas emissions. While it is Caltrans’ determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and California Environmental Quality Act significance, it is too speculative to make a significance determination regarding the project’s direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

**Greenhouse Gas Reduction Strategies**

**Statewide Efforts**
In an effort to further the vision of California’s greenhouse gas reduction targets outlined in AB 32 and SB 32, Governor Edmund G. Brown Jr. identified key climate change strategy pillars (concepts). See Figure 2-2. These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 greenhouse gas 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*.

**Figure 2-2 Governor’s Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals**

The transportation sector is integral to the people and economy of California. To achieve greenhouse gas 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. Greenhouse gas 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 Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Executive Order B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut greenhouse gas 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 is a statewide long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. The California Transportation Plan 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 California Transportation Plan to meet California’s climate change goals under AB 32. Accordingly, the California Transportation Plan 2040 identifies the statewide transportation system needed to achieve maximum feasible greenhouse gas emission reductions while meeting the state’s transportation needs. While Metropolitan Planning Organizations have primary responsibility for identifying land use patterns to help reduce greenhouse gas emissions, the California Transportation Plan 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 greenhouse gas emissions, among other goals. Specific performance targets in the plan that will help to reduce greenhouse gas emissions include the following:

- Increasing percentage of non-auto mode share
- Reducing vehicle miles traveled per capita
- Reducing Caltrans’ internal operational (buildings, facilities, and fuel) greenhouse gas emissions

**Funding and Technical Assistance Programs**
In addition to developing plans and performance targets to reduce greenhouse gas emissions, Caltrans also administers several funding and technical assistance programs that have greenhouse gas 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* (April 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 greenhouse gas emissions resulting from agency operations.
Project-level Greenhouse Gas Reduction Strategies

The following measures will be implemented to reduce greenhouse gas emissions and potential climate change impacts from the project:

- Caltrans Standard Specification 14-9.02 will be included in the construction contract. This standard provision states that the contractor will comply with all state and local air pollution control rules, regulations, ordinances, and statutes. In addition, this provision prohibits the contractor from disposing of material by burning.

- Construction equipment should be properly tuned to use the least amount of fuel, thus minimizing the amount of carbon emissions produced.

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 variability in 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 Council on Environmental Quality, 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, 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 the Department of Transportation to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective

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9 https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience
in current and future climate conditions.”

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

The Federal Highway Administration has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.

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

Then-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 Assessment Report) 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.

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12 https://www.fhwa.dot.gov/environment/sustainability/resilience/
In response to Executive Order 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* (December 2009),\(^{14}\) 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 Brown enhanced the overall adaptation planning effort by signing Executive Order 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 Executive Order 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.

Executive Order 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.” The March 2013 update\(^{15}\) finalizes the SLR Guidance by incorporating findings of the National Academy’s 2012 final Sea-Level Rise Assessment Report; the policy recommendations remain the same as those in the 2010 interim SLR Guidance. The guidance will be updated as necessary in the future to reflect the latest scientific understanding of how the climate is changing and how this change may affect the rates of sea-level rise.

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

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

\(^{14}\) [http://www.climatechange.ca.gov/adaptation/strategy/index.html](http://www.climatechange.ca.gov/adaptation/strategy/index.html)

Chapter 3  Comments and Coordination

Agency Consultation 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 consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings, interagency coordination meetings.

This chapter summarizes the results of Caltrans’ efforts to identify, address, and resolve project-related issues through early and continuing coordination.

Consultation and Coordination with Public Agencies

U.S. Fish and Wildlife Service

• Caltrans biologists and U.S. Fish and Wildlife Service representative John DiGregoria met at the project site in July 2015. In June 2016, Mr. DiGregoria agreed with Caltrans’ assessment that formal consultation for the giant garter snake may be required. A Biological Assessment was submitted to the U.S. Fish and Wildlife Service in August 2016, with a request for additional information in September 2016. A revised Biological Assessment was sent to the U.S. Fish and Wildlife Service in March 2017, with revised project impacts, due to changes in project scope.

• The Biological Opinion was received from U.S. Fish and Wildlife Service on September 15, 2017, which concluded formal consultation. The U.S. Fish and Wildlife Service concurred with Caltrans’ findings that the proposed project may affect, but is not likely to adversely affect either the San Joaquin kit fox or the valley elderberry longhorn beetle, and may affect, and is likely to adversely affect the giant garter snake. In addition, the U.S. Fish and Wildlife Service agreed with Caltrans’ proposed avoidance, minimization, and mitigation measures for the previously mentioned species.

• An official species list of federally endangered or threatened species that may be affected by the proposed project was requested from the U.S. Fish and Wildlife Service on September 15, 2015 and updated on February 28, 2017 using the Information for Planning and Conservation (IPaC) website. An updated U.S. Fish and Wildlife Service IPaC list was obtained on September 19, 2017 (See Appendix F).
National Oceanic and Atmospheric Administration

- Caltrans biologists contacted the National Oceanic and Atmospheric Administration (NOAA) representative Ms. Neal McIntosh in April 2016 for a National Marine Fisheries Service species list. The list was received from NOAA in May 2016. A Biological Assessment submitted to NOAA requesting informal consultation in August 2016 was retracted due to a change in scope. The project will no longer have any impacts to waterways or associated habitats. This list was updated on June 28, 2017 using the National Marine Fisheries Service’s California Species List from their website.

Native American Groups

- An internal Native American contact list compiled by the Caltrans District Native American Coordinator was originally used as guidance on whom might be on the Native American Heritage Commission list. Initial consultation letters with proposed project descriptions and maps were mailed on July 14, 2015. Follow-up emails to initial consultation letters were sent on August 17, 2015.

- Letters were mailed on December 28, 2015 to notify the Native American community of Caltrans’ findings and to request consultation regarding treatment options.

- Chairperson Katherine Perez of the Northern Valley Yokuts Tribe met with Caltrans archaeologist Jeffrey Delsescaux on June 2, 2017. She was informed that Caltrans was anticipating a No Adverse Effect with Native American monitoring during construction. Chairperson Perez had no issues with the No Adverse Effect finding as long as Native American monitors were present during construction.

- On August 31, 2017, phone calls to representatives from the different tribes were made to ensure everyone was aware of the Finding of No Adverse Effect. Chairperson Valentine Lopez, Amah Mutsun Tribal Band, had no comment on the finding. He requested that his tribe be allowed to monitor during construction. Voicemails were left for the other tribal representatives briefly describing the finding and requesting they return the call. As of this writing, no response has been received from the other tribes.

Table 3.1 shows the results of Native American consultation.
Table 3.1 Summary of Native American Consultation (as of August 31, 2017)

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amah Mutsun Tribal Band</td>
<td>Wants Native American monitoring. Had no comments on Finding of No Adverse Effect.</td>
</tr>
<tr>
<td>California Valley Miwok Tribe</td>
<td>Has no issues with proposed project.</td>
</tr>
<tr>
<td>Choinumni Tribe (Lori Planas only)</td>
<td>No response; no email or phone number for follow up on Native American Heritage Commission list.</td>
</tr>
<tr>
<td>Dumna Wo-Wah Tribal Government</td>
<td>Familiar with project and said they will respond. No response received after multiple requests. Sent letter and left voicemail discussing Finding of No Adverse Effect.</td>
</tr>
<tr>
<td>Northern Valley Yokuts Tribe</td>
<td>Wants Native American monitoring. Had no comments on Finding of No Adverse Effect.</td>
</tr>
<tr>
<td>Picayune Rancheria of Chuckchansi</td>
<td>Familiar with project and wants to be updated if any prehistoric cultural resources are discovered. Sent letter and left voicemail discussing No Finding of Adverse Effect.</td>
</tr>
<tr>
<td>Southern Sierra Miwuk Nation</td>
<td>Familiar with project and wants to be updated if any prehistoric cultural resources are discovered. Sent letter and left voicemail discussing Finding of No Adverse Effect.</td>
</tr>
</tbody>
</table>

Local Historical Society

- Emails, which included project description and maps, were sent on September 29, 2015 to the Gustine Historical Society and Merced County Historical Society to solicit information regarding any cultural resources that might be affected by the proposed guardrail upgrade project. A response was received from Patricia Snoke, Historian and Secretary at the Gustine Historical Society, on October 11, 2015. Ms. Snoke wrote that the Gustine Historical Society had no concerns regarding the proposed project. As of the writing of this document, no response has been received from the Merced County Historical Society.

State Historic Preservation Officer

- On September 5, 2017, a Finding of Effect, which describes and assesses effects to cultural resources for the proposed Merced State Route 140 Guardrail Upgrade Project, was prepared and sent to the State Historic Preservation Officer for concurrence.
- On September 12, 2017, the State Historic Preservation Officer concurred that the proposed project would have no adverse effect on historic properties located in the vicinity of the project area.
Public Participation

The Initial Study/Environmental Assessment with proposed Mitigated Negative Declaration was circulated to the public from July 3, 2017 to August 7, 2017. An opportunity for a public meeting was offered through notices in the newspaper; no one requested a meeting. Only one comment letter, from the California Department of Fish and Wildlife, was received concerning the draft document. A copy of that letter, Caltrans’ response to their comment, and the letter from the State Clearinghouse, appear at the end of this chapter.
Comment Letter from the Governor's Office of Planning and Research, State Clearinghouse and Planning Unit

August 4, 2017

Jaycee Azevedo
California Department of Transportation, District 10
1976 E. Dr. Martin Luther King Jr. Blvd
Stockton, CA 95201

Subject: Merced State Route 140 Guardrail Upgrade
SCH#: 2017072004

Dear Jaycee Azevedo:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on August 3, 2017, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1600 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.spr.ca.gov
Merced 140 Guardrail Upgrade

SCH# 2017072004
Project Title Merced State Route 140 Guardrail Upgrade
Lead Agency Caltrans #10

Type MND Mitigated Negative Declaration
Description Caltrans proposes to upgrade guardrail and other existing safety devices at 12 locations along SR 140.

Lead Agency Contact
Name Jaycee Azavedo
Agency California Department of Transportation, District 10
Phone (209) 941-1919
Fax
email
Address 1970 E. Dr. Martin Luther King Jr. Blvd
City Stockton
State CA Zip 95301

Project Location
County Merced
City Merced
Region
Lat / Long various
Cross Streets Various
Parcel No.
Township
Range
Section
Base

Proximity to:
Highways 140
Airports
Railways
Waterways San Joaquin River, various
Schools
Land Use State highway system

Project Issues Archaeologic-Historic; Biological Resources; Public Services

Reviewing Agencies Resources Agency; Central Valley Flood Protection Board; Department of Fish and Wildlife, Region 2; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Regional Water Quality Control Bd., Region 5 (Fresno); Air Resources Board, Transportation Projects; Delta Protection Commission; Delta Stewardship Council; Native American Heritage Commission

Data Received 07/05/2017 Start of Review 07/05/2017 End of Review 08/03/2017

Note: Blanks in data fields result from insufficient information provided by lead agency.
Comment Letter from the California Department of Fish and Wildlife, Central Region

July 31, 2017

Jaycee Azevedo
California Department of Transportation
1976 East Dr. Martin Luther King Jr. Boulevard
Stockton, California 95201

Subject: Merced State Route 140 Guardrail (Project); SCH#: 2017072004

Dear Mr. Azevedo:

The California Department of Fish and Wildlife (CDFW) received a Mitigated Negative Declaration/Initial Study (MND/IS) from the California Department of Transportation (Caltrans) for the above-referenced Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.1

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

CDFW ROLE

CDFW is California’s Trustee Agency for fish and wildlife resources, and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15366, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Id., § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA. (Pub. Resources Code, § 21089; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW’s lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in “take” as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish &

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The “CEQA Guidelines” are found in Title 14 of the California Code of Regulations, commencing with section 15000.
Jaycee Azevedo  
California Department of Transportation  
July 31, 2017  
Page 2

G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

PROJECT DESCRIPTION SUMMARY

Proponent: California Department of Transportation  
Objective: Caltrans proposes to upgrade guardrail and other existing safety devices at 12 locations along State Route 140 from Interstate 5 to east of State Route 99 near Planada.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist Caltrans in adequately identifying and/or mitigating the Project’s significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

Swainson’s Hawk:

Specific impacts: The Swainson’s hawk (Buteo swainsoni; SWHA) is a species listed as threatened pursuant to CESA. The MND states that in 2016, an active Swainson’s hawk nest was observed within the biological study area at guardrail location 8; two adult Swainson’s hawks were seen in the nest and actively foraging in the area. The species has the potential to be present at the other guardrail locations. Without appropriate avoidance and minimization measures, potential significant impacts include nest abandonment which may result in reduced nesting success (reduced health or vigor of eggs or young) and direct mortality. Any take of SWHA without appropriate incidental take authorization would be a violation of Fish and Game Code.

SWHA Mitigation Measure 1: To evaluate potential Project-related impacts, CDFW recommends that a qualified wildlife biologist conduct surveys for nesting SWHA following the survey methodology developed by the Swainson’s Hawk Technical Advisory Committee (SWHA TAC, 2000) prior to Project implementation.

SWHA Mitigation Measure 2: The MND states that if Swainson’s hawks are observed nesting within 0.5 mile of the Project, a 600-foot radius no-work buffer will be implemented. CDFW recommends that if Project activities will take place during the SWHA nesting season (March 1 through August 31), and active SWHA nests are present, a minimum no-disturbance buffer of 0.5 miles around each nest be implemented until the breeding season has ended, or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or
parental care for survival, to avoid nest abandonment and other take of SWHA. If a 0.5-mile buffer is not feasible, consultation with CDFW is warranted to determine if a smaller buffer from Project activities will avoid take. If take cannot be avoided, take authorization through the issuance of an incidental take permit, pursuant to Fish and Game Code § 2081(b) is necessary to comply with CESA.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database that may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNDDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the MND/IS to assist the California Department of Transportation in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Jim Vang, Environmental Scientist, at (559) 243-4014 extension 254 or Jim.Vang@wildlife.ca.gov.

Sincerely,

Julie A. Vance
Regional Manager
REFERENCES

Response to the California Department of Fish and Wildlife, Central Region

The observed Swainson’s hawk nest at Location 8 is located approximately 200 feet from SR 140 and proposed construction activities for this project. This year, 2017, during preconstruction surveys for a different project on the same alignment, the Swainson’s hawks had already fledged in July.

Unfortunately, a work window for Swainson’s hawks will not be feasible due to construction work window constraints. Construction is anticipated to begin in early July of 2020. Caltrans is proposing to have a biological monitor present during all construction activities within 600 feet of the nest, if the nest is still active. In addition, there will be no staging, refueling, or equipment maintenance allowed within 600 feet of the nest.

Because SR 140 is a heavily used route with a high volume of large trucks, and with implementation of the measures mentioned above, Caltrans does not anticipate any take of the species or its nesting habitat. Therefore, no Incidental Take Permit will be obtained for the Merced 140 Metal Beam Guardrail Project.
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This document was prepared by the following Caltrans Central Region staff:


Allam Alhabaly, Transportation Engineer. B.S., California State University, Fresno, School of Engineering; 15 years of experience in environmental technical studies, with emphasis on noise studies. Contribution: Air, Noise and Water technical studies and review.

Jaycee Azevedo, Senior Environmental Planner. Contribution: Senior reviewer of the Initial Study/Environmental Assessment.

Kristin Baker, Associate Environmental Planner (Natural Sciences). B.S., Biology, California State University, Fresno; 14 years of experience with California native plants. Contribution: Preparation of biological technical studies and review.

Jon L. Brady, Associate Environmental Planner/Architectural Historian. B.A., Political Science and Anthropology; M.A., History, California State University, Fresno; more than 30 years of experience as a consulting archaeologist and historian. Contribution: Preparation of Historic Property Survey Report.

Benjamin Broyles, Senior Environmental Planner. B.A., Anthropology, University of California, Santa Cruz; 16 years of cultural resources management experience. Contribution: Senior reviewer for cultural studies.

Andrew Chan, Environmental Planner. B.S., Environmental Science and Management, University of California, Davis. Contribution: Environmental coordination and oversight review of the Initial Study/Environmental Assessment.

Jeffrey Delsescaux, Associate Environmental Planner (Archaeology). M.A., Anthropology (Archaeology Option), California State University, Los Angeles; B.A., Anthropology, California State University, Fullerton; 8 years of experience in archaeology, 2 years in Cultural Resource Management. Contribution: Preparation of Cultural Studies reports and review.

Dena Gonzales, Senior Environmental Planner. Contribution: Senior reviewer of biological technical studies.

Sridhar Kidambi, Project Manager. Contribution: Review of the Initial Study/Environmental Assessment


Jane Sellers, Associate Environmental Planner. B.A., Journalism—News-Editorial Sequence, California State University, Fresno; more than 25 years of technical writing/editing experience; more than 16 years of reviewing and editing environmental documents and technical reports. Contribution: QA/QC Technical Editor/Reviewer.

Richard C. Stewart, Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; more than 29 years of hazardous waste and water quality experience; 15 years of paleontology/geology experience. Contribution: Preparation of paleontological technical report and review.

John Thomas, Associate Environmental Planner. B.A., Geography, California State University, Fresno; 17 years of environmental planning experience. Contribution: QA/QC NEPA Reviewer.
Chapter 5 Distribution List

State Clearinghouse
Office of Planning & Research
P.O. Box 3044
Sacramento, CA 95812-3044

California Department of Fish and Wildlife (Central Region - 4)
1234 East Shaw Avenue
Fresno, CA 93710

State Historic Preservation Officer
1725 23rd Street, Suite 100
Sacramento, CA 95816

Merced County Association of Governments
369 W. 18th Street
Merced, CA 95340

California Highway Patrol (Merced)
1500 Bell Drive
Merced, CA 95301

Merced County Board of Supervisors
2222 M Street
Merced, CA 95340

United States Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

Pacific Gas and Electric Company
Mr. Bounma Moya
650 “O” Street, BAG 23
Fresno, CA 93760-0001

AT&T California
MS. Sharon Dinnell
1116 “M” Street, Room 200
Modesto, CA 95354
Supporting documentation of all California Environmental Quality Act (CEQA) checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment (IS/EA). Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

### I. AESTHETICS: Would the project:

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
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<tbody>
<tr>
<td>a) Have a substantial adverse effect on a scenic vista?</td>
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<tr>
<td>b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?</td>
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<tr>
<td>c) Substantially degrade the existing visual character or quality of the site and its surroundings?</td>
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<tr>
<td>d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?</td>
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</table>

### 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:

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<thead>
<tr>
<th>Potentially Significant Impact</th>
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<th>Less Than Significant Impact</th>
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<tbody>
<tr>
<td>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?</td>
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</table>
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:

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

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? □ □ □ ☒

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? □ □ □ ☒

d) Expose sensitive receptors to substantial pollutant concentrations? □ □ □ ☒

e) Create objectionable odors affecting a substantial number of people? □ □ □ ☒

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? □ ☒ □ □

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? □ □ □ ☒
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<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
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<tr>
<td>V. CULTURAL RESOURCES:  Would the project:</td>
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<tr>
<td>a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?</td>
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<tr>
<td>b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?</td>
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<tr>
<td>c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</td>
<td>☐</td>
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<td>d) Disturb any human remains, including those interred outside of dedicated cemeteries?</td>
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<td>VI. GEOLOGY AND SOILS:  Would the project:</td>
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<tr>
<td>a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:</td>
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<tr>
<td>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?</td>
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<tr>
<td>ii) Strong seismic ground shaking?</td>
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<td>iii) Seismic-related ground failure, including liquefaction?</td>
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<tr>
<td>iv) Landslides?</td>
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</table>
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? 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.

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

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

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

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

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? □ □ □ ☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? □ □ □ ☒

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? □ □ □ ☒

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? □ □ □ ☒

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? □ □ □ ☒

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? □ □ □ ☒

IX. HYDROLOGY AND WATER QUALITY: Would the project:

a) 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? □ □ □ ☒
<table>
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<tr>
<th>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?</th>
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<th>h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?</th>
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<tr>
<th>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?</th>
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<td>Potentially Significant Impact</td>
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<tr>
<th>j) Inundation by seiche, tsunami, or mudflow</th>
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**X. LAND USE AND PLANNING:** Would the project:

<table>
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<tr>
<th>a) Physically divide an established community?</th>
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<td>Potentially Significant Impact</td>
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<tr>
<th>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?</th>
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<tr>
<th>c) Conflict with any applicable habitat conservation plan or natural community conservation plan?</th>
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<td>Potentially Significant Impact</td>
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**XI. MINERAL RESOURCES:** Would the project:

<table>
<thead>
<tr>
<th>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?</th>
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<td>Potentially Significant Impact</td>
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<tr>
<th>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?</th>
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<td>Potentially Significant Impact</td>
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**XII. NOISE:** Would the project result in:

<table>
<thead>
<tr>
<th>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?</th>
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<td>Potentially Significant Impact</td>
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<table>
<thead>
<tr>
<th>b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?</th>
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<td>Potentially Significant Impact</td>
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<tr>
<th>c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</th>
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<tr>
<td>d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
</tr>
<tr>
<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>
</tr>
<tr>
<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:

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<tr>
<td>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)?</td>
<td>☐</td>
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<tr>
<td>b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?</td>
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<tr>
<td>c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?</td>
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**XIV. PUBLIC SERVICES:**

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<tr>
<td>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:</td>
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<tr>
<td>Fire protection?</td>
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<td>Police protection?</td>
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<td>Schools?</td>
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<td>Parks?</td>
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<tr>
<td>Other public facilities?</td>
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### XV. RECREATION:

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</table>

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?  

X   X

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?  

X   X

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

<table>
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<th>Potential Impact</th>
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</table>

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?  

X   X

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?  

X   X

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?  

X   X

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

X   X

e) Result in inadequate emergency access?  

X   X

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?  

X   X

### 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:

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<th>Potential Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
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<td>X</td>
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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
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.

<table>
<thead>
<tr>
<th>b) Resource determined by lead agency</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
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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?

<table>
<thead>
<tr>
<th>a) Exceed wastewater treatment requirements</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
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<th>b) Required or result in new facilities</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
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<tr>
<th>c) Required or result in new facilities</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
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<tr>
<th>d) Have sufficient water supplies</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
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</table>

| e) Result in a determination by the     | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
| wastewater treatment provider           |------------------|---------------------------------|------------------|--------|
| that serves the project                 | ☐                | ☐                              | ☒                | ☐      |

<table>
<thead>
<tr>
<th>f) Be served by a landfill</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

| g) Comply with federal, state, and      | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
| local statutes and regulations related to solid waste |------------------|---------------------------------|------------------|--------|
|                                                          | ☐                | ☐                              | ☒                | ☐      |
### 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? |
|---|---|---|---|---|
| Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
| ☒ | ☐ | ☐ | ☒ |

| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? |
|---|---|---|---|
| Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
| ☒ | ☐ | ☐ | ☒ |

| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? |
|---|---|---|---|
| Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
| ☒ | ☐ | ☐ | ☒ |
Appendix B  Resources Evaluated Relative to the Requirements of Section 4(f)

This section of the document discusses parks, recreational facilities, wildlife refuges and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection either because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

CA-MER-6 lies below fill material on State Route 140. The site is not anticipated to be impacted due to the project having only minimal excavation. In addition, since the site is only eligible for the National Register for Historic Places under Criterion D, data recovery, preservation in place is not important for this site. Therefore, under the current scope of work, Section 4(f) is not triggered for this site.

Delta Mendota Canal at Location 2 will not be impacted as all work will take place on the approaches to the bridge. The guardrail approaches to the bridge are not considered to be part of the bridge structure itself. There will be no work on the bridge rail attached to the bridge or the bridge itself.

San Luis National Wildlife Refuge sits directly south of Locations 3, 4, and 5. No construction activities will take place in the wildlife refuge and normal wildlife refuge activities will not be affected.

Great Valley Grasslands State Park sits directly south of Location 6. No construction activities would take place in the park and normal park activities will not be affected.
March 2013

NON-DISCRIMINATION POLICY STATEMENT

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

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

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

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"
Appendix D Minimization and/or Mitigation Summary

Less than Significant Impacts with Mitigation

Biological Resources
- Caltrans proposes to compensate for the permanent loss of 1.31 acres of upland habitat suitable for the giant garter snake (comprising seven of the total 12 locations) by purchasing 2.62 acres worth of credits at a U.S. Fish and Wildlife Service-approved bank whose service area covers the project area (using a 2:1 ratio [acre:acre]; 1.31 acre x 2=2.62 acres) This will be completed prior to project ground-breaking.

Less than Significant Impacts

Utilities
- Utilities will be relocated to accommodate construction of the project. All utility relocation work will be done by the affected utility companies. Utility users will be informed of the date and time in advance of any service disruptions.
- A traffic management plan will be developed to minimize delays and maximize safety during construction. The traffic management plan may include, but is not limited to, the following:
  1. Release of information through brochures and mailers, press releases, and notices from the Caltrans public information office.
  2. Use of fixed and portable changeable message signs.
  3. Incident management through the Construction Zone Enhancement Enforcement Program and the transportation management plan.

Cultural Resources
- Establishment of an environmentally sensitive area (ESA) will be designated by environmentally sensitive area fencing within Caltrans’ right-of-way. An ESA will cover the boundary of the cultural sites at CA-MER-6, which will prevent the contractor from accessing the sites during construction.
- An archaeologist and Native American monitor will be onsite during construction to ensure the integrity of the environmentally sensitive area and observe any unanticipated discoveries that might become exposed through construction activities.

Biological Resources
- All construction activities will occur within the active season for the giant garter snake (approximately May 1 to October 1) when the species is more likely to be moving around and can more easily avoid being disturbed.
In the unlikely event that work needs to occur outside of the active season, ground-disturbing activities must first be initiated during active season (prior to September 15). This way, no habitat within the construction areas will remain available for the giant garter snake to use as refugia during the inactive season; this will stop individuals from moving into active construction zones where they could be disturbed, injured, or killed by construction activities, equipment, and crews.

- A qualified biologist(s) will conduct preconstruction surveys for the species at Locations 3-6 and 8-10 no more than 24 hours prior to the start of groundbreaking; the biologist(s) also will identify areas with the potential to encounter a giant garter snake. Caltrans will provide the U.S. Fish and Wildlife Service with a written report that sufficiently documents the survey efforts. If construction stops for a period of two weeks or longer, a new preconstruction survey will be completed no more than 24 hours prior to reinitiation of work.

- Prior to the start of work, and following preconstruction surveys, temporary silt fencing (or other such fencing materials that will not entangle the giant garter snake), will be installed around the project limits at Locations 3-6 and 8-10 to prevent the species from entering the work areas. Fencing will be inspected by the contractor before the start of each work day and maintained until the project is completed. Fencing will be buried at least 6 inches below the ground to prevent giant garter snake from attempting to burrow or move under the fence.

- Prior to the start of work, a qualified biologist(s) will provide worker environmental awareness training for all construction personnel, covering the status of the giant garter snake, how to identify the species and its habitats, the importance of avoiding impacts to the species, and what to do if an individual is encountered during construction.

- A qualified biologist(s) will be present onsite to monitor all construction activities in areas with the potential to encounter a giant garter snake.

- Standard construction best management practices will be implemented throughout the course of construction in order to avoid adverse effects to water quality.

- To avoid entangling the giant garter snake, erosion control methods will not utilize tightly woven fiber netting or similar materials.

- If a live giant garter snake is encountered at any point during preconstruction or construction activities, work will stop in the vicinity of the individual and the qualified biologist(s) will monitor the giant garter snake and allow it to move away unharmed, and of its own accord without being disturbed. Caltrans will notify the U.S. Fish and Wildlife Service of any encounter and provide a summary of the dates(s), location (s), description of the habitat in which it was found, and any other pertinent information.

- The parts of the project area that are affected temporarily will be re-contoured and re-vegetated with an appropriate, weed-free native plant seed mixture following the completion of construction.
• Preconstruction surveys will be conducted no more than 30 days prior to the beginning of ground disturbance and/or construction activities. Surveys for the San Joaquin kit fox and its dens will be performed throughout the Location 1 footprint, as well as within 200 feet of the footprint.
  
  o Prior to the start of ground disturbance and/or construction, Caltrans will submit to the U.S. Fish and Wildlife Service a letter report and map showing the results of the surveys and the location of any potential and/or known dens.

• A qualified biologist(s) will conduct an environmental awareness training program for all construction personnel, including contractors, subcontractors, and contractor’s representatives, covering the status of the San Joaquin kit fox, how to identify the species and its habitats, and the importance of avoiding impacts to the species. New construction personnel who are added to the project after the training is first conducted also will be required to take the training.

• A qualified biologist(s) will be available on-call during all construction periods throughout the life of the project.

• Disturbance to any potential, known, or natal dens identified during preconstruction survey and/or construction will be avoided. If any dens are discovered either within the project footprint or within 200 feet of the footprint, Caltrans will stop work immediately and notify U.S. Fish and Wildlife Service for further guidance.

  o Potential dens that are located at least 50 feet from construction will be protected by a 50-foot exclusion zone. Known dens that are located at least 100 feet from construction will be protected by a 100-foot exclusion zone. In instances where 50-foot or 100-foot exclusion zones cannot be maintained, potential and/or known dens will be monitored for three consecutive nights using tracking medium and/or a remote sensor camera, and once they are verified to be unoccupied, reduced exclusion zones (determined in coordination with the U.S. Fish and Wildlife Service) will be established. The exclusion zones will be demarcated by types of fencing or flagging that do not entangle the San Joaquin kit fox or prevent entering/exiting. Acceptable fencing designs include wooden posts connected with caution tape, orange construction cones, or orange construction fencing with a mesh size measuring less than 2 inches in diameter and with frequent gaps in the fence-line.

• To prevent the inadvertent entrapment of the San Joaquin kit or other animals during construction, all excavated, steep-walled holes or trenches measuring more than two feet deep will either be covered at the close of each working day using plywood or similar materials, or will be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped wildlife.
• All construction pipes, culverts, or similar structures with a diameter of 2 inches or greater that are stored on the construction site for one or more overnight periods will be thoroughly inspected for the species before burying, capping, or otherwise using the structures. If a San Joaquin kit fox is discovered during this inspection, the structure will not be disturbed until the individual leave on its own accord.

• All food-related trash items such as wrappers, can, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site in order to reduce the potential for attracting predator species.

• To eliminate the potential for harassment or injury to, or death of, the San Joaquin kit fox resulting from the presence of pets and firearms, neither (with the exception of firearms carried by authorized law enforcement officials) will be allowed on the project site.

• All daytime construction activities will cease one-half hour before sunset and will not begin prior to one-half hour before sunrise; this way, no work will occur between dusk and dawn when the San Joaquin kit fox is most active.

• To avoid entangling the San Joaquin kit fox, erosion control methods will not utilize tightly woven fiber netting or similar materials.

• In the event that the San Joaquin kit fox, or its signs of its presence, is detected, the contractor will immediately notify Caltrans’ Resident Engineer, who will notify the qualified biologist(s). Caltrans will notify the U.S. Fish and Wildlife Service as soon as possible.

• A qualified biologist(s) will conduct an environmental awareness training program for all construction personnel, including contractors, subcontractors, and contractors’ representatives, covering the status of the valley elderberry longhorn beetle, its host plant and habitat, and the importance of avoiding damage to the shrubs. New construction personnel who are added to the project after the training is first conducted also will be required to take the training.

• Construction at Locations 10 will be conducted outside the flight season of the valley elderberry longhorn beetle (which is defined as the period from March to July) in order to avoid effects to the species.

• Caltrans will install environmentally sensitive area (ESA) fencing around the elderberry shrubs to protect them from encroachment by construction equipment, vehicles, and personnel.

• No work will occur within 20 feet of the dripline of the elderberry shrub cluster.

• If construction occurs during the nesting season (February 15–September 1), Swainson’s hawk preconstruction surveys will be conducted within 30 days prior to construction to determine if Swainson’s hawks are nesting within 0.5 mile of any of the biological study areas.

• If Swainson’s hawks are observed nesting within 0.5 mile of the project, a 600-foot-radius no-work buffer will be designated by an environmentally sensitive area fence around the nest tree wherever the no-work buffer may overlap the
project construction limits. If construction activities occur within the 600-feet no-
work buffer, the nest tree will be monitored by a qualified biologist during
construction activities in proximity to the nest until the birds have fledged.

- Preconstruction surveys will be conducted within the project impact areas to
determine any presence of the tricolored blackbird.

- A qualified biologist will be present at the construction site in areas that have the
potential for nesting tricolored blackbirds, during construction activities.

- Clearing and grubbing will be completed outside of the nesting season, unless
deemed unfeasible to avoid unnecessary impacts to migratory birds.

- Migratory bird surveys will be completed prior to the start of construction if
commencement occurs during the nesting season, or prior to any clearing and
grubbing during the nesting season.

- The migratory bird preconstruction survey will include clearing all vegetative
substrate as well as bare ground.

- Any nests discovered during the preconstruction surveys may be Environmentally
Sensitive Area-protected with an appropriate construction buffer determined by a
qualified biologist, and may include consultation with the California Department
of Fish and Wildlife to avoid impacts to young birds until they are able to fledge
from the nest.

- Prior to the start of construction activities, the project biologist will conduct a
worker awareness training session for all construction personnel, which will
describe the listed species and their habitat requirements, the specific measures
being taken to protect individuals of listed species in the project area, and the
boundaries within which project activities will be restricted.

- To avoid potential indirect impacts to the corridors of Essential Fish Habitat, silt
fencing will be installed to avoid any runoff or contamination of adjacent
waterways.

- Preconstruction surveys will be conducted to inspect the undersides of the
bridges. If bats are detected within the roost at the time of construction or
hibernation sites are found, a biological monitor may be required to ensure no
unanticipated impacts to the bats occur.

- Consultation with the California Department of Fish and Wildlife will be initiated
during final design if Caltrans determines a 1602 Streambed Alteration
Agreement is required for construction related work along the bank of Locations
3, 4, 5, 6, 8, 9 and 10.

**Hazardous Waste**

- The Caltrans Standard Special Provision pertaining to Earth Material Containing
Lead, 7-1.02K (6) (j) (iii), will be added to the construction contract. This
provision states that a lead compliance plan is required and all soil must be
redistributed onsite.
• The Caltrans Non-Standard Special Provision pertaining to sampling and removal of asbestos containing building materials (14-11.11) will be added to the construction contract.

• The Caltrans Standard Special Provision pertaining to lead paint disturbance, 14-11.08, will be added to the construction contract. At structures where existing paint systems will be disturbed, testing the paint prior to disposal will be required and a lead compliance plan will be prepared.
Appendix E  List of Acronyms

AC - Asphalt-concrete
ADI - Area of Direct Impact
APE - Area of Potential Effects
ARB - Air Resources Board
ASR - Archaeological Survey Report
BA - Biological Assessment
BAU - Business as Usual
BSA - Biological Study Area
CAFE - Corporate Average Fuel Economy
Cal/EPA - California Environmental Protection Agency
CCIC - Central California Information Resource Center
CCRD - Caltrans Cultural Resource Database
CDFW - California Department of Fish and Wildlife
CEQ - Council on Environmental Quality
CEQA - California Environmental Quality Act
CESA - California Endangered Species Act
CFR - Code of Federal Regulations
CMS - Changeable Message Sign
CNDDDB - California Natural Diversity Database
CO₂ - Carbon Dioxide
CTP - California Transportation Plan
EFH - Essential Fish Habitat
EO - Executive Order
ESA - Environmentally Sensitive Area
FESA - Federal Endangered Species Act
FHWA - Federal Highway Administration
FTIP - Federal Transportation Improvement Program
GGS - Giant garter snake
GHG - Greenhouse gas
HPSR - Historic Property Survey Report
IPaC - Information for Planning and Conservation
IPCC - Intergovernmental Panel on Climate Change
LCFS - Low Carbon Fuel Standard
MBTA - Migratory Bird Treaty Act
MCAG - Merced County Association of Governments
MGBR - Metal beam guardrail
MMTCO\textsubscript{2}e - Million Metric Tons of Carbon Dioxide Equivalent
MPO - Metropolitan Planning Organization
MSFCMA - Magnuson Stevens Fisheries Conservation and Management Act
NAHC - Native American Heritage Commission
NEPA - National Environmental Policy Act
NES - Natural Environment Study
NHTSA - National Highway Traffic Safety Administration
NMFS - National Marine Fisheries Service
NOAA - National Oceanic and Atmospheric Administration
NRHP - National Register for Historic Places
OPR - Office of Planning and Research
SCS - Sustainable Communities Strategy
SHPO - State Historic Preservation Officer
USFWS - U.S. Fish and Wildlife Service
USGCRP – U.S. Global Change Research Program
WBWG - Western Working Bat Group
Appendix F  USFWS Species List

In Reply Refer To:
Consultation Code: 08ESMMP00-2015-SLI-1365
Event Code: 08ESMMP00-2017-E-00078
Project Name: 10-07110

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

To Whom It May Concern:

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

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:
http://www.nmfs.noaa.gov/seces/protect/species_list/species_lists.html

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List
Official Species List

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

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600
Project Summary

Consultation Code: 08ESMF00-2015-SLI-1365
Event Code: 08ESMF00-2017-E-09078
Project Name: 10-OY110
Project Type: TRANSPORTATION
Project Description: Median Barrier Guardrail upgrade at various locations along State Route 140 between I-5 and Placerville Road.
10-MER-140-PM 0.00 to PM 42.17

Project Location:
Approximate location of the project can be viewed in Google Maps:
https://www.google.com/maps/place/37.27889824951863/-120.9441828471864/W

Counties: Merced, CA
Endangered Species Act Species

There is a total of 17 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office’s jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresno Kangaroo Rat <em>Dipodomys nitratoides exilis</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>There is final designated critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/eec/species/5150">https://ecos.fws.gov/eec/species/5150</a></td>
<td></td>
</tr>
<tr>
<td>San Joaquin Kit Fox <em>Vulpes macrotis mutica</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>No critical habitat has been designated for this species.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/eec/species/2873">https://ecos.fws.gov/eec/species/2873</a></td>
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</table>

Reptiles

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blunt-nosed Leopard Lizard <em>Gambelia stiles</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>No critical habitat has been designated for this species.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/eec/species/6275">https://ecos.fws.gov/eec/species/6275</a></td>
<td></td>
</tr>
<tr>
<td>Giant Garter Snake <em>Thamnophis gigas</em></td>
<td>Threatened</td>
</tr>
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<td>No critical habitat has been designated for this species.</td>
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<td>Species profile: <a href="https://ecos.fws.gov/eec/species/4482">https://ecos.fws.gov/eec/species/4482</a></td>
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Amphibians

**NAME**

*California Red-legged Frog Rana draytonii*
- There is final designated critical habitat for this species. Your location is outside the critical habitat.
- Species profile: [https://eca.fws.gov/sep/species289](https://eca.fws.gov/sep/species289)

*California Tiger Salamander Ambystoma californiense*
- Population: U.S.A. (Central CA DPS)
- There is final designated critical habitat for this species. Your location is outside the critical habitat.
- Species profile: [https://eca.fws.gov/sep/species2076](https://eca.fws.gov/sep/species2076)

**Fish**

**NAME**

*Delta Smelt Hypomesus transpacificus*
- There is final designated critical habitat for this species. Your location is outside the critical habitat.
- Species profile: [https://eca.fws.gov/sep/species521](https://eca.fws.gov/sep/species521)

*Steelhead Oncorhynchus (=Salmo) mykiss*
- Population: Northern California DPS
- There is final designated critical habitat for this species. Your location is outside the critical habitat.
- Species profile: [https://eca.fws.gov/sep/species1067](https://eca.fws.gov/sep/species1067)

**Insects**

**NAME**

*Valley Elderberry Longhorn Beetle Deosaurus californiensis dimorphus*
- There is final designated critical habitat for this species. Your location is outside the critical habitat.
- Species profile: [https://eca.fws.gov/sep/species7830](https://eca.fws.gov/sep/species7830)
- Habitat assessment guidelines:
## Crustaceans

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<td>Vernal Pool Fairy Shrimp <em>Branchinecta lynchi</em></td>
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<tr>
<td>Vernal Pool Tadpole Shrimp <em>Lepidurus packardi</em></td>
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There is final designated critical habitat for this species. Your location overlaps the critical habitat.

Species profile: [https://ecos.fws.gov/ecp/species/5246](https://ecos.fws.gov/ecp/species/5246)

Species profile: [https://ecos.fws.gov/ecp/species/398](https://ecos.fws.gov/ecp/species/398)

Species profile: [https://ecos.fws.gov/ecp/species/2246](https://ecos.fws.gov/ecp/species/2246)
Flowering Plants

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<tr>
<td>Fleshly Owl's-clover Castilleja campestris ssp. succulenta</td>
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<td>Greene's Tactoria Tactoria greenii</td>
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Species profile: https://ecos.fws.gov/species [ ]

Critical habitats

There are 5 critical habitats wholly or partially within your project area under this office's jurisdiction.

<table>
<thead>
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Species profile: https://ecos.fws.gov/species [ ]
Merced 140 Guardrail Upgrade

Vernal Pool Fairy Shrimp Branchinecta lynchii
https://ecos.fws.gov/esp/species/99fbearshab

Vernal Pool Tadpole Shrimp Leptidurus packardi
https://ecos.fws.gov/esp/species/2246sceychab

Final designated

Final designated
# Appendix G

## CNDDDB Species List

### Selected Elements by Common Name

California Department of Fish and Wildlife
California Natural Diversity Database

<table>
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<th>Species</th>
<th>Element Code</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Global Rank</th>
<th>State Rank</th>
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Government Version – Dated September 1, 2017 – Biogeographic Data Branch
Report Printed on Monday, September 25, 2017
Information Expires 3/1/2018

Merced 140 Guardrail Upgrade • 99
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Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database

Government Version – Dated September, 2017 – Biggeographic Data Branch
Report Printed on Monday, September 25, 2017
Information Expires 3/1/2018

Merced 140 Guardrail Upgrade • 101
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Record Count: 65
## Appendix H CNPS Species List

### Plant List

31 matches found. Click on scientific name for details.

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**Suggested Citation**

## Appendix I

### NOAA Species List

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### Merced 140 Guardrail Upgrade • 105
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X - Species identified in the Quads
Merced 140 Guardrail Upgrade
Mor-140-0.0/42.1, EA 10-0Y110

- Ordinary High Water Mark (OHWM)
- 200 ft From OHWM (terrestrial habitat)
- Potential Permanent Impact
- Potential Temporary Impact
- Aquatic Habitat
- Terrestrial Habitat
- Biological Study Area
- Potential Impact Area
- Limits of Earthwork
- Approximate Existing Right of Way

---

Potential Area of Impact to Giant Garter Snake Habitat (acres)

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Location 10
Appendix K  San Joaquin Kit Fox Impact Area Mapping

| Potential Area of Impact to Kit Fox Foraging Habitat (acres) |
|-----------------|-----------------|
| Permanent       | 2.322           |
| Temporary       | 0.889           |

**Merced 140 Guardrail Upgrade**

- Potential Permanent Impact
- Potential Temporary Impact
- Biological Study Area
- Potential Impact Area
- Limits of Earthwork
- Approximate Existing Right of Way

**Location 1**
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Appendix L  Valley Elderberry Beetle Impact Area Mapping
## Appendix M  Federal Endangered Species Act Findings

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**Status:** Federal Endangered (FE); Federal Threatened (FT)
Appendix N USFWS Biological Opinion

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2015
Sacramento, California 95825-1846

SEP 15 2017

Dena Gonzalez
Chief, Central Region Biology Branch
California Department of Transportation, District 6
855 M Street, Suite 200
Fresno, California 93721

Subject: Formal Consultation on the State Route 140 Guardrail Upgrade Project, Merced County, California (California Department of Transportation 10-MER-140-PM 0.0-42.1; EA 10-JY110)

Dear Ms. Gonzalez:

This letter is in response to the California Department of Transportation’s (Caltrans) August 5, 2016, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on its action to construct the proposed State Route 140 Guardrail Upgrade Project (project) in Merced County, California. Your letter request was received by the Service on August 8, 2016. At issue are the proposed project’s effects on the federally-threatened giant garter snake (Thamnophis sirtalis) and valley elderberry longhorn beetle (Drepanosiphum californicum demorpho), and the federally-endangered San Joaquin kit fox (Vulpes macrotis mutica). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

Caltrans has assumed the Federal Highway Administration’s (FHWA) responsibilities for formal section 7 consultation per the Act, in accordance with 23 U.S.C. 327, and as described in the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding between the FHWA and Caltrans (effective October 1, 2012, and reauthorized on March 30, 2017).

The federal action on which we are consulting is Caltrans’ proposed upgrades to metal beam guardrails, terminal systems, end treatments, and crash cushions at 10 bridge sites and one culvert crossing location along State Route (SR) 140, between Interstate 5 and the City of Merced in Merced County, as well as the construction of a vehicle pull-out at a roadside location approximately 5 miles (mi) east of Merced. Pursuant to 50 CFR 402.12(g), you submitted a revised biological assessment, which superseded your original biological assessment, for our review and requested concurrence with the findings presented therein. These findings concluded that the proposed project may affect, but is not likely to adversely affect either the San Joaquin kit fox or the valley elderberry longhorn beetle, and may affect, and is likely to adversely affect the giant garter snake.

In considering your request, we based our evaluation on the following: (1) Caltrans’ August 5, 2016 letter and its supporting Merced 140 Guardrail Upgrade Biological Assessment (Biological Assessment), dated August 2016; (2) Caltrans’ revised Biological Assessment, dated March 2017, and received by the Service on March 9, 2017; (3) email and telephone correspondence between the Service and Caltrans; and (4) other information available to the Service.
Discussion on the San Joaquin Kit Fox and Valley Elderberry Longhorn Beetle

According to the California Natural Diversity Database (CNDDB, 2017), there are no recorded occurrences of the San Joaquin kit fox or the valley elderberry longhorn beetle within the action area. The closest San Joaquin kit fox record is located approximately 0.5 mi southeast of the SR 140/1-5 separation bridge (Location 1, one of 12 sites comprising the project footprint); tracks were detected here in 1992. The second closest record is of a den, discovered approximately 2.1 mi southwest of the Location 1 bridge site sometime between 1972 and 1975. No records for the valley elderberry longhorn beetle have been documented in the vicinity of the action area. The closest record for this species dates from 1999 and is located approximately 21.7 mi northeast of the Location 1 bridge site along the south bank of the Merced River, near the town of Livingston (or approximately 12.5 mi northwest of the Location 10 bridge site, which is situated further east on SR 140 at Bear Creek).

Caltrans conducted reconnaissance surveys of the entire project extent (10 bridges, one culvert, and one roadside location) over the course of multiple days: May 22 and July 29, 2015, and April 12 and May 20, 2016. Caltrans also conducted den surveys for the San Joaquin kit fox on April 12, 2016, as well as surveys for the valley elderberry longhorn beetle on May 9, 2016. In September 2016, the Location 12 roadside area was re-added to the project (after initially being removed), and Caltrans conducted another reconnaissance survey here on September 14, 2016. No potential or known San Joaquin kit fox dens or associated sign were detected during any of these surveys. Suitable foraging habitat for the species was identified at Location 1 and California ground squirrel (Oenomys beecheyi) burrows were observed in the overpass embankments at this location during reconnaissance surveys in 2016. This indicates that there is a potential prey source in the area for the San Joaquin kit fox. A cluster of seven elderberry shrubs (Sambucus sp.) was identified approximately 40 feet (12 m) south of the SR 140/Bear Creek Bridge (Location 10), bordering a field of cultivated tomatoes and a strip of nonnative grasses on top of the western bank of Bear Creek. Although Caltrans did not observe any potential exit holes for the valley elderberry longhorn beetle on these shrubs, the shrubs are still suitable habitat for the species.

Caltrans proposes to implement the following conservation measure for the San Joaquin kit fox and the valley elderberry longhorn beetle to reduce any potential effects. For the purpose of this consultation, a "qualified biologist," as referenced in this document, refers to an individual who, at a minimum, holds a four-year degree in a relevant biological field and who has demonstrated knowledge of, and experience with, the species. Caltrans will submit the names and qualifications of suitable individuals (e.g., a resume) for Service approval prior to beginning work.

San Joaquin kit fox:

1. Preconstruction surveys will be conducted no more than 30 days prior to the beginning of ground disturbance and/or construction activities. Surveys for the San Joaquin kit fox and its dens will be performed throughout the Location 1 footprint, as well as within 200 ft. of the footprint.
   a. Prior to the start of ground disturbance and/or construction, Caltrans will submit to the Service a letter report and map showing the results of the surveys and the location of any potential and/or known dens.

2. A qualified biologist(s) will conduct an environmental awareness training program for all construction personnel, including contractors, subcontractors, and contractor’s representatives, covering the status of the San Joaquin kit fox, how to identify the species and its habitats, and
the importance of avoiding impacts to the species. New construction personnel who are added to the project after the training is first conducted also will be required to take the training.

3. A qualified biologist(s) will be available on-call during all construction periods throughout the life of the project.

4. Disturbance to any potential, known, or natal dens identified during preconstruction surveys and/or construction will be avoided. If any dens are discovered either within the project footprint or within 200 ft. of the footprint, Caltrans will stop work immediately and notify the Service for further guidance.

a. Potential dens that are located at least 50 ft. from construction will be protected by a 50 ft. exclusion zone. Known dens that are located at least 100 ft. from construction will be protected by a 100 ft. exclusion zone. In instances where 50 ft. or 100 ft. exclusion zones cannot be maintained, potential and/or known dens will be monitored for three consecutive nights using tracking medium and/or a remote sensor camera, and once they are verified to be unoccupied, reduced exclusion zones (determined in coordination with the Service) will be established. The exclusion zones will be demarcated by types of fencing or flagging that do not entangle the San Joaquin kit fox or prevent ingress/egress. Acceptable fencing designs include wooden posts connected with caution tape, orange construction cones, or orange construction fencing with a mesh size measuring less than 2-inches in diameter and with frequent gaps in the fence-line.

5. To prevent the inadvertent entrapment of the San Joaquin kit fox or other animals during construction, all excavated, steep-walled holes or trenches measuring more than 2 ft. deep either will be covered at the close of each working day using plywood or similar materials, or will be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped wildlife.

6. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored on the construction site for one or more overnight periods will be thoroughly inspected for the species before burying, capping, or otherwise using the structures. If a San Joaquin kit fox is discovered during this inspection, the structure will not be disturbed until the individual leaves of its own accord.

7. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site in order to reduce the potential for attracting predator species.

8. To eliminate the potential for harassment or injury to, or death of, the San Joaquin kit fox resulting from the presence of pets and firearms, neither (with the exception of firearms carried by authorized law enforcement officials) will be allowed on the project site.

9. All daytime construction activities will cease one-half hour before sunset and will not begin prior to one-half hour before sunrise; this way, no work will occur between dusk and dawn when the San Joaquin kit fox is most active.

10. To avoid entangling the San Joaquin kit fox, erosion control methods will not utilize tightly woven fiber netting or similar materials.
11. In the event that the San Joaquin kit fox, or its sign, is detected, the contractor will immediately notify Caltrans’ Resident Engineer, who will notify the qualified biologist(s). Caltrans will notify the Service as soon as possible.

**Valley elderberry longhorn beetle**

1. A qualified biologist(s) will conduct an environmental awareness training program for all construction personnel, including contractors, subcontractors, and contractor’s representatives, covering the status of the valley elderberry longhorn beetle, its host plant and habitat, and the importance of avoiding damage to the shrubs. New construction personnel who are added to the project after the training is first conducted also will be required to take the training.

2. Construction work at Location 10 will be conducted outside of the flight season of the valley elderberry longhorn beetle (which is defined as the period from March to July) in order to avoid effects to the species.

3. Caltrans will install environmentally sensitive area fencing around the elderberry shrubs to protect them from encroachment by construction equipment, vehicles, and personnel.

4. No work will occur within 20 ft. of the delineation of the elderberry shrub cluster.

Caltrans has determined that the proposed project is not likely to adversely affect the San Joaquin kit fox. The Service concurs with this conclusion for the following reasons:

(1) Suitable foraging habitat for the species, in the form of annual/non-native grassland, was identified by Caltrans at only one of the total 12 construction locations (Location 1). No individuals, dens, scats, or tracks were identified at Location 1 during surveys carried out in 2015 and 2016.

(2) Although a portion of the project (Locations 1-7) is located within two satellite recovery areas for the San Joaquin kit fox (i.e., S2: Western Merced and Stanislaus Counties and S3: Central Merced County) (Service, 2010), subpopulation trends for the species within both of these recovery units are critical. In S3, San Joaquin kit foxes are presumed to be extirpated, and in S2 (which covers Location 1), the species has declined, though there is some presence in the southern portion of the recovery unit. However, the southern end of S2 is situated far south of the Location 1 bridge site. Consequently, the likelihood that the San Joaquin kit fox occurs at Location 1 is low.

(3) Location 1 is situated north of the region around the I-5/SR 152/SR 33 junctions, which over the years, has become a pinch point for the north-south movement of the San Joaquin kit fox along the western side of the San Joaquin Valley. The past development of the San Luis Reservoir, the O’Neill Forebay, the California Aqueduct, Delta-Mendota Canal, Outside Canal, Los Banos Reservoir, as well as the commercial and residential development around Santa Nella, and the I-5 and SR 152 and SR 33 highways themselves, have created considerable barriers to the north-south movement of the San Joaquin kit fox in, and beyond this region. Accordingly, the likelihood that the species occurs at Location 1 is low.

(4) The implementation of Caltrans’ proposed conservation measures will reduce the potential for adverse effects to the species.
Dena Gonzalez

(5) The effects from construction activities on habitat suitable for the species [2.32 acres (ac) of permanently affected habitat and 0.85 ac of temporarily affected habitat] will be restricted to a single site (spread among the corners of the bridge intersection at Location 1) and will be small-scale relative to the potential habitat that exists for the species outside of this limited footprint. For this reason, as well as for the reasons provided above, the loss of, and disturbance to, this habitat at Location 1 is insignificant and does not reach the scale where take occurs.

Caltrans also has determined that the proposed project is not likely to adversely affect the valley elderberry longhorn beetle. The Service concurs with this conclusion for the following reasons:

(1) Of the total 12 construction locations, Location 10 is the only site at which elderberry shrubs were discovered by Caltrans. The scope and nature of the proposed construction work at this location will be small-scale and will not encroach into riparian habitat or remove riparian vegetation; activities here will not occur closer than 20 ft. from the dripline of the elderberry shrub cluster, so direct adverse effects to the root system, as well as to the shrubs are unlikely to occur.

(2) Riparian habitat at Location 10 consists of narrow strips restricted to the western and eastern banks of Bear Creek on both northern and southern sides of SR 140; these strips are situated outside the construction footprint. The cluster of shrubs is located on the northwestern side of Bear Creek, separated from the riparian habitat by a thin band of nonnative grasses. These shrubs are isolated individuals, surrounded by neighboring expanses of agricultural lands. Because of the cluster’s isolation, as well as the valley elderberry longhorn beetle’s limited physical dispersal capability (Collinge et al., 2001, as cited in Service, 2017), the colonization of these shrubs by valley elderberry longhorn beetles from other areas is unlikely to occur, particularly given that the closest known occurrence of the species was recorded approximately 12.5 mi northwest of the Location 10 bridge site.

(3) The implementation of Caltrans’ proposed conservation measures will reduce the potential for adverse effects to the species.

For the reasons described above, the potential for the action to adversely affect either the San Joaquin kit fox or the valley elderberry longhorn beetle is discountable.

The remainder of this document provides our biological opinion on the effects of the proposed project on the giant garter snake.

Consultation History

August 8, 2016: The Service received hard copies of Caltrans’ Biological Assessment and its August 5, 2016 letter requesting initiation of formal consultation.

September 1, 2016: The Service emailed Caltrans to request additional information concerning the Biological Assessment.

November 15, 2016: Caltrans telephoned the Service to say that it was in the process of preparing responses to the Service’s earlier request for additional information. Caltrans also noted that the project had undergone design changes since the submittal of the Biological Assessment.
March 9, 2017: The Service received a hard copy of Caltrans’ Revised Biological Assessment, which addressed design changes, information previously requested by the Service, and the re-addition of a construction location that had been removed from the project scope at an earlier stage.

April 14, 2017: The Service emailed Caltrans to request additional information concerning the Revised Biological Assessment.

June 15 & 20, 2017: Caltrans responded to the Service’s request for additional information.

July 3 & 5, 2017: The Service informed Caltrans via email that the project initiation package was deemed complete as of June 20, 2017, which is when the second set of additional information was received by the Service; Caltrans responded to acknowledge this.

July 31 & August 2-3, 2017: The Service emailed Caltrans to ask follow-up questions and request final clarification on aspects of the project and the Revised Biological Assessment. Caltrans responded to the Service’s questions.

August 9-11 & 16-17, 2017: The Service and Caltrans discussed and verified the proposed conservation measures, as described in the draft biological opinion.

BIOLICAL OPINION

Description of the Action

In order to meet current traffic safety standards, Caltrans proposes to upgrade (either replace or modify) existing metal-beam guardrails (MBGR), terminal systems, end treatments, and crash cushions at 10 bridge sites and at one culvert crossing site; it also proposes to construct a vehicle pull-out at one additional site. All of this will occur along 42 mi of SR 140 (postmile 0.0 - 42.1) in Merced County. Caltrans proposes to carry out the following specific activities at each location:

**Location 1: L-5/SR 140 Separation Bridge #91-0182 - postmile 0.01:**
- Construct concrete anchor blocks;
- Reconstruct side slopes;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Remove and replace asphalt concrete (AC) dike;
- Construct roadside ditches;
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail;
- Install traffic control station on the southeast side of the L-5/SR 140 intersection, which will involve trenching, and excavating for foundations and a pullbox.

**Location 2: Delta Mendoza Canal Bridge #91-0168 - postmile 0.58:**
- Grade side slopes;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Relocate utilities (temporarily relocate telephone and electric lines and permanently relocate the gas line inside Caltrans' right-of-way (ROW));
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail.

**Location 3: West Branch Mud Slough Bridge #39-0090 - postmile 10.31**
- Construct retaining wall parallel to the highway approximately 6-8 inches off the edge of pavement;
- Grade shoulders between the retaining wall and guardrail, and place fill material (approximately 2-10 inches);
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail.

**Location 4: Mud Slough Overflow Bridge #39-0107 - postmile 10.64**
- Construct concrete anchor blocks;
- Construct retaining wall parallel to the highway approximately 6-8 inches off the edge of pavement;
- Grade between the retaining wall and guardrail;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Remove and replace AC dike;
- Construct overside drains;
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail.

**Location 5: North Branch Mud Slough Bridge #39-0091 - postmile 11.32**
- Construct concrete anchor blocks;
- Construct retaining wall parallel to the highway approximately 6-8 inches off the edge of pavement;
- Grade between the retaining wall and guardrail;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Remove and replace AC dike;
- Relocate utilities (temporarily relocate telephone and electric lines);
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail.

**Location 6: San Joaquin River Bridge #39-0092 - postmile 11.79**
- Construct concrete anchor blocks;
- Reconstruct side slopes;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Remove and replace AC dike;
- Construct overside drains;
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail.

**Location 7: Cross Culvert - postmile 17.59.**
- Remove existing headwall;
- Remove existing MBGR;
- Grade side slopes;
- Apply compost erosion control to all disturbed areas.

**Location 8: East Side Irrigation Canal Bridge #39-0093 - postmile 18.52.**
- Construct concrete anchor blocks;
- Reconstruct side slopes;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail.

**Location 9: Black Rascal Creek Bridge #39-0094 - postmile 31.60.**
- Construct concrete anchor blocks;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Grade side slopes;
- Remove and replace AC pipe;
- Relocate utilities (temporarily relocate telephone and electric lines);
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail.

**Location 10: Bear Creek Bridge #39-0095 - postmile 32.95.**
- Construct concrete anchor blocks;
- Grade side slopes;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Upgrade crash cushion;
- Relocate utilities (temporarily relocate telephone and electric lines);
- Apply compost erosion control to all disturbed soil areas;
- Apply plain concrete as a means of vegetation control under the guardrail.

**Location 11: El Capitan Canal Bridge #39-0097 - postmile 34.51.**
- Upgrade culvert parapet wall to standard bridge rail (existing wall will be demolished to make way for the construction of a new reinforced concrete bridge rail);
- Grade side slopes;
- Upgrade existing MBGR;
- Upgrade guardrail end treatments;
- Relocate utilities (temporarily relocate telephone and electric lines, and permanently relocate the gas line);
- Apply compost erosion control to all disturbed soil areas;
Dena Gonzalez

- Apply plain concrete as a means of vegetation control under the guardrail;
- Apply aesthetic treatment to bridge rail.

**Location 12: Roadside Fixed Object – postmile 42.10**

- Construct maintenance vehicle pull-out behind the existing MBGR;
- Apply compost erosion control to all disturbed soil areas.

No work is expected to occur within any waterways, so no dewatering will be necessary at any of the 12 locations.

**Staging Areas**

Designated staging areas for equipment storage, vehicle parking, and other project-related activities may be pre-approved by a Caltrans biologist if the area is located within Caltrans’ ROW. However, no specific staging areas currently have been identified on-site; this may change depending on Caltrans’ decisions during the final phases of project design, and after the construction contractor is hired. For the purpose of this project, all staging areas will occur within the project footprint, as described on page 10 of this document under the Action Area heading below. Any location the contractor uses that is outside this area will need to be evaluated and may require Caltrans to revise its consultation.

**Scheduling**

Caltrans proposes to construct the project during the summer months of 2020. The project is expected to take approximately 90 working days to complete. For each of the 12 locations, work will take up to two weeks, and all construction activities will occur during daytime hours. No night work is proposed.

**Conservation Measures**

Caltrans and its contractor will implement the following measures to reduce the potential for adverse effects to the giant garter snake.

1. All construction activities will occur within the active season for the giant garter snake (approximately May 1 to October 1) when the species is most likely to be moving around and can more easily avoid being disturbed.
   a. In the unlikely event that work needs to occur outside of the active season, ground-disturbing activities must first be initiated during the active season (prior to September 15). This way, no habitat within the construction areas will remain available for the giant garter snake to use as refugia during the inactive season; this will stop individuals from moving into active construction zones where they could be disturbed, injured, or killed by construction activities, equipment, and crews.

2. A qualified biologist(s) will conduct preconstruction surveys for the species at Locations 3-6 and 8-10 no more than 24 hours prior to the start of groundbreaking; the biologist(s) also will identify areas with the potential to encounter a giant garter snake. Caltrans will provide the Service with a written report that sufficiently documents the survey efforts. If construction stops for a period of two weeks or longer, a new preconstruction survey will be completed no more than 24 hours prior to the reinitiation of work.
3. Prior to the start of work, and following preconstruction surveys, temporary silt fencing (or
other such fencing materials that will not entangle the giant garter snake), will be installed
around the project limits at Locations 3-6 and 8-10 to prevent the species from entering the
work areas. The fencing also will preclude personnel and equipment from encroaching beyond
the construction areas. Fencing will be inspected by the contractor before the start of each
work day and maintained until the project is completed. Fencing will be burned at least 6-inches
below the ground to prevent giant garter snakes from attempting to burrow or move under the
fence.

4. Prior to the start of work, a qualified biologist(s) will provide worker environmental awareness
training for all construction personnel, covering the status of the giant garter snake, how to
identify the species and its habitats, the importance of avoiding impacts to the species, and what
to do if an individual is encountered during construction.

5. A qualified biologist(s) will be present on-site to monitor all construction activities in areas with
the potential to encounter a giant garter snake.

6. Standard construction best management practices (Caltrans, 2003) will be implemented
throughout the course of construction in order to avoid adverse effects to water quality.

7. To avoid entangling the giant garter snake, erosion control methods will not utilize tightly
woven fiber netting or similar materials.

8. If a live giant garter snake is encountered at any point during preconstruction or construction
activities, work will stop in the vicinity of the individual and the qualified biologist(s) will
monitor the giant garter snake and allow it to move away unharmed, and of its own accord
without being disturbed. Caltrans will notify the Service of any such encounter and provide a
summary of the date(s), location(s), description of the habitat in which it was found, and any
other pertinent information.

9. Caltrans proposes to compensate for the permanent loss of 1.31 ac of upland habitat suitable
for the giant garter snake (comprising seven of the total 12 locations) by purchasing 2.62 ac
worth of credits at a Service-approved conservation bank whose service area covers the project
area (using a 2:1 ratio [ac credit]:1.31 ac x 2=2.62 ac). This will be completed prior to project
ground breaking.

10. The parts of the project area that are affected temporarily will be re-contoured and re-vegetated
with an appropriate, weed-free native plant seed mixture following the completion of
construction.

**Action Area**

The action area is defined in 50 CFR 402.02, as “all areas to be affected directly or indirectly by the
federal action and not merely the immediate area involved in the action.” The action area for the
proposed project is composed of the project footprint for each of the 12 discrete bridge/ culvert/
route locations at which construction upgrade activities, staging, and access will occur; each project
footprint consists of portions of various types of habitat, such as annual/nontnative grassland,
ruderal/disturbed areas with nonnative vegetation, paved/gravel areas, and riparian areas. The action
area also includes land and waterways extending approximately 200 ft. from the edge of each footprint,
which will experience further-reaching effects of construction activities such as noise and visual
disturbance.
Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the range-wide survival and recovery of the listed species. It relies on four components: (1) the Status of the Species, which describes the range-wide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed federal action and the effects of any interrelated or interdependent activities on the species; and (4) the Cumulative Effects, which evaluates the effects of future, non-federal activities in the action area on the species.

Status of the Species

For the most recent comprehensive assessment of the range-wide status for the giant garter snake, please refer to the Giant Garter Snake 5-Year Review (Service, 2012). No change in the species' listing status was recommended in this 5-year review. The abundance and distribution of the species has not changed significantly since the previous review, although some populations, particularly in the San Joaquin Valley, remain in danger of extinction due to small population sizes and low habitat quality. Threats evaluated during this review and discussed in the final document have continued to act on the species since the June 2012 5-year review was finalized, with loss and fragmentation of habitat being the most significant effect. While these have been substantial losses of giant garter snake habitat throughout the various recovery units, including the San Joaquin Basin Recovery Unit, in which the proposed project is located, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species. The Service currently is in the process of completing a final recovery plan for the giant garter snake.

Environmental Baseline

Within the action area, it is reasonably likely that the giant garter snake has been adversely affected by past and ongoing events, such as (1) the introduction of transportation infrastructure like SR 140, which has removed and fragmented habitat, while roadway- and vehicle-related risks likely have caused injury and mortality to the species, and are likely to continue to do so; and (2) earlier conversions of once natural uplands and wetlands through urbanization, agriculture, and development.

Of the total 12 locations contained within the action area, Caltrans has identified seven (locations 3, 4, 5, 6, 8, 9, and 10) as containing suitable terrestrial habitat for the giant garter snake (e.g., bankside, upland), which it can use for foraging, basking, and cover:

- At locations 3, 4, and 5 the highway/bridge approach shoulders in which the existing guardrail sit are disturbed (patches of dirt, gravel, and roadway/grassy areas with nonnative vegetation). Aquatic habitat, including West Branch Mud Slough, Mud Slough Overflow, and North Branch Mud Slough, respectively, (all containing perennial waters stemming from the San Joaquin River), as well as associated wetlands, is located immediately adjacent to each footprint, on both sides of SR 140.
• At Location 6: the highway/bridge approach shoulders in which the existing guardrails sit also are disturbed (patches of bare dirt/gravel, and grassy areas with nonnative vegetation); adjoining the immediate footprint are riparian areas, which contain species such as willow (Salix sp.) and Fremont’s cottonwood (Populus fremontii); these riparian areas exist along the banks of the San Joaquin River on both sides of SR 140.

• At Location 8: the highway/bridge approach shoulders in which the existing guardrails sit are disturbed (patches of dirt/gravel and grassy areas with nonnative vegetation). The East Side Canal lies directly adjacent to the footprint; the banks of the canal that are situated closest to the bridge are cemented rock slope protection and contain no vegetation. Further upstream and downstream from the bridge, the canal banks are earthen and contain emergent vegetation such as cattail (Typha sp.) and grass species.

• At Location 9: the highway/bridge approach shoulders in which the existing guardrails sit are disturbed (patches of dirt and grassy areas with nonnative vegetation). Neighboring the footprint are the banks of Black Rascal Creek, which contain riparian vegetation such as Himalayan blackberry (Rubus armeniacus), giant reed (Arundo donax), and sandbar willow (Salix exigua).

• At Location 10: the highway/bridge approach shoulders in which the existing guardrails sit are disturbed (patches of dirt and grassy areas with nonnative vegetation). The earthen banks of Bear Creek, which contain riparian vegetation such as Himalayan blackberry and giant reed, adjoin the footprint. Located immediately East of Bear Creek, separated by a narrow dirt road, is an earthen irrigation canal.

The action area is located within the San Joaquin Basin Recovery Unit, and falls largely within the San Joaquin River Management Unit; the bridge locations that are situated on the western side of the project extent also border the San Luis/Valena Management Unit, while those bridge locations situated immediately west of the City of Merced fall within the Merced Management Unit (Service, 2015).

According to the CNDBR 2017, there are no records of the giant gutter snake within the action area, i.e., none at any of the individual 12 bridge/intersection locations. However, there are three records of the giant gutter snake in proximity to the action area CNDBR, 2017: 1) an unknown number of individuals were detected in 1976 along Los Banos Creek, which is situated approximately 0.90 mi southwest of Location 3 (West Branch Mud Slough); 2) one individual was observed in the vicinity of Los Banos Creek and Old Santa Fe Grade approximately 3.0 mi south of Location 3; the date of this record is unknown; and 3) three juveniles and one adult were detected in 1997 in a marshy slough area situated immediately west of the Gustine Sewage Treatment Facility and south of Carnation Road; this site is located approximately 3.1 mi southwest of Location 3. Although no protocol-level surveys were conducted for the species, Caltrans carried out reconnaissance surveys at all 12 locations over the course of multiple days: May 22 and July 29, 2015, and April 12, May 20, and September 14, 2016. It also performed a specific habitat assessment for the giant gutter snake on July 29, 2015. No giant gutter snakes were detected during any of these surveys.

During the course of surveys, Caltrans observed small mammal burrows at the tops of the banks and within rock slope protection at Mud Slough Overflow, North Branch Mud Slough, and the San Joaquin River (Locations 4, 5, and 6, respectively). These could be suitable for the giant gutter snake to use as cover or refuge. While burrows were not explicitly detected at the remaining suitable sites (Locations 3, 8, 9, and 10), Caltrans has concluded that there is potential for burrows to develop at these sites in the future. Caltrans conducts routine vegetation control within its ROW, so there is recurrent disturbance to these areas from ongoing maintenance activities.
Because there is suitable habitat available within the action area, and there are known occurrences of the species in relative proximity to one of the sites that contain suitable upland and aquatic habitat (Location 3), it is reasonably likely that the giant garter snake could occur in the action area.

Effects of the Action

Habitat Loss and Disturbance

The proposed project is expected to affect a total of approximately 1.74 ac of habitat across seven of the total 12 bridge/culvert/roadsides locations. Of this total, Caltrans has identified a permanent loss of 1.31 ac of upland habitat along the SR 140 highway/bridge approach shoulders (see Table 1) as a result of grading and/or reconstructing the slopes, which is necessary for upgrading the guardrails, guardrail end treatments, and associated features, as well as building retaining walls; these activities also will alter (and in places, may completely remove) the vegetation on the slopes, and Caltrans expects it to take two to three seasons to re-grow the slopes with native vegetation following re-seeding efforts. Of the total effects to habitat, Caltrans also has identified temporary disturbance to 0.43 ac of upland habitat (see Table 1) as a result of activities associated with the roadway work, as well as staging and access. No aquatic habitat, in the form of neighboring waterways (West Branch Mud Slough, Mud Slough Overflow, North Branch Mud Slough, San Joaquin River, East Side Canal, Black Rascal Creek, and Bear Creek), or associated wetlands will be permanently lost/modified or temporarily disturbed.

At each of the seven bridge locations, the highway/bridge approach shoulders in, and around where the guardrails are located are largely disturbed given their close proximity to the busy highway and traffic, and to ongoing, routine maintenance activities in the ROW. Accordingly, these areas provide lower quality, though still suitable, habitat for the species; habitat is still considered suitable because these areas directly connect to bankside and aquatic habitat (waterways, wetlands). Therefore, it is reasonably likely that individuals could move from the banks and waterways into the shoulder areas to bask, as well as to find shelter in burrows or other suitable crevices and openings. Therefore, the permanent loss of this habitat, in addition to any associated small mammal burrows, will remove opportunities for the species to bask and/or find summer cover/winter refugia in these areas. Consequently, individual giant garter snakes will no longer be able to thermoregulate above- or below-ground, seek protection from predators, or find hibernacula in these areas during its inactive season; instead, they must seek out other suitable upland habitat. Alternative upland locations that are located further afield will increase the amount of time in which an individual travels overhead, thereby increasing its risk of exposure to predation. The temporary disturbance to habitat from construction will prevent the species from using these areas only in the short-term, i.e. for the duration of construction at any given bridge location. Once work is completed at each location, the habitat there will become available once again for the giant garter snake.

As noted previously in the Description of the Action section, Caltrans also has proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species of the proposed project's anticipated incidental take, resulting from the permanent loss of 1.31 ac of upland habitat described above. The compensatory habitat proposed will be in the form of credits from a conservation bank.

This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with, or better than, habitat lost as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.
Table 1: Impacts to Giant Garter Snake Habitat

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<th>Location</th>
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<th>Upland Habitat (in ac)</th>
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</table>

Construction Activities

Because (1) construction is anticipated to be short-term and last no more than two weeks at each individual location, and (2) activities are relatively minor in scale and scope, effects to individuals during these periods are likely to be minimal. Work crews will receive environmental awareness training, and a qualified biologist(s) will conduct preconstruction surveys and monitor each site for the species, so the risk of construction crews or equipment running over, crushing, or otherwise killing giant garter snakes situated either above- or below-ground during the course of initial ground-breaking and later construction, is not reasonably likely to occur. Other proposed conservation measures, such as working during the species’ active season, setting up silt fencing, and using appropriate erosion control materials are designed to minimize the risk of encountering individuals during construction, particularly in terms of precluding the giant garter snake from entering active work zones where they could become trapped inside or entangled in construction materials, which could lead further to exposure, starvation, and/or dehydration. Although the killing of individuals is not reasonably likely to occur as a direct result of interactions with construction crews, equipment, and activities, the risk of individuals experiencing short-term annoyance and disruption to their normal activities, as well as injury, cannot be discounted.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.
Conclusion

After reviewing the current status of the giant garter snake, the environmental baseline for the action area, the effects of the proposed SR 140 Guardrail Upgrade Project, and the cumulative effects, it is the Service's biological opinion that the SR 140 Guardrail Upgrade Project, as proposed, is not likely to jeopardize the continued existence of the giant garter snake. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. This conclusion is based on the following reasons: (1) construction activities at each bridge/culvert/roadside location are small-scale in nature and scope and are of short duration; and (2) the conservation measures proposed by Caltrans will minimize, avoid, and compensate for potential adverse effects to the giant garter snake.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(c)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

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

Amount or Extent of Take

It is infeasible for the Service to quantify the exact number of giant garter snakes that will be taken as a result of the proposed action because the number of individuals in the action area is unknown, and estimates of population density in the action area are unavailable. Furthermore, the species is secretive and uses underground burrows for shelter when not in aquatic habitat during the active season, and for hibernation during the inactive season. In instances in which the number of individuals that may be taken cannot be determined, the Service may quantify take in the amount of lost or disturbed habitat as a result of the project action; since take is expected to result from these effects to habitat, the quantity of habitat becomes a surrogate for the species that will be taken. Therefore, the Service anticipates that within the action area, individual giant garter snakes occupying or using the 1.74 ac of
upland habitat (inclusive of any burrows and other cover/refugia features) that will be affected as a result of guardrail upgrades and other associated improvement activities (1.31 ac permanently lost and 0.43 ac temporarily disturbed), will be subject to incidental take in the form of harm, resulting from the impairment in their ability to thermoregulate, seek protection from predators, and find summer shelter/winter hibernacula. The Service also anticipates that within this 1.74 ac area, there will be take incidental to the project in the form of the harassment and injury of individual giant garter snakes resulting from the aforementioned construction activities, and from interactions with crews and equipment.

Although the Service cannot quantify the exact number of giant garter snakes that will be incidentally taken, the Service anticipates that the number will be low based on the fact that individuals are expected to avoid active construction if possible, and are more likely to be found in non-affected adjacent aquatic habitat during the period in which construction is scheduled, which coincides with the species’ active season; furthermore, Caltrans will implement a series of conservation measures to reduce the potential for adverse effects to the species. The Service is therefore providing a mechanism to quantify when take would be considered to be exceeded as a result of constructing the proposed project.

The Service will use the detection of one dead giant garter snake (in any life stage) that is killed as a result of construction activities, to determine when take is exceeded. This threshold is based on the fact that (1) extant giant garter snake populations within the San Joaquin Valley are small, unstable, and appear to be in a serious and notable decline (Service, 2012); and that (2) known records of the species in proximity to the action area involve detections of only several individuals, indicating low occurrence. Therefore, by setting a threshold of one individual detected, the Service has set an incidental take limit that is measurable, irrefutable, and indicates that the species is being affected at a level where conservation measures and project implementation need to be re-evaluated and possibly modified. The Service concludes that incidental take of the giant garter snake will be considered exceeded if one dead individual (in any life stage, and killed by construction-related activities) is detected by biological monitors or other project personnel.

Upon implementation of the following reasonable and prudent measure, terms and conditions, and proposed conservation measures, incidental take of the giant garter snake associated with constructing the proposed project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

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

Reasonable and Prudent Measure

All necessary and appropriate measures to avoid and minimize effects on the giant garter snake resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the giant garter snake:

All conservation measures, as described in the Revised Biological Assessment and restated and modified here in the Description of the Action section of this biological opinion, shall be fully implemented and adhered to. Further, this reasonable and prudent measure shall be supplemented by the terms and conditions below.
Terms and Conditions

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

1. Caltrans shall include full implementation and adherence to the conservation measures as a condition of any contract issued for the project.

2. Caltrans shall provide the Service with a copy of the completed bill of sale and payment receipt upon the purchase of giant garter snake conservation credits.

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

   a. For those components of the action that will result in habitat loss or disturbance whereby incidental take in the form of harm is anticipated, Caltrans shall provide to the Service a precise accounting of the total acreage of habitat impacted following the completion of construction.

   b. Caltrans shall immediately contact the Service’s Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6544 to report direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment occurs. If the encounter occurs after normal working hours, Caltrans shall contact the SFWO at the earliest possible opportunity the next working day.

   c. In the event that incidental take is exceeded, and injured or killed individuals of the listed species are found, Caltrans shall follow the steps outlined in the Salvage and Disposition of Individuals section below.

   d. A final post-construction report detailing compliance with the project design criteria and proposed conservation measures described under the Description of the Action section of this biological opinion shall be provided to the Service within 90 calendar days of completion of the project. The report shall include: (1) dates of project ground-breaking and completion; (2) pertinent information concerning the success of the project in meeting the conservation measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the giant garter snake, if any; (5) observed incidents of harassment to the giant garter snake, if any; and (6) any other pertinent information.

Salvage and Disposition of Individuals

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the qualified biologist(s) associated with the project. Dead individuals must be sealed in a re-sealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it; the bag containing the specimen must be frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen.
CONSERVATION RECOMMENDATIONS

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

1. Using the appropriate data sheets, the qualified biologist(s) should report sightings of any giant garter snakes, or other sensitive wildlife, including their sign, to the CNDB 2017. A copy of the reporting form and a topographic map clearly marked with the location in which the animal was observed also should be provided to the Service.

2. Caltrans should assist the Service in meeting the goals of the forthcoming final recovery plan for the giant garter snake by reviewing the plan’s recovery goals, objectives, and criteria, and identifying activities that could be incorporated into Caltrans’ proposed projects, and successfully implemented.

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

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the State Route 140 Guardrail Upgrade Project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required and shall be requested by the federal agency or by the Service where discretionary federal agency involvement or control over the action has been retained or is authorized by law and:

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

If you have questions regarding this biological opinion, please contact Jen Schofield (j_schofield@fws.gov), or Patricia Cole (pcole@fws.gov) at the letterhead address, by e-mail, or at (916) 414-6544.

Sincerely,

[Signature]

Jennifer M. Norris, Ph.D.
Field Supervisor

cc:
Steven Hulbert, California Department of Fish and Wildlife, Fresno, California
Merced 140 Guardrail Upgrade • 141

Literature Cited


Appendix O  Project Site Photos

Location 1 Pictures

Eastbound view

Westbound view

Location 2 Pictures

Northwest view

Eastbound view

Location 3 Pictures

Westbound view

Eastbound view
Location 4 Pictures

Eastbound view
Westbound view

Location 5 Pictures

Eastbound view.
Westbound view.

Location 6 Pictures

Westbound view
Eastbound view
Location 7 Pictures

View towards the north  View towards southwest

Location 8 Pictures

Eastbound view  View towards the north

Location 9 Pictures

Eastbound view  Westbound view
Appendix P  Project Layouts
NOTE: ACCURATE RIGHT OF WAY DATA, DIRECT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LOCATION 5 - NORTH BRANCH MUD SLOUGH
PM 11.22 TO 11.44
LAYOUT
L-5

SCALE: 1" = 50'

LOCATION:

CONSTRUCTION AREA

2000

SCALE: 1" = 50'

NOTE: ACCURATE RIGHT OF WAY DATA, DIRECT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
NOTES: FOR ACCURATE RIGHT OF WAY DATA, CONTACT HOMETOWN OF ANY ENGINEERING AT THE DISTRICT OFFICE.
NOTES: FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

NOTE: AT THE DISTRICT OFFICE.

CHECKED BY

DESIGNED BY

CALCULATED - REVISED BY

PLANS APPROVAL DATE

USERNAME =>

DGN FILE =>

RELATIVE BORDER SCALE IS IN INCHES

UNIT 1476

PROJECT NUMBER & PHASE 1013000108

SCALE: 1" = 50'

LAYOUT L-10
NOTES: FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

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SCALE: 1" = 50'

LOCATION 12
ROUTE 140
PM 41.97 TO 42.17

REMOVE AND REPLACE CONTROLLER CABINET

REMOVE EXISTING SIGN AND REPLACE WITH SIGNS ON HERRINGBONE (150"

CONSTRUCTION (EXCAVATION)

CONSTRUCTION (DUMP TRUCK)

FILL

PROJECT NUMBER & PHASE
1013000108

NOTE: AT THE DISTRICT OFFICE.

CONTACT RIGHT OF WAY ENGINEERING FOR ACCURATE RIGHT OF WAY DATA.
List of Technical Studies

Air Quality Memo (May 2016)
  • Air Quality Conformity Checklist (May 2016)
Noise Memo (May 2016)
Water Quality Memo (May 2016)
Natural Environment Study (March 2017)
Historical Property Survey Report (September 2016)
  • Archaeological Survey Report (September 2016)
Hazardous Waste Report
  • Initial Site Assessment (September 2016)
    o Initial Site Assessment Addendum (June 2017)
Paleontological Memo (December 2014)
Scenic Resource Evaluation (January 2017)