Butte & Ash Creek Bridge Replacement Project

MODOC COUNTY, CALIFORNIA
02-MOD-299-PM 0.5, 1.0
EA#: 02-4F210
EFIS#: 0212000072

Initial Study with Mitigated Negative Declaration

Butte Creek Bridge (No. 03-0001)

Ash Creek Bridge (No. 03-0002)

Prepared by the
State of California, Department of Transportation
Caltrans District 2
1657 Riverside Drive, MS-30
Redding, CA 96001

February 2017
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Butte & Ash Creek Bridge Replacement Project

In Modoc County near Adin at Butte Creek Bridge and at Ash Creek Bridge

INITIAL STUDY WITH MITIGATED NEGATIVE DECLARATION

Submitted Pursuant to: Division 13, California Public Resources Code

STATE OF CALIFORNIA
Department of Transportation

[Signature]
Kelly J. Hobbs
Acting Office Chief - Redding
North Region Environmental Services
California Department of Transportation

2-28-17
Date
Mitigated Negative Declaration
Pursuant to: Division 13, California Public Resources Code

Project Description
The California Department of Transportation (Caltrans) proposes to replace two bridges along State Route (SR) 299 in Modoc County. The purpose of the project is to restore the long-term reliability of the Butte Creek Bridge (No. 03-0001) and Ash Creek Bridge (No. 03-0002), and reduce the need for continued maintenance and repairs. Work activities would include the construction of two new bridges on their existing alignment, installation of new guardrails and bridge railing, reconstruction of approach pavement and shoulders to conform to the new bridges, and the improvement of road connections within the project limits. The project would require vegetation clearing, temporary construction easements, and acquisition of new right-of-way. The project would include water diversion at Ash Creek Bridge, and pile driving at both the Butte Creek and Ash Creek Bridges. Vehicle parking and construction stockpiling would occur within Caltrans right-of-way. The project would require permits from the California Department of Fish and Wildlife (1600), Regional Water Quality Control Board (401), and the U.S. Army Corps of Engineers (404).

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

- The proposed project would have no impact with regard to aesthetics, agriculture and forest resources, geology and soils, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, utilities and service systems, energy resources, or mandatory findings of significance.

- The proposed project would have less-than-significant impacts with regard to air quality, biological resources, hazards and hazardous materials, hydrology and water quality, noise, and transportation/traffic.

- With the following mitigation measures incorporated, the proposed project would have less than significant impacts to cultural resources:
  - Two buildings in the Environmental Study Limits have been determined to be historical resources for the purposes of CEQA. The Adin Realty and Adin Supply Company have been designated as Environmentally Sensitive Areas (ESAs).
  - To reduce vibration levels the contractor would be required to predrill the piles for the abutment on the south side of Ash Creek. Predrilling the piles can be an effective means of reducing vibration caused by pile driving and is a standard...
Caltrans construction method. Predrilling at the abutment on the south side of Ash Creek is expected to avoid any vibration-related impacts to buildings in proximity of the abutment; however, since the amount of reduction that predrilling would provide is unknown, NSSP 14-8.03 Vibration Monitoring and 14-8.04 Crack Monitoring would be incorporated in this project.

Kelly J. Hobbs
Acting Office Chief - Redding
North Region Environmental Services
California Department of Transportation

2-26-2017
Date
Chapter 1. Proposed Project

Project Title
Butte & Ash Creek Bridge Replacement Project

Lead Agency Name and Address
California Department of Transportation, District 2
Office of Environmental Management, MS-30
1657 Riverside Drive
Redding, CA 96001

Contact Person and Phone Number
Chris Quiney
Office of Environmental Management Branch Chief
Phone: (530) 225-3174
Email: chris.quiney@dot.ca.gov

Project Location
The project is located on State Route 299 (SR 299), at Post Mile (PM) 0.5, and 1.0 in Modoc County (Figures 1 and 2a-2c).

Project Sponsor’s Name and Address
California Department of Transportation, District 2
1657 Riverside Drive
Redding, CA 96001

Purpose and Need
The purpose of the project is to restore the long-term reliability of the Butte Creek Bridge and Ash Creek Bridge, and reduce the need for continued maintenance and repairs. Both bridges are exhibiting deterioration of the concrete understructures and decks, primarily due to age.

Existing Facilities
The proposed project is located in the town of Adin, in Modoc County, on SR 299. Adin serves as a community hub with approximately 250 residents. SR 299 passes through this community and serves as its central arterial. Within the project vicinity SR 299 is a two-lane highway, with 12-foot wide travel lanes and treated shoulders that vary between four- to 8-feet wide. Butte Creek Bridge was built in 1929, is 48-feet long and 42-feet wide (with 12-foot wide travel lanes and 8-foot wide shoulders), and has one pier in Butte Creek. Ash Creek Bridge was built in 1929, is 130-feet long and 42-feet wide (with 12-foot wide travel lanes and 8-foot wide shoulders), and has two piers in Ash Creek.
Project Description (Build Alternative)

The California Department of Transportation (Caltrans) is proposing to replace the Butte Creek Bridge (Bridge No. 03-0001) at PM 0.51, and the Ash Creek Bridge (Bridge No. 03-002) at PM 1.02 on State Route (SR) 299 in Modoc County. Work activities would include the construction of two new bridges on their existing alignment, installation of new guardrails and bridge railing, reconstruction of approach pavement and shoulders to conform to the new bridges, and the improvement of some road connections within the project limits. The new bridges would be longer and wider than the existing bridges, in order to meet current design standards (Table 1). The existing bridges would be removed in sections as the new bridges are being constructed. Construction would occur over two years, and utilize half-width construction methods and the One Way Reversing Traffic Control methodology.

### Table 1: Summary of Existing and Proposed Bridge Dimensions

<table>
<thead>
<tr>
<th>Bridge</th>
<th>Dimensions</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Length (feet)</td>
<td>Width (feet)</td>
<td>Piers</td>
</tr>
<tr>
<td>Butte Creek Bridge</td>
<td>Existing</td>
<td>48</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Proposed</td>
<td>60</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Change</td>
<td>+12</td>
<td>+2</td>
</tr>
</tbody>
</table>

| Ash Creek Bridge  |   |   | N/A |
| Existing          | 130 | 42 | 2   |
| Proposed          | 150 | 44 | 2   |
| Change            | +20 | +2 |   |

Construction activities at Butte Creek Bridge would consist of construction of a single 60-foot long, 44-foot wide pre-cast, pre-stressed concrete slab bridge that spans the entire creek. The existing pier in Butte Creek would be removed. The new bridge would be wide enough to accommodate two 12-foot wide lanes and two eight-foot wide shoulders. The new bridge deck would have a polyester concrete overlay, and type ST-70 (see-through metal) bridge railing would be used. It is anticipated that abutments would be founded on steel piles. During construction, some existing in-channel vegetation within the Environmental Study Limits (ESL) may be removed, and the existing streambed may be graded to improve flows and to minimize potential future debris accumulation.

Construction activities at Ash Creek Bridge would consist of construction of a single 150-foot long, 44-foot wide pre-cast, pre-stressed concrete slab bridge with two piers in Ash Creek. The existing two piers in Ash Creek would be removed and replaced with two new piers. The new bridge would be wide enough to accommodate two 12-foot wide lanes and two eight-foot wide shoulders. The new bridge deck would have a polyester concrete overlay, and type ST-70 (see-through metal) bridge railing would be used. It is anticipated that the abutments would be founded on steel piles. The piers would be formed using Cast-in-steel-shell (CISS) piles or a similar type of pile. Clear water diversion is anticipated to be used to isolate construction from stream flow; a portable settling tank or a settling basin outside the creek or in an adjacent upland area may be employed for the dewatering of cofferdams. As a Caltrans standard practice, in-water construction would occur during the low flow period (May-October).
The existing bridges would be broken into manageable pieces and removed in sections using cranes as the new bridges are being constructed. In accordance with Caltrans standard practice, exclusion devices to protect migratory birds would be used, as needed. Excavation would be required prior to the removal of abutments and piers; excavation near piers may require the use of cofferdams. Temporary access roads would be required to access work areas below the bridges; removal of vegetation is anticipated for the construction of temporary access roads or in locations where access is necessary to safely facilitate construction. In accordance with Caltrans standard practice, Environmentally Sensitive Area fencing would be used to protect riparian vegetation that is outside of the disturbance area, and vegetation would be removed outside of the nesting period for migratory birds (February 15 – September 1). Relocation of existing buried and overhead electrical utilities would be coordinated with the appropriate utility companies.

No borrow or disposal of earthen material is anticipated for this project. All vehicle parking and construction stockpiling would occur within Caltrans right-of-way; Temporary Construction Easements would be required for work outside of Caltrans’ right-of-way. The project would require the acquisition of minor amounts of new right-of-way to better accommodate future bridge maintenance and access.

Project Alternatives
Two project alternatives, one of which is a “no-build” alternative, were developed as potential solutions to address the purpose and need for the proposed project.

Alternative 1 (Build Alternative) is the preferred alternative as it meets the project purpose and need.

Alternative 2 (No Build Alternative) does not meet the purpose and need of this project. Ongoing maintenance would be required to maintain the existing bridges. This strategy would result in a higher cost to the taxpayer, and greater and prolonged environmental disturbance, while only temporarily delaying replacement of the aging bridges.

Permits and Approvals
Proposed work activities would require permits from the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (ACOE), and the Regional Water Quality Control Board (RWQCB).

A Water Pollution Control Program (WPCP) would be prepared and implemented in accordance with Caltrans Standard Specifications for Water Pollution Control (Caltrans, 2016a).
Figure 1: Project Vicinity Map
Figure 2a: Project Location Map
Figure 2b: Project Location Map
Figure 2c: Project Location Map
Chapter 2. CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included in the section following the checklist. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.
<table>
<thead>
<tr>
<th>Impact Level</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>
<tr>
<td>a) Have a substantial adverse effect on a scenic vista?</td>
<td>☐</td>
<td>☐</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>
<td>☐</td>
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<tr>
<td>c) Substantially degrade the existing visual character or quality of the site and its surroundings?</td>
<td>☐</td>
<td>☐</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>
<td>☐</td>
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</tbody>
</table>

The project site is located along SR 299 within the community of Adin. The project site is not located within an area designated by Modoc County as a scenic area; however, it is within an area designated by the state of California as an Eligible State Scenic Highway – Not Officially Designated (Caltrans, 2016c).

Minor vegetation removal is necessary for this project in order to accommodate construction activities and safety requirements. In accordance with Caltrans standard construction specifications, areas cleared of vegetation during construction activities would be reseeded following construction.

The proposed project consists of the replacement of existing bridges, and would have no impact to scenic vistas, scenic resources, and would not substantially degrading the existing visual character or quality of the site and its surroundings. The proposed project would not create a new source of light or glare.

The proposed project would have no impact to aesthetics.
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

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

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

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

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

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? ☐ ☐ ☐ ☒

There is no Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or a Williamson Act contract in the project vicinity (California Department of Conservation, 2016a). Some Farmland of Local Importance is located northeast of Ash Creek Bridge in a vacant, graveled area that would be temporarily used by the project for vehicle parking and stockpiling of materials. The parcel is not currently in use as farmland. Vehicle parking and/or stockpiling of materials are not activities that are anticipated to have an impact on the designation of the parcel as Farmland of Local Importance.

Land in the immediate project vicinity is within the town of Adin and is not considered to be forest land and/or timberland.

The proposed project would have no impact to agriculture and forest resources.
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

<table>
<thead>
<tr>
<th>a) Conflict with or obstruct implementation of the applicable air quality plan?</th>
<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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</thead>
<tbody>
<tr>
<td>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</td>
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<tr>
<td>c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?</td>
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<td>d) Expose sensitive receptors to substantial pollutant concentrations?</td>
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<tr>
<td>e) Create objectionable odors affecting a substantial number of people?</td>
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</table>

See Section 3.1: Air Quality.

IV. BIOLOGICAL RESOURCES: Would the project:

<p>| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? |
|---------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------|------------------------------|-----------|
| 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? |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? |</p>
<table>
<thead>
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<th>APE Impact</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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<tbody>
<tr>
<td>f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?</td>
<td>☐</td>
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</table>

See Section 3.2: Biological Resources.

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? ☐ ☒ ☐ ☐

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

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ☐ ☐ ☐ ☒

d) Disturb any human remains, including those interred outside of formal cemeteries? ☐ ☐ ☐ ☒

Literature and record searches of the proposed project area included visits to and/or contacts with a number of repositories, agencies, organizations, and Native American representatives. The cultural resources field review for this project was conducted in 2016. The purpose of these efforts was to identify and evaluate any cultural resources that may exist within the project Area of Potential Effects (APE), and to assess any effects that the proposed project might have related to the cultural resources.

Three previously recorded archaeological sites were identified within the project vicinity; these resources are not within the project APE and would not be affected by the proposed project (Caltrans, Office of Environmental Analysis, North Region, 2016a). The proposed project would have no impact to archaeological resources.

Both the Butte Creek Bridge and Ash Creek Bridge have been evaluated by Caltrans (Caltrans, Office of Environmental Analysis, North Region, 2016a) and determined to be Category 5 bridges (i.e., not eligible for inclusion in the National Register of Historic Places or the California Register of Historical Resources). For the purposes of this analysis, the Adin Realty building (located southeast of the Ash Creek Bridge) is assumed eligible for listing on the National Register and has been included in the project APE.

The Adin Supply Company is a National Register Listed Property that is located within the APE. A small curb within Caltrans right-of-way would be replaced in the street in front of the storefront, at the request of the property owner. This work would not directly affect the Adin Supply Company building, or its listing on the National Register of Historic Places, as the work would consist of replacing an existing highway feature within Caltrans right-of-way.
Based on the *Vibration Screening for the Ash Creek and Butte Creek Bridge Replacement Project* completed by Caltrans (2016, updated 2017), groundborne vibration related to pile driving could exceed energy levels determined to be acceptable for a “historic building” or “fragile building”, (as defined by the Transportation and Construction Vibration Guidance Manual, Caltrans, 2013), such as the Adin Supply Company and Adin Realty. Under the Section 106 Programmatic Agreement, Adin Realty and Adin Supply Company have been designated Environmentally Sensitive Areas (ESAs). Groundborne vibration could potentially affect historic and/or fragile buildings; however, implementation of construction methodologies and provisions, such as predrilling for pile driving activities and vibration monitoring to ensure vibration thresholds are not exceeded would avoid adverse effects to historic and fragile buildings. Due to the establishment of the ESA, Caltrans determined that the project would result in a Finding of No Adverse Effect with Standard Conditions. Construction methodologies and provisions are outlined in Section 3.6: Noise.

It is Caltrans’ policy to avoid impacting cultural resources whenever possible. If buried cultural materials are encountered during construction, it is Caltrans’ policy that work stop in the area until a qualified archaeologist can evaluate the nature and significance of the find.

There are no known paleontological resources in the proposed project limits; the proposed project is not expected to have an impact to paleontological resources.

Following incorporation of the above measures, the proposed project would have a less than significant impact to cultural resources.

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

<table>
<thead>
<tr>
<th>Category</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>
<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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<tr>
<td>iii) Seismic-related ground failure, including liquefaction?</td>
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<td>iv) Landslides?</td>
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<tr>
<td>b) Result in substantial soil erosion or the loss of topsoil?</td>
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<tr>
<td>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?</td>
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<tr>
<td>Potentially Significant Impact</td>
<td>Less Than Significant with Mitigation</td>
<td>Less Than Significant Impact</td>
<td>No Impact</td>
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<tr>
<td>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?</td>
<td>☐</td>
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<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
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</tbody>
</table>

The project site is not located in an area that contains a known earthquake fault (California Department of Conservation, 2016b), or that is subject to strong seismic ground shaking, seismic-related ground failure, and/or landslides.

Soil types found in the project area are not known to be expansive (Natural Resources Conservation Service, 2016). While some soil types in the proposed project area can have some unstable properties, work activities would be within the existing roadway and disturbed areas, and would not include new facilities on unstable soil.

The project does not include the use of septic tanks and/or alternative waste water disposal systems.

The proposed project would have no impact to geology and soils.

**VII. CLIMATE CHANGE**: Would the project:

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

An assessment of the greenhouse gas emissions and climate change is included in the section following the checklist. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project’s direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the section following the checklist.

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

See Section 3.3: Climate Change.
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? □ □ □ ☒

See Section 3.4: Hazards and Hazardous Materials.

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?  ☐ ☐ ☐ ☒

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?  ☐ ☐ ☐ ☒

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

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

j) Inundation by seiche, tsunami, or mudflow  ☐ ☐ ☐ ☒

See Section 3.5: Hydrology and Water Quality.

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?  ☐ ☐ ☐ ☒

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

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

The proposed project would not physically divide an established community.

Land in the immediate project vicinity is within the town of Adin. The project consists of the replacement of existing bridges; there is no conflict with regard to any applicable land use plan, policy, and or regulation of an agency with jurisdiction over the project (Modoc County, 1998). The project would require the acquisition of minor amounts of new right-of-way.
There are no habitat conservation plans and/or natural community conservation plans that apply to the project site.

The proposed project would have no impact to land use and planning.

**XI. MINERAL RESOURCES:** Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? ☐ ☐ ☐ ☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? ☐ ☐ ☐ ☒

The proposed project consists of the replacement of bridges; there would be no impact to mineral resources.

**XII. NOISE:** Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ☐ ☐ ☐ ☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? ☐ ☐ ☒ ☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? ☐ ☐ ☐ ☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? ☐ ☐ ☐ ☒
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? ☐ ☐ ☐ ☒

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? ☐ ☐ ☐ ☒

See Section 3.6: Noise.
### XIII. POPULATION AND HOUSING:

Would the project:

<table>
<thead>
<tr>
<th>Question</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>
<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>
<td>☐</td>
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<tr>
<td>b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?</td>
<td>☐</td>
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<tr>
<td>c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?</td>
<td>☐</td>
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</tbody>
</table>

The proposed project consists of the replacement of existing bridges; there would be no impact to population growth, or displacement of housing or people.

### XIV. PUBLIC SERVICES:

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:

<table>
<thead>
<tr>
<th>Service</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>
<tr>
<td>Fire protection?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
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<tr>
<td>Police protection?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Schools?</td>
<td>☐</td>
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<tr>
<td>Parks?</td>
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<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Other public facilities?</td>
<td>☐</td>
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<td>☐</td>
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</tr>
</tbody>
</table>

The proposed project consists of the replacement of existing bridges; there would be no impact related to public services. Provisions would be made during construction to minimize traffic delays and to allow access and passage to emergency vehicles.

The proposed project would have no impact to public services.
XV. RECREATION:

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

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? ☐ ☐ ☐ ☒

The proposed project consists of the replacement of existing bridges; there would be no impact to recreation.

XVI. TRANSPORTATION/TRAFFIC: Would the project:

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

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? ☐ ☐ ☐ ☒

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? ☐ ☐ ☐ ☒

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

e) Result in inadequate emergency access? ☐ ☐ ☐ ☒

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? ☐ ☐ ☐ ☒

See Section 3.7: Transportation/Traffic.
XVII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

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

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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

There are no tribal cultural resources that are listed or eligible for listing in the California Register of Historical Resources, or in a local register or historical resources, or determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1 within the project limits.

There would be no project-related impacts to tribal cultural resources.

XVII. 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?

<table>
<thead>
<tr>
<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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<tbody>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<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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<tbody>
<tr>
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</tbody>
</table>

The proposed project consists of the replacement of existing bridges; there would be no impact to utilities and service systems.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

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

<table>
<thead>
<tr>
<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>
<tr>
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</tr>
</tbody>
</table>

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)?

<table>
<thead>
<tr>
<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>
<td>☐</td>
<td>☐</td>
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<td>✗</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<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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<tbody>
<tr>
<td>☐</td>
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<td>✗</td>
</tr>
</tbody>
</table>

The proposed project consists of the replacement of existing bridges; there would be no impact related to mandatory findings of significance.
Chapter 3. Discussion of Environmental Impacts

3.1 Air Quality
The proposed project would not increase capacity on SR 299, and would not result in any permanent operational-related air quality impacts.

The proposed project would not expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors.

The proposed project may result in the generation of short-term construction-related air emissions, including fugitive dust and exhaust emissions from construction equipment. Fugitive dust, sometimes referred to as windblown dust or PM10, would be the primary short-term construction impact, which may be generated during excavation, grading, pavement grinding, and hauling activities. Both fugitive dust and construction equipment exhaust emissions would be temporary and transitory in nature, and would not result in long-term adverse conditions. Temporary construction emissions related to greenhouses gases have been addressed in Section 3.3: Climate Change.

The proposed project would have a less-than-significant impact to air quality.

3.2 Biological Resources
Biological resources-related literature and record searches of the proposed project area included review of numerous databases, lists, and maps, as well as visits to and/or contacts with relevant agencies (Caltrans, Office of Environmental Management, North Region, 2016).

Biological field surveys were conducted on multiple occasions in 2015 and 2016 to assess the existing environment, gather information on the presence of special status species, and determine project level impacts with regard to biological resources.

Results and findings based on the above literature searches, surveys, and analyses are presented below.

Habitats and Natural Communities of Concern
No natural communities of special concern were observed in the proposed project area.

Habitats of concern within the proposed project area include riparian habitat and riverine/waters habitat. These habitats are protected by both federal and State laws and regulations, and impacts to these resources require permits or agreements from resource agencies.

Riparian Habitat
Approximately 0.072 acres of riparian vegetation was observed within the project ESL, including both Butte Creek and Ash Creek. The estimated average width of the riparian corridor within the ESL is approximately three to four feet for Butte Creek and four to eight feet for Ash Creek, and is confined to streambanks on both sides of each creek. Riparian vegetation was observed along the banks in broken bands and patches, and is sparse, as heavy foot traffic occurs in these areas. Stream banks adjacent to privately owned lands consist mostly of annual grasses.
Mature tree stands, of any type, provide limited canopy cover or shade along the banks of Butte Creek and Ash Creek.

Of the 0.072 acres of riparian vegetation observed within the project ESL, an estimated 0.070 acre of riparian vegetation would be temporary impacted, and approximately 0.002 acre of riparian vegetation would be permanently impacted (Table 2). Temporary impacts include the clearing of vegetation in locations where access is necessary to facilitate the construction of the new bridges and removal of the existing bridges. Permanent impacts include the removal of vegetation in locations needed to accommodate the wider abutments proposed for the new bridges.

<table>
<thead>
<tr>
<th>Riparian Habitat Area</th>
<th>Butte Creek</th>
<th>Ash Creek</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Type</td>
<td>Square Feet</td>
<td>Acre</td>
<td>Square Feet</td>
</tr>
<tr>
<td>Existing</td>
<td>860</td>
<td>0.020</td>
<td>2,252</td>
</tr>
<tr>
<td>Permanent Impact</td>
<td>34</td>
<td>0.001</td>
<td>46</td>
</tr>
<tr>
<td>Temporary Impact</td>
<td>826</td>
<td>0.019</td>
<td>2,206</td>
</tr>
</tbody>
</table>

The total estimated riparian area for the combined watersheds (Butte Creek and Ash Creek) is approximately 379,151 acres (Caltrans, Office of Environmental Management, North Region, 2016). Although the proposed project would result in 0.070 acres of temporary impacts and 0.002 acres of permanent impacts to riparian habitat, this is only a fraction of the total riparian vegetation area within the Butte Creek and Ash Creek watersheds. Natural revegetation and recruitment is expected to quickly replace riparian functions and values over the area lost to permanent impacts.

Impacts from the proposed project would not have a substantial adverse effect, either directly or indirectly, on the riparian habitat on a local or regional level, and have been determined to be less-than-significant; however, the following Caltrans standard practices would be included:

- Vegetation removal would not exceed the minimum necessary to complete the project activities.
- Woody vegetation in riparian areas that are subject to temporary impacts would be trimmed instead of completely removed to promote rapid regrowth.
- Areas that are temporarily disturbed during construction would be stabilized by re-vegetating them with native grasses and forbs.
- Best Management Practices (BMPs) for erosion control would be in place during all phases of construction to lessen impacts to riparian habitats as a result of increased sediment from eroding banks.
- To prevent unnecessary vegetation removal on both banks upstream and downstream of the bridges, temporary protective fencing would be installed during construction to protect existing and adjacent native plant communities located within the project ESL.

**Waters/Riverine Habitat**

An investigation of ordinary high water marks (OHWM), completed by Caltrans biological staff, identified approximately 22,292 square feet or 0.512 acre of stream habitat within the project ESL. Of this amount, an estimated 22,252 square feet or 0.511 acre of stream habitat would be temporary impacted, and approximately 40 square feet or 0.001 acre of stream habitat would be
permanently impacted by project activities. Temporary impacts are a result of in-water work activities at each creek, including but not limited to clear water diversion and installation and dewatering of cofferdams. In-water work is needed to isolate construction activities from the active stream flow during the construction of the abutments and piers at Ash Creek. Permanent impacts are a result of the placement of the new in-water piers.

Table 3 provides estimated stream habitat and potential impacts that could result from proposed construction activities to Butte Creek and Ash Creek within the project ESL.

Table 3: Estimated Stream Habitat and Impacts within the ESL

<table>
<thead>
<tr>
<th>Bridge Type</th>
<th>Butte Creek</th>
<th>Ash Creek</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Square Feet</td>
<td>Acre</td>
<td>Square Feet</td>
</tr>
<tr>
<td>Existing</td>
<td>4,954</td>
<td>0.114</td>
<td>17,338</td>
</tr>
<tr>
<td>Permanent Impact</td>
<td>0.00</td>
<td>0.00</td>
<td>40.00²</td>
</tr>
<tr>
<td>Temporary Impact</td>
<td>4,954</td>
<td>0.114</td>
<td>17,298</td>
</tr>
<tr>
<td>Net Gain</td>
<td>183¹</td>
<td>0.004</td>
<td>336.00³</td>
</tr>
</tbody>
</table>

¹ Removal of Pier 2 at Butte Creek Bridge would provide an additional 183 square feet of stream habitat.
² New piers for Ash Creek Bridge are pile extension and therefore do not have footings. The pier columns are 30 inches in diameter. The area for each column is 4.90 square feet. There are a total of eight columns.
³ The area for the existing piers at Ash Creek Bridge is 188 square feet each. There are currently two piers. The removal of these piers would provide an additional 376 square feet of stream habitat.

The total estimated open water (stream habitat) for the combined watersheds (Butte Creek and Ash Creek) is approximately 96,473,762.88 square feet or 2,214.73 acres (Caltrans, Office of Environmental Management, North Region, 2016). The removal of existing Pier 2 at Butte Creek, and the replacement of existing piers with pier columns at Ash Creek would provide an additional 519 square feet, or 0.012 acre, of stream habitat within the project ESL. There is no net loss of open water as a result of the proposed project, and a net gain of stream habitat would occur. The proposed project would not significantly impact waters, directly or indirectly, on a local or regional level.

The proposed project would have a less-than-significant impact to waters.

Special-Status Animal Species

Based on database queries, a list of special-status animal species with the potential to occur within the ESL was compiled and evaluated (Appendix A). Special-status animal species with the potential to occur within the project limits are discussed in this section.

Special-Status Bat Species

The as-built plans and bridge inspection reports suggested that the existing bridge types have the potential to provide day and night roosting habitat for special-status bat species (Pallid bat (*Antrozous pallidus*), Big brown bat (*Eptesicus fuscus*), California myotis (*Myotis californicus*), little brown bat (*Myotis lucifugus*), long-legged myotis (*Myotis volans*), fringed myotis (*Myotis thysanodes*), long-eared myotis (*Myotis evotis*), western small-footed myotis (*Myotis ciliolabrum*), and Yuma myotis (*Myotis yumanensis*)); however, they do not provide hibernation
roosting habitat. The existing decks lack hollow interiors that would normally provide roosting conditions suitable for hibernation. Several daylight surveys were conducted to determine if bats have been using the existing bridge structures as night or day roosting habitat. No bats were observed within the bridge joints on either structure, and are not being used by day roosting bats. Based on field observations, night roosting appears to be light and likely seasonal at Ash Creek Bridge, while night roosting is extremely light, if any, at Butte Creek Bridge. There is no evidence of a maternity colony or hibernacula use.

Based on the species requirements and the size of trees in the project area, proposed tree removal activities are not anticipated to have a direct impact on bats, as bats are not anticipated to be using existing riparian vegetation for roosting.

The removal of vegetation in locations where access is necessary to facilitate the replacement and demolition and removal of the existing bridge structures may result in impacts to bats foraging habitats. However, downstream and upstream reaches of Ash Creek contain open water and riparian vegetation that would provide equal or greater foraging ground to bats. These foraging grounds are in proximity to the proposed project location and the bats could remain in the area between hunting forays without expending a large amount of energy. Also, Butte Creek would be dry during the construction season; therefore, bats would be least expected at this time and minimally impacted.

Impacts from the proposed project would not have an adverse effect, either directly or indirectly, on bats or their habitat on a local or regional level, and have been determined to be less-than-significant.

**Migratory Bird Species**

Based on field observations, both Butte Creek Bridge and Ash Creek Bridge are used heavily by cliff swallows. Demolition of the existing bridges has the potential to affect swallow nesting under the bridge along the girders, piers, or beneath the exterior web and deck overhang, where nests are easily attached to the vertical surface. Removal of swallow nests on bridges during breeding season is prohibited by the Migratory Bird Treaty Act of 1918. The California Department of Fish and Game considers February 15 to September 1 to be the swallow nesting season. Netting installation is usually recommended to aid in the deterrent of the swallows from using the bridges. As Caltrans standard practice, when swallows are present, exclusion devices are installed prior to February 15, before the swallow arrive to nest.

Other migratory bird species may also be present, and may be utilizing trees and shrubs within the ESL as nesting habitat.

While the proposed project would have a less-than-significant impact to bird species of special concern, the following standard practices are included as part of the proposed project:

- Vegetation would be removed outside of the bird nesting season (i.e., removal would occur between September 1 and February 14).
- Bridge deck work must be done during the non-nesting season from September 1 to February 15.
- Nest removal must be done during the non-nesting season from September 1 to February 15, and nest materials must not be allowed to fall into waterways.
- Exclusion devices must be installed during the non-nesting season from September 1 to February 15.
• Exclusion devices must be one of the following materials:
  o Plastic sheeting that is thick enough to withstand the elements
  o Weather resistant polypropylene netting with 0.25-inch or smaller openings
• Install bird exclusion devices such that bird access to the underside of the bridge, including its exterior girders, is completely blocked.
• Clean bird waste or other debris from the contact surfaces of the bridge girders before installing the exclusion devices.
• Monitor the devices daily and maintain and repair them to keep them effective.

Upon completion of the work, bird exclusion devices would become property of the contractor and must be removed from the job site.

Special Status Plant Species
Based on database queries, a list of special-status plant species with the potential to occur within the ESL was compiled and evaluated (Appendix A). The ESL supports suitable habitat for three special-status species; however, they were identified as having low potential to occur within the ESL. Following a floristic survey and several field reviews, conducted during the blooming periods of the flowers in accordance with CNPS Botanical Survey Guidelines, the identified special-status plant species were not observed within the ESL limits and no other special-status plant species were identified. The proposed project would have no impact to special-status plant species.

Threatened and Endangered Species
The proposed project would have no impact to federally-listed or state-listed threatened and/or endangered species.

Invasive Species
Several invasive plant species were observed within the proposed project area, including Scotch thistle and dyer’s woad.

The proposed project would have a less-than-significant impact with regard to invasive species; however, to reduce the spread of invasive plant species and minimize the potential for disturbance that results in a decrease in prevalence of native plant species Caltrans would implement the following standard construction practices, as practicable:

• Efforts would be made to monitor and remove Scotch thistle and dyer’s woad from the project ESL until construction begins to reduce the risk of spreading Scotch thistle and dyer’s woad during construction.
• Plant species used for erosion control would consist of native species or non-persistent hybrids that would prevent invasive species from colonizing disturbed areas.
• Erosion control materials such as straw and seed mixes would be certified weed-free.
• Native vegetation would not be removed unless necessary for construction of the project.
• Caltrans would not allow transport of soil and/or plant materials from any areas that support invasive species to areas that support native-dominated plant communities.
3.3 Climate Change
Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels. Research from such establishments as the Intergovernmental Panel on Climate Change (IPCC) are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the United States, the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles) make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO₂, primarily from fossil fuel combustion.

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

Regulatory Setting
This section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

State
With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California has been innovative and pro-active in addressing GHG emissions and climate change.

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

Executive Order S-3-05 (EO) (June 1, 2005): The goal of this EO is to reduce California’s GHG emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB32 in 2016.

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

**Executive Order S-20-06 (October 18, 2006):** This order establishes 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 for California. Under this EO, the carbon intensity of California’s transportation fuels is to be reduced by at least ten percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 greenhouse gas reduction goals.

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

**Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection:** This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from 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 for the achievement of the emissions target for their region.

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

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

**Executive Order B-30-15 (April 2015),** establishes an interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders that 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 ARB 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 three years, and to ensure that its provisions are fully implemented.
Senate Bill 32 (SB32) Chapter 249, 2016, this legislation codifies the greenhouse gas reduction targets to achieve a mid-range goal of 40 percent below 1990 levels by 2030 established in EO B-30-15.

**Federal**

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

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency.

The **Energy Policy Act of 1992** (102nd Congress H.R.776.ENR, abbreviated as EPACT92) was passed by Congress and set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. The Act consists of twenty-seven titles detailing various measures designed to lessen the nation’s dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

**Energy Policy Act of 2005(109th Congress H.R.6 (2005-2006)** 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 Action of 1975 and Corporate Average Fuel Standards**

The Energy Policy and Conservation Act of 1975 (42 USC Section 6201 [1975]) 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). The Executive Order set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. Instituted policy of the United States that Federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

**Executive Order 13653** Preparing the United States for the Impacts of Climate Change (78 Federal Register 66817, November 6, 2013) Builds on a previously released (and since revoked) EO I3514 Federal Leadership in Environmental Energy, and Economics Performance to establish direction for federal agencies on how to improve on climate preparedness and resilience strategies.
President Obama's Climate Action Plan June 2013, President Obama announced a comprehensive plan for action to cut carbon pollution, prepare the Nation for the impacts of climate change, and lead international efforts to address climate change as a global challenge. The Plan builds on the work of the 13 USGCRP member agencies, the USGCRP National Climate Assessment program, and the Interagency Climate Change Adaptation Task Force.

Executive Order 13693 Planning for Federal Sustainability (80 Federal Register 15869, March 2015). Reaffirms the policy of the United States that Federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. Sets sustainability goals for all agencies to promote energy conservation, efficiency, and management while by reducing energy consumption and GHG emissions. Builds on the adaptation and resiliency goals in EO 13693 to ensure agency operations and facilities prepare for impacts of climate change. Revokes EO 13514.

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

U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[1] and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards set a requirement to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules’ long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and the California Air Resources Board (CARB) will decide on CAFE and GHG emissions standard stringency for model years 2022-2025. Standards for model years 2022 through 2025 have not been formally adopted by NHTSA.

NHTSA and EPA issued a Final Rule for “Phase 2” for medium and heavy duty vehicles to improve fuel efficiency and cut carbon pollution. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO2 emissions by up to 1.1 billion metric tons over the lifetimes of model years 2018-2029 vehicles.

Project Analysis
An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when

combined with the contributions of all other sources of GHG.\(^1\) In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

![California Greenhouse Gas Emissions Forecast](http://www.arb.ca.gov/cc/inventory/data/forecast.htm)

**Figure 3: California Greenhouse Gas Forecast**

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human-made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans, published in December 2006.\(^2\)

The purpose of the project is to repair and replace bridges in accordance with current requirements. The proposed project would not increase capacity or vehicle miles travelled, therefore no increases in operational GHG emissions are anticipated.

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\(^1\) This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

\(^2\) Caltrans Climate Action Program is located at the following web address: [http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf](http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf)
**Construction Emissions**

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

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

**CEQA Conclusion**

While construction would result in GHG emissions, it is anticipated that the project would not cause any increase in operational GHG emissions. It is Caltrans’ determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination with regard to the project’s direct impact and its contribution on the cumulative scale related to climate change. However, Caltrans is firmly committed to implementing measures to help reduce GHG emissions, as discussed below.

**Greenhouse Gas Reduction Strategies**

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. “Adaptation,” refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).3

**Greenhouse Gas Mitigation**

**AB 32 Compliance**

Caltrans continues to be actively involved on the Governor’s Climate Action Team as ARB works to implement the Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year.

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

- According to Caltrans Standard Specifications, the contractor must comply with all of the Modoc County Air Pollution Control District rules, ordinances, and regulations regarding air quality restrictions.
- Caltrans Standard Specifications, a required part of all construction contracts, should effectively reduce and control emission impacts during construction under the provisions of Section 7-1.02C “Emission Reduction” and Section 14-9.03 “Dust Control”. Provision 14-9.02 “Air Pollution Control” requires the contractor to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

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3 [http://climatechange.transportation.org/ghg_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)
- Landscaping reduces surface warming, and through photosynthesis, decreases CO2. The project includes replanting in areas cleared by construction activities. This replanting would help offset any potential CO2 emissions increase.
- Vehicle traffic during construction would be controlled using the One Way Reversing Traffic Control method. Stop signs would be placed at both ends of the work area for each bridge location, and traffic would be able to proceed one direction at a time. Idling time for vehicles would be limited to the amount of time it takes for traffic from one direction to pass through the construction site.

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

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

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

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance, and operational improvements of the system, and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

3.4 Hazards and Hazardous Materials
An Initial Site Assessment (Caltrans, 2012) identified the potential for several minor hazardous waste/material issues within the project site; Asbestos Containing Material (ACM), Treated Wood Waste (TWW), Lead Containing Paint (LCP) related to thermoplastic and/or paint striping removal, and Aerially Deposited Lead (ADL).

Asbestos Containing Material (ACM) may be present in shims, joints, and/or bearing plates of the bridges. If ACM is present it would be treated in accordance with the Caltrans Standard Specifications, including requiring the contractor be notified as to the presence of suspected ACM. ACM removal must be conducted by a licensed and certified asbestos abatement contractor.
Treated wood is present within the project limits in the form of MBGR and sign posts. If Treated Wood Waste (TWW) is generated during this project, the storage and disposal would be in accordance with Caltrans Standard Specifications.

In accordance with Caltrans Standard Specifications, a Lead Compliance Plan would be prepared and implemented to address appropriate lead removal related to Lead Containing Paint (LCP) and Aerially Deposited Lead (ADL), including temporary storage, testing, and transportation to an appropriate disposal or recycling facility.

Prior to construction activities a Preliminary Site Investigation would be completed in order to identify and, if necessary, quantify the presence of these waste/material issues.

The project does not involve the routine transport or disposal of hazardous materials, and is not located on a known hazardous materials site.

The project is not in the vicinity of an existing or proposed school, or public or private airport and/or airstrip.

The project would not interfere with an emergency response plan and/or emergency evacuation plan, or expose people or structures to wildland fire-related hazards.

The proposed project would have a less-than-significant impact related to hazards and hazardous materials.

3.5 Hydrology and Water Quality

In accordance with Caltrans standard construction specifications, the contractor would be required to submit a Water Pollution Control Program (WPCP) for the proposed project. The WPCP would be prepared in accordance with Caltrans’ Storm Water Management Program and the Statewide Caltrans NPDES Permit issued by the State Water Resources Control Board. The WPCP would identify potential sources of pollution and includes Caltrans’ Best Management Practices (BMPs) that would be implemented to avoid and/or minimize potential water quality-related impacts in the proposed project vicinity (Caltrans, 2016a).

The project consists of the replacement of existing bridges, and would not impact groundwater supplies, alter existing drainage patterns, create additional runoff water, or otherwise degrade water quality.

Both Butte Creek Bridge and Ash Creek Bridge are located in a Zone AE Special Flood Hazard Area (Caltrans, 2016b), where Butte Creek and Ash Creek cross SR 299. A Special Flood Hazard Area (SFHA) is defined as the land area covered by the floodwaters of base flood waters (FEMA, 2016). As part of the Floodplain Evaluation Report Summary prepared by Caltrans (2016), both creeks were modeled using HEC-RAS software. At Butte Creek, removing the pier lowers the 100-year water surface elevation less than 0.1 foot; there would be no impact to base flood water elevations. At Ash Creek, there is no significant difference between the substructure configuration of the existing and proposed structures. Since the 100-year flow does not interact with the bridge deck (currently or with the proposed, new structure), there is no significant change in the base flood elevations. This project would not significantly impact the floodplains or base flood elevations of Butte Creek or Ash Creek.
The project site is not located in an area that would be impacted by flooding as a result of the failure of a levee or dam, or in an area subject to potential inundation by a seiche, tsunami, or mudflow.

The proposed project would have a less-than-significant impact related to hydrology and water quality.

3.6 Noise

The project site is not located in the vicinity of a public or private airport and/or airstrip.

The project would not result in any permanent impacts related to noise.

Construction-related Noise
Noise generated by construction activities is a function of the noise levels generated by individual pieces of construction equipment, the type and amount of equipment operating at any given time, the timing and duration of construction activities, and the proximity of nearby sensitive receptors.

This project would include demolition, earthwork/excavation, paving, concrete work, and pile driving. Construction noise would primarily result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. Construction noise levels would vary on a day-to-day basis during each phase of construction depending on the specific task being completed.

FHWA’s Roadway Construction Noise Model was used to calculate the maximum noise levels anticipated during each phase of construction. Table 4 shows the construction noise levels for each major phase of the project. Table 5 shows noise generated by impact pile driving operations at various distances. Noise generated by construction equipment drops off at a rate of approximately 6 dB per doubling of distance.

<table>
<thead>
<tr>
<th>Construction Phase</th>
<th>Maximum Noise Level (Lmax, dBA) at 50 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition</td>
<td>89</td>
</tr>
<tr>
<td>Earthwork</td>
<td>85</td>
</tr>
<tr>
<td>Paving</td>
<td>85</td>
</tr>
<tr>
<td>Structures</td>
<td>101</td>
</tr>
</tbody>
</table>
Table 5: Noise from Impact Pile Driving Operation

<table>
<thead>
<tr>
<th>Distance from Pile Driving Operation (feet)</th>
<th>Maximum Noise Level (Lmax, dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>101</td>
</tr>
<tr>
<td>100</td>
<td>95</td>
</tr>
<tr>
<td>150</td>
<td>92</td>
</tr>
<tr>
<td>200</td>
<td>89</td>
</tr>
<tr>
<td>250</td>
<td>87</td>
</tr>
<tr>
<td>300</td>
<td>86</td>
</tr>
</tbody>
</table>

The loudest noise generating construction activity on this project would be pile driving. Pile driving typically occurs during daytime hours over short durations with breaks in between each pile. Impact pile driving can generate noise levels up to 101 dBA Lmax at 50 feet. The nearest敏感 receptor (residential) to the Ash Creek Bridge is located approximately 200 feet southeast of the project area between Center Street and McDowell Street. At this distance, maximum noise levels during pile driving would be approximately 89 dBA Lmax. The nearest sensitive receptor (residential) to the Butte Creek Bridge is located approximately 70 feet southwest of the project area, west of SR 299 and south of Butte Creek. At this distance, maximum noise levels during pile driving would be approximately 98 dBA Lmax.

Construction noise is regulated by Caltrans Standard Specifications Section 14-8.02, "Noise Control". These requirements state:
- Control and monitor noise resulting from work activities.
- Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.

Construction impacts are temporary in nature and sensitive receptors would not be exposed to construction noise for any longer than necessary to complete the project. With the implementation of Caltrans Standard Specifications, no substantial noise impacts from construction are anticipated.

The proposed project would not result in a permanent increase in noise levels and would have no long-term impact.

Construction-related Vibration

Construction activities result in varying degrees and types of ground vibration, depending on the type of equipment, construction methods, the intensity and duration of the specific construction activity, and underlying soil types. Operation of construction equipment can generate continuous ground vibrations or single isolated vibration events (transient ground vibrations). Equipment or activities typical of continuous vibration include excavation equipment, static compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile extraction equipment, and vibratory compaction equipment. Equipment or activities typical of single-impact (transient) vibration include blasting and drop balls. The Caltrans Transportation and Construction Vibration Guidance Manual (2013) classifies an impact pile driver (like those that would be used for this project) as a frequent intermittent source. Frequent intermittent sources are treated similarly to continuous sources when assessing vibration impacts.

There are no Federal Highway Administration (FHWA) or State standards for vibration impacts. Generally, highway traffic and most construction vibrations are not expected to pose a threat to

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buildings and structures, and the accompanying annoyance to people is considered to be similar to typical noise issues experienced from living near highways. Caltrans, however, conducted research and developed the *Transportation and Construction Vibration Guidance Manual* to assess the potential for construction-related vibration impacts. The Guidance Manual suggests that the type of assessment and the level of analysis should be determined by the scale of the project and by the sensitivity of surrounding land uses. A quantitative analysis is conducted in cases where construction vibration may result in prolonged annoyance or building damage. Construction-related vibration is measured using peak particle velocity (PPV), which is an indicator of vibration amplitude as vibrations travel through the ground. Potential vibration damage to buildings is assessed based on the structure and condition of the building; guideline vibration damage potential threshold criteria is outlined in Table 6.

<table>
<thead>
<tr>
<th>Structure and Condition</th>
<th>Maximum PPV (in/sec) for Continuous/Frequent Intermittent Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely fragile historic buildings, ruins, ancient monuments</td>
<td>0.08</td>
</tr>
<tr>
<td>Fragile buildings</td>
<td>0.1</td>
</tr>
<tr>
<td>Historic and some old buildings</td>
<td>0.25</td>
</tr>
<tr>
<td>Older residential structures</td>
<td>0.3</td>
</tr>
<tr>
<td>New residential structures</td>
<td>0.5</td>
</tr>
<tr>
<td>Modern industrial/commercial buildings</td>
<td>0.5</td>
</tr>
</tbody>
</table>


Several structures in the Adin area warrant additional review related to potential construction vibration impacts due to the proximity of planned pile driving operations; the Adin Supply Company, Adin Realty, the gas station northwest of the Ash Creek Bridge, and residential structures near the Butte Creek Bridge4.

**Adin Supply Company**
The Adin Supply Company sustained flood damage to the foundation on the northeast corner of the building. Currently, the foundation is shored up with various items the owner placed under the foundation to support the building. Since the soil around the foundation has been eroded and the stability of the shoring is unknown, the building is being treated as a fragile building for vibration analysis purposes. Based on the fragile classification of the building, it is recommended that the vibration threshold for impact and vibratory pile driving be set at 0.1 in/sec.

4 Caltrans replaced the Ash Creek Bridge in 1984, which included driving steel piles without predrilling. While vibration levels and building cracks were not monitored during construction, Caltrans was not made aware of any damage to surrounding buildings resulting from the project.
Table 7 presents the PPV for various pile driving scenarios based on the distance of the Adin Supply Company from the closest abutments at Ash Creek Bridge.

### Table 7: Peak Particle Velocity at 78 feet for Pile Driving in Soil Class II

<table>
<thead>
<tr>
<th>Type of Hammer</th>
<th>Criteria for Fragile Buildings (in/sec)</th>
<th>Estimated PPV (in/sec)</th>
<th>Distance to Impact Threshold (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>36,000 ft-lb Impact Hammer</td>
<td>0.1</td>
<td>0.148</td>
<td>105</td>
</tr>
<tr>
<td>40,000 ft-lb Impact Hammer</td>
<td>0.1</td>
<td>0.156</td>
<td>110</td>
</tr>
<tr>
<td>45,000 ft-lb Impact Hammer</td>
<td>0.1</td>
<td>0.166</td>
<td>115</td>
</tr>
<tr>
<td>50,000 ft-lb Impact Hammer</td>
<td>0.1</td>
<td>0.175</td>
<td>120</td>
</tr>
<tr>
<td>65,000 ft-lb Impact Hammer</td>
<td>0.1</td>
<td>0.199</td>
<td>130</td>
</tr>
<tr>
<td>Vibratory Pile Driving</td>
<td>0.1</td>
<td>0.148</td>
<td>105</td>
</tr>
</tbody>
</table>

The estimated PPV for impact and vibratory pile driving exceeds the vibration threshold for continuous/frequent intermittent vibration sources.

**Buildings near Ash Creek**

Two commercial buildings are located in close proximity to the Ash Creek Bridge where pile driving would occur; the Adin Realty building (located approximately 50 feet south of the southeastern bridge abutment) and an old gas station (located approximately 85 feet northwest of the northwestern bridge abutment). The condition of these buildings is unknown; however, the buildings appear to be older masonry buildings that may be susceptible to cracking during vibration events. For this reason, it is recommended that the vibration threshold be set at 0.25 in/sec.

Table 8 presents the estimated PPV for various pile driving scenarios at Adin Realty and Table 9 presents the estimated PPV at the gas station.

### Table 8: Peak Particle Velocity at 50 feet for Impact Pile Driving in Soil Class II

<table>
<thead>
<tr>
<th>Type of Hammer</th>
<th>Criteria for Older Buildings (in/sec)</th>
<th>Estimated PPV (in/sec)</th>
<th>Distance to Impact Threshold (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>36,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.264</td>
<td>52</td>
</tr>
<tr>
<td>40,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.278</td>
<td>55</td>
</tr>
<tr>
<td>45,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.295</td>
<td>55</td>
</tr>
<tr>
<td>50,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.311</td>
<td>60</td>
</tr>
<tr>
<td>65,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.355</td>
<td>65</td>
</tr>
<tr>
<td>Vibratory Pile Driving</td>
<td>0.25</td>
<td>0.264</td>
<td>52</td>
</tr>
</tbody>
</table>
Table 9: Peak Particle Velocity at 85 feet for Impact Pile Driving in Soil Class II

<table>
<thead>
<tr>
<th>Type of Hammer</th>
<th>Criteria for Older Buildings (in/sec)</th>
<th>Estimated PPV (in/sec)</th>
<th>Distance to Impact Threshold (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>36,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.132</td>
<td>52</td>
</tr>
<tr>
<td>40,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.140</td>
<td>55</td>
</tr>
<tr>
<td>45,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.148</td>
<td>55</td>
</tr>
<tr>
<td>50,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.156</td>
<td>60</td>
</tr>
<tr>
<td>65,000 ft-lb Impact Hammer</td>
<td>0.25</td>
<td>0.178</td>
<td>65</td>
</tr>
<tr>
<td>Vibratory Pile Driving</td>
<td>0.25</td>
<td>0.132</td>
<td>52</td>
</tr>
</tbody>
</table>

At Adin Realty, the estimated PPV exceeds the vibration threshold for continuous/frequent intermittent vibration sources.

At the gas station, the estimated PPV is expected to be below the vibration threshold for continuous/frequent intermittent vibration sources. The maximum hammer size that could be used before exceeding the vibration threshold is approximately 125,000 ft-lbs.

Buildings near Butte Creek

Two residential buildings are located in close proximity to the Butte Creek Bridge where pile driving would occur. Both buildings are approximately 65 feet from the proposed pile driving activity. At Butte Creek, the vibration threshold for the residential properties should be set at 0.3 in/sec. Table 10 presents the PPV for various pile driving scenarios at these locations.

Table 10: Peak Particle Velocity at 65 feet for Impact Pile Driving in Soil Class II

<table>
<thead>
<tr>
<th>Type of Hammer</th>
<th>Criteria for Older Residential Structures (in/sec)</th>
<th>Estimated PPV (in/sec)</th>
<th>Distance to Impact Threshold (ft)</th>
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<tbody>
<tr>
<td>36,000 ft-lb Impact Hammer</td>
<td>0.3</td>
<td>0.188</td>
<td>45</td>
</tr>
<tr>
<td>40,000 ft-lb Impact Hammer</td>
<td>0.3</td>
<td>0.198</td>
<td>45</td>
</tr>
<tr>
<td>45,000 ft-lb Impact Hammer</td>
<td>0.3</td>
<td>0.210</td>
<td>50</td>
</tr>
<tr>
<td>50,000 ft-lb Impact Hammer</td>
<td>0.3</td>
<td>0.221</td>
<td>50</td>
</tr>
<tr>
<td>65,000 ft-lb Impact Hammer</td>
<td>0.3</td>
<td>0.252</td>
<td>55</td>
</tr>
<tr>
<td>Vibratory Pile Driving</td>
<td>0.3</td>
<td>0.188</td>
<td>45</td>
</tr>
</tbody>
</table>

The estimated PPV at residences near Butte Creek Bridge are expected to be below the vibration threshold for continuous/frequent intermittent vibration sources. The maximum hammer size that could be used before exceeding the vibration threshold is 90,000 ft-lbs.

Vibration-related impacts

Estimated vibration levels could exceed the estimated thresholds at the Adin Supply Company and Adin Realty. To reduce vibration levels the contractor would be required to predrill the piles.
for the abutment on the south side of Ash Creek. Predrilling the piles can be an effective means of reducing vibration caused by pile driving and is a standard Caltrans construction method. Predrilling at the abutment on the south side of Ash Creek is expected to avoid any vibration-related impacts to buildings in proximity of the abutment; however, since the amount of reduction that predrilling would provide is unknown, NSSP 14-8.03 Vibration Monitoring and 14-8.04 Crack Monitoring would be incorporated in this project.

**NSSP 14-8.03 General Requirements for Vibration Monitoring**

- Submit baseline vibration levels before start of construction work and include photo, date of existing baseline condition for each vibration monitoring areas identified; submit a summary of structure and property conditions and the maximum peak particle velocities; and additional documentation necessary for each vibration monitoring area identified.

- Submit a vibration-monitoring plan at least 30 days before any work requiring vibration monitoring.

- Submit a vibration mitigation plan (VMP) at least 30 days before the start of any work requiring vibration monitoring. VMP must include:
  - A plan of action to be implemented in the event the particle velocity equals or exceeds specified threshold.

- Comply with section 14-8.04 in monitoring the existing structure's cracks, foundation, and ground settlement of each property adjacent to the job site during pre- and post-construction.

- Document pre- and post-construction condition of structures and adjacent properties including photo, date, location, and description of condition.

- Monitor and record vibration data during pile installation and any other construction activity that may result in elevated vibration levels.

- Seismographs must be set up to give immediate warning when the resultant peak particle velocity calculation from all three axes equals or exceeds a threshold value of 0.1 inches per second at the Adin General Store and 0.25 inches per second at Adin Reality. The warning emitted must be instantaneously transmitted to the designated responsible person and the Engineer by warning lights, audible sounds, or electronic transmission.

- Stop work immediately and notify the Engineer when vibration readings equal or exceed the specified threshold value followed immediately by a damage survey of impacted structures. Immediately implement vibration mitigation plan to reduce the vibrations within 24 hours. Do not resume work unless authorized.

**NSSP 14-8.04 General Requirements for Crack Monitoring**

This work includes:

- Surveys of existing non-highway facilities to monitor cracks and settlements (elevations) before, during, and after vibration-related construction operations.

- Collecting, interpreting, inspecting, documenting, and reporting survey results, including implementing required remedial and precautionary measures to be taken.

- Furnishing and installing survey and monitoring equipment and instrumentation required for the work.

- Complete pre-construction monitoring survey reports before the start of construction for each existing survey and monitoring location:
  - Photo and Video Monitoring Survey Reports includes
    - Interior and exterior assessment of the existing buildings and existing facilities.
    - Monitoring locations and building layouts clearly identified.
• Elevation Monitoring Survey Report includes
  o Date of elevation monitoring survey for each existing facility
  o Placement location description (x, y, and z direction)
  o Survey point locations identified in building layout
  o Interior and exterior assessment of the existing buildings and existing facilities
  o Surveyed locations and building layouts
  o Description of construction operation for each monitoring location

• Crack Monitoring Survey Report includes
  o Crack gauge placement location description
  o Building layout plan showing the placement of crack monitoring equipment and location description
  o Date-time stamp and document crack observation, including photograph
  o Interior and exterior assessment of the existing facilities
  o Summary of monitoring locations and a layout plan sheet
  o Procedures and methods for crack monitoring data collection
  o Summary of existing facility condition and a list of results of the maximum and minimum crack monitoring survey, and the date observation.
  o Record observation signs of structural defects damage, distress, deformation, or deterioration

• Complete post-construction monitoring survey report

The proposed project would have a less-than-significant impact related to noise and vibration.

3.7 Transportation and Traffic
The proposed project would not result in conflicts or impacts related to an applicable congestion management program, air traffic patterns, increased hazards due to a design feature, inadequate emergency access, and/or adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

Vehicle traffic during construction would be controlled using the One Way Reversing Traffic Control method. Stop signs would be placed at both ends of the work area for each bridge location, and traffic would be able to proceed one direction at a time. Idling time for vehicles would be limited to the amount of time it takes for traffic from one direction to pass through the construction site. Non-motorized traffic would be escorted through the construction area, or a designated route would be identified at each construction location.

The proposed project would have a less-than-significant impact to transportation and traffic.
Chapter 4. List of Preparers

This Initial Study was prepared by the California Department of Transportation, North Region Office of Environmental Management, with input from the following staff:

**Austin Buist**, Project Engineer  
Contribution: Project design

**Chelsea Tran-Wong**, Project Biologist  
Contribution: Natural Environment Study

**Chris Kuzak**, PQS Principal Architectural Historian  
Contribution: Cultural resource surveys and reports

**Chris Quiney**, Environmental Branch Chief  
Contribution: Document preparation oversight

**Dan McGann**, Project Archaeologist  
Contribution: Cultural resource surveys and reports

**Eric Akana**, Project Manager  
Contribution: Project management

**Julie McFall**, Environmental Coordinator  
Contribution: Document writer

**Mark Harvey**, NPDES Coordinator  
Contribution: Water Quality Assessment Report

**Mark Melani**, Engineering Geologist  
Contribution: Initial Site Assessment for Hazardous Waste

**Russell Flood**, Project Engineer  
Contribution: Project design

**Ryan Pommerenck**, Air and Noise Specialist  
Contribution: Construction Noise Memorandum and Pile Driving Vibration Impacts Memorandum

**Steve Topal**, Design Senior  
Contribution: Design oversight
Chapter 5. References


Association of Environmental Planners. 2007. Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents.


California Department of Transportation. 2016a. Ash and Butte Creek Bridge Replacement Project, Water Quality Evaluation.


California Department of Transportation, Office of Environmental Analysis, North Region. October 2016a. Archaeological Survey Report for the Proposed Butte and Ash Creek Bridges Replacement Project, Adin, Modoc County, California.


California Department of Transportation, Office of Environmental Management, North Region. October 2016. Natural Environment Study, Butte and Ash Creek Bridge Replacement Project.
Butte & Ash Creek Bridges Replacement Project

California Department of Transportation, North Region Office of Environmental Engineering. August 6, 2012. Initial Site Assessment- Ash Creek and Butte Creek Bridge Replacement-Highway 299, Modoc County.

California Department of Transportation, Office of Environmental Engineering South. October 5, 2016. Construction Noise Assessment for the Ash Creek Bridge Replacement Project.

California Department of Transportation, Office of Environmental Engineering South. October 5, 2016 (updated February 23, 2017). Vibration Screening for the Ash Creek and Butte Creek Bridge Replacement Project.


Chapter 6. Project Comments and Responses
Butte & Ash Creek Bridges Replacement Project

STATE OF CALIFORNIA
GOVERNOR’S OFFICE OF PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

December 6, 2016

Julie McFall
California Department of Transportation, District 2
1657 Riverside Drive
P.O. Box 496073
Redding, CA 96001

Subject: Butte & Ash Creek Bridge Replacement Project
SCH#: 2016112013

Dear Julie McFall:

The State Clearinghouse submitted the above named Negative Declaration to selected state agencies for review. The review period closed on December 5, 2016, 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,

[Signature]

Scott Morgan
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov
Butte & Ash Creek Bridges Replacement Project

<table>
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<td>Project Title</td>
<td>Butte &amp; Ash Creek Bridge Replacement Project</td>
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<tr>
<td>Lead Agency</td>
<td>Caltrans #2</td>
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**Type**  
Negative Declaration

**Description**  
Caltrans proposes to replace two bridges along SR 299 in Modoc County. The purpose of the project is to restore the long-term reliability of the Butte Creek Bridge and Ash Creek Bridge, and reduce the need for continued maintenance and repairs. Work activities would include the construction of two new bridges on their existing alignment, installation of new guardrails and bridge railing, reconstruction of approach pavement and shoulders to conform to the new bridges, and the improvement of road connections within the project limits. The project would require vegetation clearing, temporary construction easements, and acquisitions of new ROW. The project would include water diversion at Ash Creek Bridge, and pile driving at both the Butte Creek and Ash Creek Bridges.

**Lead Agency Contact**  
Name: Julie McFall  
Agency: California Department of Transportation, District 2  
Phone: (530) 225-2828  
Fax  
Address: 1857 Riverside Drive  
P.O. Box 496073  
City: Redding  
State: CA  
Zip: 96001

**Project Location**  
County: Modoc  
City:  
Region:  
Lat / Long: 41° 11' 39" N / 120° 56' 39" W  
Cross Streets: SR 299  
Parcel No.: Caltrans ROW  
Township: 39N  
Range: 9E  
Section: 21,28  
Base

**Proximity to:**  
Highways: 299  
Airports: Adin  
Railways:  
Waterways: Butte Creek and Ash Creek  
Schools: Big Valley Primary  
Land Use: Caltrans ROW

**Project Issues**  
Aesthetic/Visual; Agricultural Land; Air Quality; Archaeological-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian

**Reviewing Agencies**  
Resources Agency; Department of Fish and Wildlife, Region 1; Department of Parks and Recreation; Central Valley Flood Protection Board; Department of Water Resources; Caltrans, Division of Aeronautics; California Highway Patrol; Air Resources Board, Transportation Projects; Regional Water Quality Control Bd., Region 5 (Redding); Native American Heritage Commission; State Lands Commission

**Date Received**  
11/04/2016  
Start of Review: 11/04/2016  
End of Review: 12/05/2016

Note: Blanks in data fields result from insufficient information provided by lead agency.
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*Initial Study/Mitigated Negative Declaration*
Butte & Ash Creek Bridges Replacement Project

Initial Study/Mitigated Negative Declaration

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<table>
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<th>Wildlife/Species</th>
<th>Habitat/Range</th>
<th>Mitigation/Recommendation</th>
<th>Action</th>
<th>Notes</th>
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<tr>
<td>Avian (bird)</td>
<td>Engine disturbance</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<td>Fish</td>
<td>Habitat loss</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<td>Mammal</td>
<td>No data/guidance</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<tr>
<td>Reptile</td>
<td>No data/guidance</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<tr>
<td>Amphibian</td>
<td>No data/guidance</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<td>Invertebrate</td>
<td>No data/guidance</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<tr>
<td>Aquatic</td>
<td>No data/guidance</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<tr>
<td>Vegetation</td>
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<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<tr>
<td>Geologic</td>
<td>No data/guidance</td>
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<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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<tr>
<td>Other</td>
<td>No data/guidance</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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</table>

Special Status Wildlife Evaluation For Butte and Ash Creek Bridge Replacement Project

<table>
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<tr>
<th>Wildlife/Species</th>
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<th>Mitigation/Recommendation</th>
<th>Action</th>
<th>Notes</th>
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<td>Endangered</td>
<td>No data/guidance</td>
<td>BMP, inventory, GSI, CEQA, mitigation</td>
<td>No action</td>
<td>Not required, the RL does not contain a viable habitat for the species.</td>
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Initial Study/Mitigated Negative Declaration

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State Route 299 – Butte & Ash Creek Bridge Replacement Project 51
## Butte & Ash Creek Bridges Replacement Project

### Initial Study/Mitigated Negative Declaration

<table>
<thead>
<tr>
<th>Project Locations</th>
<th>Project Name</th>
<th>Project Summary</th>
<th>Relevant Regulations</th>
<th>Mitigated Negative Declaration</th>
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<tr>
<td>Redding</td>
<td>Butte &amp; Ash Creek Bridges Replacement Project</td>
<td></td>
<td></td>
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</table>

**Project Summary**

The project involves the replacement of the existing Butte & Ash Creek Bridges. The project includes the construction of new bridges to improve safety and functionality. The project is designed to meet the needs of the community and comply with relevant regulations. The project is expected to have minimal environmental impacts and is supported by a Mitigated Negative Declaration, indicating that it meets the requirements for environmental protection.