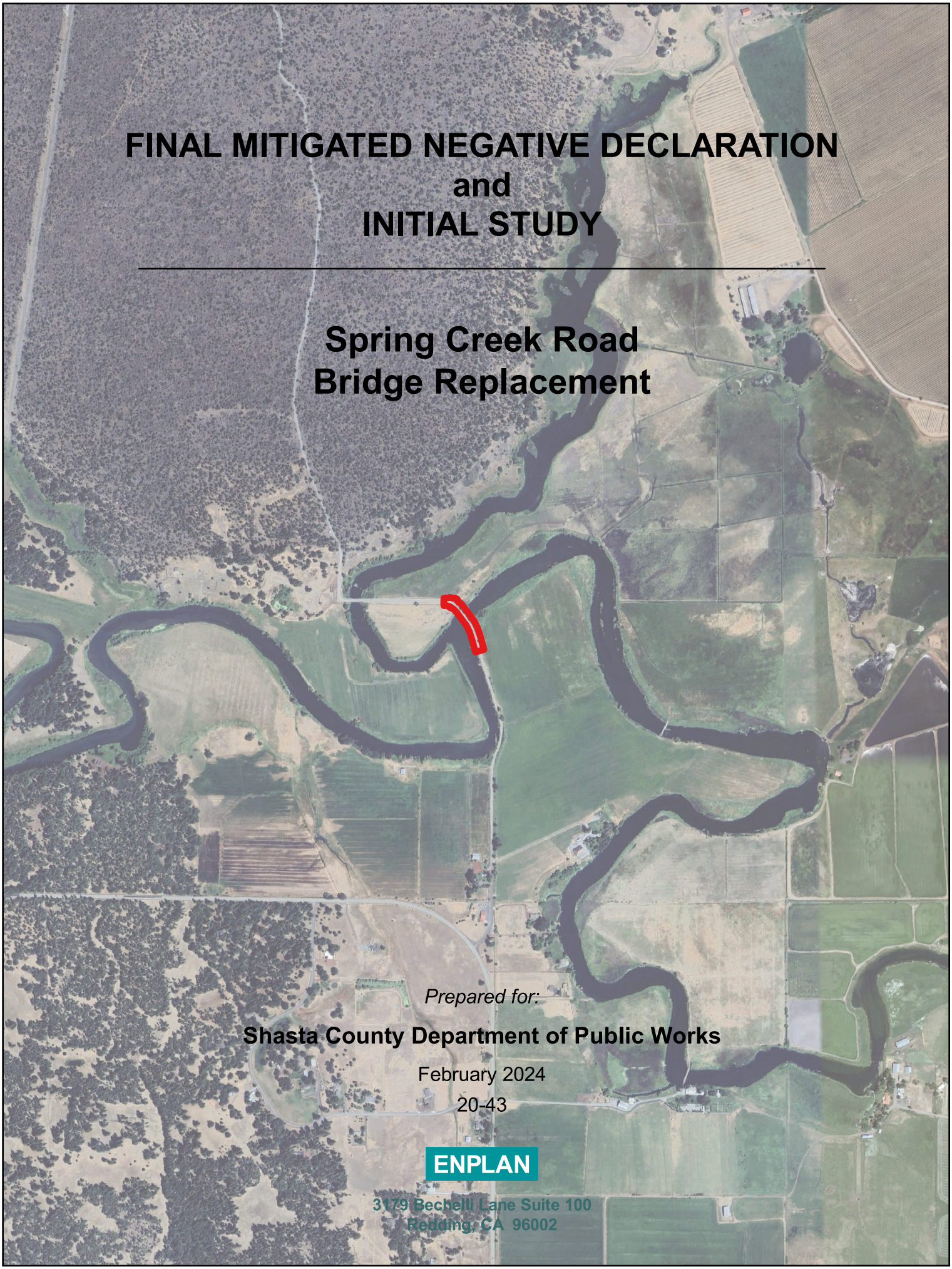

FINAL MITIGATED NEGATIVE DECLARATION
and
INITIAL STUDY

Spring Creek Road
Bridge Replacement

Prepared for:

Shasta County Department of Public Works

February 2024

20-43

ENPLAN

3179 Bechelli Lane Suite 100
Redding, CA 96002

MITIGATED NEGATIVE DECLARATION

LEAD AGENCY:	**County of Shasta** 1855 Placer Street Redding, CA 96001
PROJECT PROPONENT:	County of Shasta
PROJECT NAME:	**Spring Creek Road Bridge Replacement**
PROJECT SUMMARY:	The proposed Project entails replacement of the existing Spring Creek Road Bridge (No. 06C0209) over the Fall River with a new bridge on the same alignment. New paved roadway approaches would be installed on both sides of the bridge. A roadside ditch would be installed to facilitate drainage. (See Section 3.0, *Project Description*, in the Initial Study).
LOCATION:	The bridge site is located on Spring Creek Road, approximately 7.5 miles northwest of the community of Fall River Mills at the confluence of the Fall River and Spring Creek. The bridge site is in Section 28 of Township 38 North, Range 4 East of the U.S. Geological Survey's Dana 7.5-minute quadrangle; Latitude 41° 6' 5.38" N; Longitude 121° 30' 54.91" W. Staging would occur in the existing road right-of-way (ROW). The County's Corporation Yard on Glenburn Road, approximately 0.3 miles northwest of State Route 299, would be used for off-site staging of construction equipment. (See **Figure 1** in the Initial Study).

FINDINGS / DETERMINATION

As documented in the Initial Study, project implementation could result in possible effects to special-status wildlife species, loss of waters of the U.S./State, disturbance of nesting birds (if present), impacts to cultural resources and tribal cultural resources (if present), impacts to paleontological resources (if present), temporarily increased air emissions, temporarily increased risk of exposure to contaminated materials, potential introduction and spread of invasive weeds, potential introduction and spread of invasive freshwater mollusks, and temporarily increased noise and vibration levels.

Design features incorporated into the project would avoid or reduce certain potential environmental impacts, as would compliance with existing regulations and permit conditions. Remaining impacts can be reduced to levels that are less than significant through implementation of the mitigation measures presented in Section 1.9 of the Initial Study. Because the County of Shasta will adopt mitigation measures as conditions of project approval and will be responsible for ensuring their implementation, it has been determined that the project will not have a significant adverse impact on the environment.

Final Mitigated Negative Declaration approved by the Shasta County Board of Supervisors on February 27, 2024, by Resolution 2024-015.

INITIAL STUDY

COUNTY OF SHASTA

SPRING CREEK ROAD BRIDGE REPLACEMENT

SHASTA COUNTY, CALIFORNIA

LEAD AGENCY:

County of Shasta
1855 Placer Street
Redding, CA 96001

PREPARED BY:

ENPLAN
3179 Bechelli Lane, Suite 100
Redding, CA 96002
530.221.0440

Draft February 2023
Final February 2024

The Mitigated Negative Declaration was Adopted by the Shasta County Board of Supervisors on February 27, 2024, by Resolution 2025-015.

Revisions to the IS/MND were made based on comments submitted by the State Lands Commission and the California Department of Fish and Wildlife.

Deleted language is shown with ~~strikethrough~~. New language is shown as <u>bold and underlined.</u>

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SECTION 1.0 INTRODUCTION

1.1 PURPOSE OF STUDY

Shasta County (County), as Lead Agency, has prepared this Initial Study (IS) to provide the general public and interested public agencies with information about the potential environmental impacts of the Spring Creek Road Bridge Replacement Project (Project; proposed Project). Details about the proposed Project are included in Section 3.0 (Project Description) of this Initial Study. This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified in California Public Resources Code §21000 et seq., and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3. Pursuant to these regulations, this Initial Study identifies potentially significant impacts and, where applicable, includes mitigation measures that would reduce all identified environmental impacts to less-than-significant levels. This Initial Study supports a Mitigated Negative Declaration (MND) pursuant to CEQA Guidelines §15070.

The majority of funding for the proposed Project will be provided through the Caltrans Local Assistance Program, which is funded in part by the Federal Highway Administration (FHWA) Highway Bridge Replacement and Rehabilitation (HBRRP) Program; therefore, the proposed Project is also subject to National Environmental Policy Act (NEPA) review. Caltrans is the lead agency for NEPA review.

1.2 EVALUATION TERMINOLOGY

The environmental analysis in Section 4.0 is patterned after the Initial Study Checklist recommended in the State CEQA Guidelines. For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the proposed Project. To each question, there are four possible responses:

- **No Impact.** The proposed Project will not have any measurable environmental impact on the environment.
- **Less-Than-Significant Impact.** The proposed Project has the potential to impact the environment; however, this impact will be below established thresholds of significance.
- **Potentially Significant Impact Unless Mitigation Incorporated.** The proposed Project has the potential to generate impacts which may be considered a significant effect on the environment; however, mitigation measures or changes to the proposed Project's physical or operational characteristics can reduce these impacts to levels that are less than significant.
- **Potentially Significant Impact**. The proposed Project will have significant impacts on the environment, and additional analysis is required to determine if it is feasible to adopt mitigation measures or project alternatives to reduce these impacts to less than significant levels.

1.3 ORGANIZATION OF THE INITIAL STUDY

This document is organized into the following sections:

Section 1.0: **Introduction:** Describes the purpose, contents, and organization of the document and provides a summary of the proposed Project.

Section 2.0: **CEQA Determination:** Identifies the determination of whether impacts associated with development of the proposed Project are significant, and what, if any, additional environmental documentation may be required.

Section 3.0: **Project Description:** Includes a detailed description of the proposed Project.

Section 4.0: **Environmental Impact Analysis (Checklist):** Contains the Environmental Checklist from CEQA Guidelines Appendix G with a discussion of potential environmental effects associated with the proposed Project. Mitigation measures, if necessary, are noted following each impact discussion.

Section 5.0: **List of Preparers**

Section 6.0: **Abbreviations and Acronyms**

Appendices: Contains information to supplement Section 4.0.

1.4 PROJECT SUMMARY AND LOCATION

Project Title:	**Spring Creek Road Bridge Replacement**
Lead Agency Name and Address:	**Shasta County** 1855 Placer Street Redding, CA 96001
Contact Person and Phone Number:	**Charleen Beard, Supervising Engineer** 530.245.6806
County's Environmental Consultant:	**ENPLAN** 3179 Bechelli Lane, Ste. 100 Redding, CA 96002

Project Location:

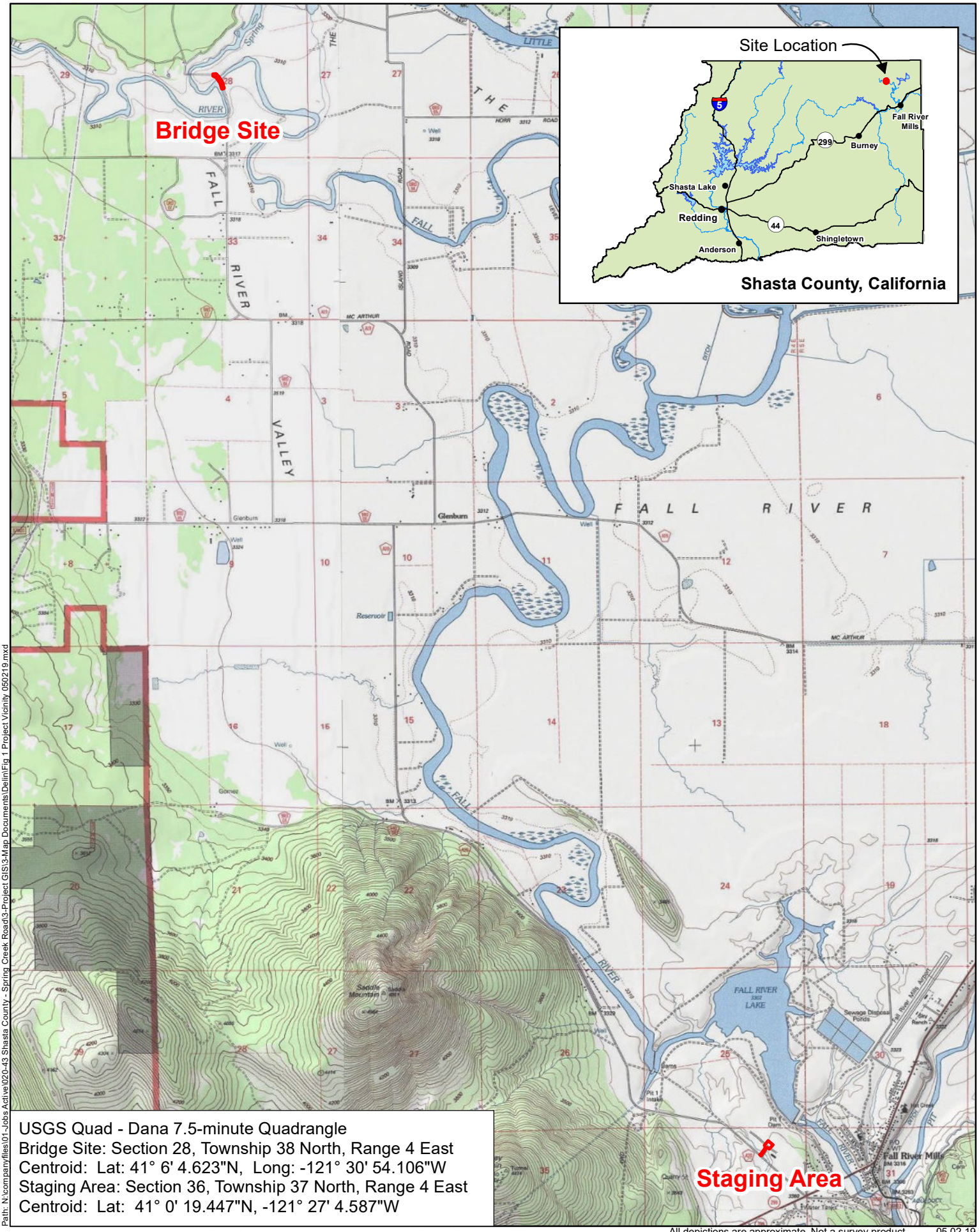
As shown in **Figure 1**, the proposed Project is located in an unincorporated area of Shasta County, approximately 7.5 miles northwest of the community of Fall River Mills. The bridge site is located along Spring Creek Road just downstream of the confluence of the Fall River and Spring Creek, in Section 28 of Township 38N, Range 4E of the U.S. Geological Survey's (USGS) Dana 7.5-minute quadrangle; Latitude 41° 6' 5.38" N; Longitude 121° 30' 54.91" W. **Figure 2** is an aerial photograph of the bridge site.

Staging of construction equipment would occur at the County's Corporation Yard, located on Glenburn Road, approximately 7.4 miles southeast of the bridge site and 0.3 miles northwest of SR 299 in Section 36 of Township 37N, Range 4E, of the USGS Fall River Mills 7.5-minute quadrangle; Latitude 41°0' 21.287" N; Longitude 121° 27' 5.22" W (See **Figure 1**).

Assessor's Parcel Numbers:

Bridge Site: 016-440-004, -103, and -114; public road right-of-way.

Corporation Yard: 023-210-045



USGS Quad - Dana 7.5-minute Quadrangle
Bridge Site: Section 28, Township 38 North, Range 4 East
Centroid: Lat: 41° 6' 4.623"N, Long: -121° 30' 54.106"W
Staging Area: Section 36, Township 37 North, Range 4 East
Centroid: Lat: 41° 0' 19.447"N, -121° 27' 4.587"W

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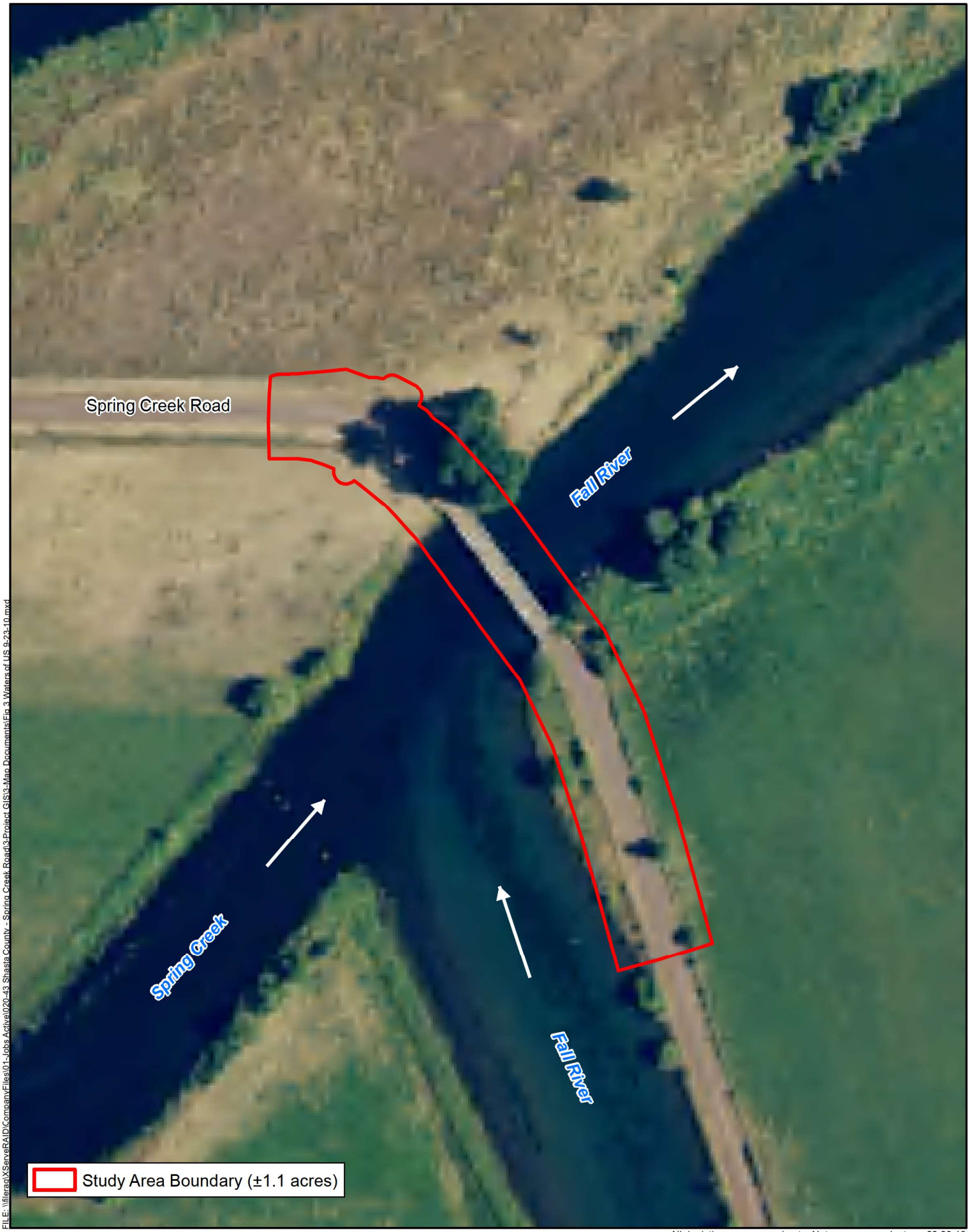
All depictions are approximate. Not a survey product. 05.02.19

0 4,000 Feet

Figure 1
Project Vicinity

ENPLAN



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All depictions are approximate. Not a survey product. 08.09.19

Feet
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Figure 2
Bridge Site

ENPLAN

1.5 ENVIRONMENTAL SETTING

General Plan Designations:	**Bridge Site:** The bridge site and surrounding properties are designated Agricultural Croplands (A-C – capable of supporting crop production by full-time operators). **Corporation Yard:** The Corporation Yard is designated Suburban Residential (SR).
Zoning:	**Bridge Site:** The majority of the bridge site and parcels east, west, and south of the Bridge are zoned Exclusive Agriculture-Agricultural Preserve (EA-AP). The northern extent of the Bridge site and parcels north of the bridge are zoned Unclassified (U). **Corporation Yard:** The Corporation Yard is zoned Public Facilities (PF).
Surrounding Land Uses:	**Bridge Site:** Properties surrounding the bridge site are undeveloped and used for agricultural crop production and grazing. The closest single-family residences are located ±0.4 miles to the west, south, and southeast. **Corporation Yard:** The Corporation Yard is surrounded by undeveloped land owned by Pacific Gas & Electric (PG&E). The closest residences are located ±0.2 miles to the east and southeast.
Topography:	The bridge site is situated ±3,310 feet above sea level. The Corporation Yard is situated ±3,360 feet above sea level. Other than the river banks at the bridge site, both the bridge site and Corporation Yard are predominantly flat.
Soils:	**Bridge Site:** According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), two soil types are mapped in the bridge site: Pastolla muck, 0-1 percent slopes; and Pastolla muck, drained, 0-2 percent slopes. **Corporation Yard:** According to the NRCS, one soil type is mapped at the Corporation Yard: Jellycamp-Ollierivas complex, 2-9 percent slopes.
Natural Communities/ Wildlife Habitats:	As discussed in Section 4.4, natural communities in the study area include stream/riverine, riparian, and disturbed grassland. Stream/riverine habitat in the study area includes Spring Creek and the Fall River. Sparse woody vegetation is present along the Fall River northeast of the bridge, including willows, Oregon ash, and black walnut. A disturbed road shoulder/grassland is present along Spring Creek Road. The roadside community is dominated by grasses and forbs, many of which are non-native. Representative species include mayweed, English peppergrass, alfalfa, red-stemmed filaree, showy milkweed, yellow star-thistle, woolly mullein, hare wall barley, soft chess, downy brome, and bulbous bluegrass. **Corporation Yard:** The Corporation Yard consists of paved and gravel-covered lands with a disturbed annual grassland in less-utilized areas. The annual grassland is represented by: medusa-head, Idaho resin-weed, rose clover, and Fremont's calycadenia.
Climate:	The climate is characterized by mild summers and very cold winters. The annual precipitation total for 2018 was 21.16 inches; the normal precipitation total for the area is 18.15 inches. Most of the precipitation occurs between October and April (NOAA, 2019). The average annual low temperature is 34.6º F and the average annual high temperature is 65º F. (Western Regional Climate Center, 2019)

1.6 PERMITS AND APPROVALS

Permits and approvals that may be necessary for construction and operation of the Proposed Project are identified below.

Shasta County:

- Adoption of a Mitigated Negative Declaration pursuant to the California Environmental Quality Act (CEQA).
- Adoption of a Mitigation Monitoring Plan for the Project that incorporates the mitigation measures identified in this Initial Study.

California Department of Transportation:

- Approval of National Environmental Policy Act (NEPA) compliance documentation.
- Approval of funding.

U.S. Army Corps of Engineers:

- Section 404 Permit under the Federal Clean Water Act.

State Water Resources Control Board (SWRCB), Central Valley Regional Water Quality Control Board (CVRWQCB):

- Section 401 Water Quality Certification (or waiver) and Report of Waste Discharge.
- Coverage under the applicable permit for dewatering activities (if necessary).

California Department Fish and Wildlife:

- Section 1600 Lake or Streambed Alteration Agreement.
- Section 2801(b) Incidental Take Permit (rough sculpin).

California Office of Historic Preservation, State Historic Preservation Officer (SHPO)

- Due to federal funding and federal permits for the proposed Project, consultation regarding potential impacts to cultural resources is required pursuant to Section 106 of the National Historic Preservation Act (NHPA).

1.7 TRIBAL CULTURAL RESOURCES CONSULTATION

Public Resources Code (PRC) §21084.2 (AB 52, 2014) establishes that *"a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."* In order to determine whether a project may have such an effect, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if the tribe requested to the lead agency, in writing, to be informed through formal notification of proposed projects in the geographical area; and the tribe responds, in writing, within 30 days of receipt of the formal notification and requests the consultation.

As discussed in Sections 4.5 (Cultural Resources) and 4.18 (Tribal Cultural Resources), consultation with the Pit River Tribal Council and Ajumawi Band of the Pit River Tribe has been conducted as provided in PRC §21080.3.1 and §21080.3.2, and consultation is considered concluded pursuant to PRC §21080.3.2(b).

1.8 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the Proposed Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages. Impacts to these resources are evaluated using the checklist included in Section 4.0. The Proposed Project was determined to have a less-than-significant impact or no impact without mitigation on unchecked resource areas.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agricultural/Forestry Resources	☒ Hazards/Hazardous Materials	☐ Recreation
☒ Air Quality	☐ Hydrology and Water Quality	☐ Transportation
☒ Biological Resources	☐ Land Use and Planning	☒ Tribal Cultural Resources
☒ Cultural Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☐ Energy	☒ Noise	☐ Wildfire
☒ Geology and Soils	☐ Population and Housing	☒ Mandatory Findings of Significance

1.9 ~~PROPOSED~~ MITIGATION MEASURES

The following mitigation measures ~~are proposed to~~ **would** reduce impacts of the proposed Project to less-than-significant levels.

AIR QUALITY

MM 4.3.1 The County shall ensure through contractual obligations that the following measures are implemented throughout construction:

a. All material excavated, stockpiled, or graded shall be sufficiently watered to prevent fugitive dust from leaving property boundaries and causing a public nuisance or a violation of ambient air quality standards.

b. Unpaved areas with vehicle traffic shall be watered periodically or have dust palliatives applied for stabilization of dust emissions.

c. All on-site vehicles shall be limited to a speed of 15 miles per hour on unpaved roads.

d. All land clearing, grading, earth moving, and excavation activities on the project site shall be suspended if/when Shasta County's resident engineer determines that winds are causing excessive dust generation.

e. The contractor shall be responsible for applying non-toxic stabilizers (according to manufacturer's specifications) to all inactive construction areas (previously graded areas which remain inactive for 96 hours), in accordance with the Shasta County Grading Ordinance.

f. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of free board in accordance with the requirements of California Vehicle Code §23114.

g. When not in use, motorized construction equipment shall not be left idling for more than five minutes.

MM 4.3.2 Prior to demolition of the existing bridge, a comprehensive asbestos survey of all suspect materials shall be completed. Sampling shall be conducted by a California Division of Occupational Safety and Health (DOSH)-certified Asbestos Consultant (CAC) or a Site Surveillance Technician (SST). Asbestos-containing material shall be removed by a DOSH-registered licensed asbestos abatement contractor and disposed of at a landfill approved to receive asbestos-containing waste material.

MM 4.3.3 Prior to demolition of the existing bridge, a comprehensive survey shall be completed in locations where lead-based paint is suspected. If lead-based paint is identified, lead abatement shall be conducted by a qualified lead abatement contractor as defined by Title 17 CCR, Articles 5 and 7.

MM 4.3.4 In the event previously undetected asbestos or lead-containing materials are discovered during construction or demolition, activities that may affect the materials shall cease until results of additional surveys are reviewed. Alternatively, the County can assume that the materials are hazardous. Any identified hazardous materials shall be disposed of in accordance with applicable hazardous waste regulations.

BIOLOGICAL

MM 4.4.1 To avoid impacts to special-status birds and nesting birds, including raptors protected under state and federal regulations: (1) removal of raptor nests at any time of year is prohibited unless appropriate permits are obtained, and (2) one of the following shall be implemented:

a. **Bridge modification and deconstruction**, vegetation removal, and other ground-disturbance activities associated with construction shall occur between September 1 and January 31, when birds are not nesting; or

b. If **bridge modification and deconstruction,** vegetation removal, or ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area.

Surveys shall begin prior to sunrise and continue until ~~vegetation and nests have~~ **the project area has** been sufficiently observed. The survey shall take into account acoustic impacts and line-of-sight disturbances occurring as a result of the project in order to determine a sufficient survey radius to avoid nesting birds. To the extent feasible given line-of-sight constraints and private property access, a minimum 330-foot buffer shall be surveyed for nesting eagles and a minimum 500-foot buffer shall be surveyed for nesting greater sandhill cranes. The survey report shall include a description of the area surveyed, date and time of the survey, ambient conditions, bird species observed in the area, a description of any active nests observed, any evidence of breeding behaviors (e.g., courtship, carrying nest materials or food, etc.), and a description of any outstanding conditions that may have affected the survey results (e.g., weather conditions, excess noise, the presence of predators, etc.).

The results of the survey shall be submitted electronically to the California Department of Fish and Wildlife at R1CEQARedding@wildlife.ca.gov upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If

construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed.

If active nests are found, the biologist shall conduct agency consultation as appropriate and then recommend appropriate actions to be taken by Shasta County to comply with applicable state and federal requirements. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.

Nests confirmed to be occupied by birds or bats shall be left undisturbed until birds have fledged, the nest is no longer active, or bats have left for the season, as confirmed by a qualified biologist.

MM 4.4.2 To minimize the potential for adverse effects to sculpin nests or larvae, during the summer (June-July) prior to pier removal, a team of divers shall remove all loose lava substrate from the stream bottom in the immediate vicinity of the piers (i.e., within 15 feet from the piers, as feasible).

MM.4.4.3 To minimize turbidity and channel bottom disturbance, in-water piers proposed for removal shall be sawn off at the channel bottom rather than being broken off or pulled out.

MM 4.4.4 Prior to commencement of any earth disturbance (e.g., clearing, grading, trenching, etc.), all construction personnel shall receive training from a qualified biologist regarding protective measures for the rough sculpin, western pond turtle, and other special-status species that may be present in the project area. If new personnel are added to the project, the County shall ensure that they receive the mandatory training before starting work. At a minimum, the training shall include the following:

a. A review of the special-status species that could occur in the project study area, the locations where the species could occur, the laws and regulations that protect these species, and the consequences of noncompliance with applicable laws and regulations.

b. Procedures to be implemented in the event that these species are encountered during construction.

c. A review of sensitive habitats that occur in the study area and the location of the sensitive habitats.

d. A review of applicable mitigation measures, standard construction measures, best management practices, and regulatory agency permit conditions that apply to the protection of special-status species and sensitive habitats.

MM 4.4.5 Prior to project implementation, Shasta County shall obtain a permit from the California Department of Fish and Wildlife authorizing incidental take of the rough sculpin. The County or its designee, in coordination with the California Department of Fish and Wildlife, shall also develop and implement a program to mitigate the unavoidable residual impacts of the bridge replacement project on rough sculpin. Mitigation prescribed in the program shall be roughly proportional to the extent of impact, and an adaptive management process shall be included in the program to ensure that the objectives of the mitigation program are achieved. Shasta County or its designee shall monitor compliance with, and effectiveness of, the mitigation program until the California Department of Fish and Wildlife determines that impacts on rough sculpin resulting from bridge replacement have been fully mitigated.

MM 4.4.6 If in-stream dewatering enclosures are erected to facilitate construction, a qualified biologist shall be present during initial dewatering of each enclosure to ensure that no **aquatic species, including rough sculpin and** western pond turtles are trapped. If ~~turtles~~ **aquatic**

species are present within the enclosure, they shall be relocated outside the work area by the qualified biologist.

MM 4.4.7 In the event that western pond turtles enter a 100-foot buffer of on-going construction activities, a qualified biologist shall be contacted and construction activities shall be halted within 50 feet of the turtle until the turtle is confirmed to have left the project area or is relocated by the qualified biologist.

MM 4.4.8. The monarch butterfly is currently designated as a Candidate species for federal listing under the Endangered Species Act. If the western migratory population of the monarch butterfly is not listed and is no longer a federal Candidate for listing at the time project construction is initiated, no mitigation is required. If the western migratory population of the monarch butterfly remains a Candidate or is formally listed at the time of construction, then the following actions shall be taken:

a. A field survey shall be undertaken in early to mid-May (prior to arrival of the butterflies) to determine if milkweeds (*Asclepias* spp.) are present in or adjacent to the work corridor. If no milkweeds are present, no further action is required.

b. If milkweeds are present in or adjacent to the work area, and can be avoided during construction, temporary fencing shall be established to protect the plants; the fencing shall be maintained in good condition throughout the duration of construction.

c. If the milkweeds cannot be avoided, then they shall be removed as early in the season as possible. If monarchs arrive in the general project area prior to removal of the milkweeds, a biologist shall inspect each milkweed for the presence of monarch butterfly eggs, larvae, and pupae prior to its removal. If monarch butterfly eggs, larvae, or pupae are present, the milkweed shall not be removed until the biologist determines that the milkweed is no longer hosting the monarch butterfly. This may require rescheduling of construction in those areas supporting milkweeds.

d. If removal of milkweeds is required at any time during the pre-construction or construction periods, one of the following options shall be implemented:

    i. If, prior to project initiation, the US Fish and Wildlife Service approves a mitigation banking or in-lieu fee program to offset impacts to the monarch butterfly, Shasta County shall purchase credits or pay fees at an amount/ratio acceptable to the Service. Proof of purchase shall be provided to the Caltrans prior to project completion.

    ii. If no mitigation banking or in-lieu fee program is approved by the US Fish and Wildlife Service prior to project initiation, Shasta County shall re-establish milkweeds in the immediate area in the fall or spring following completion of construction. This shall be accomplished by planting seeds or rooted milkweed seedlings/cuttings. The planted milkweeds shall be of the same species as those removed. Planting shall be conducted at a sufficiently high ratio to ensure success, which is defined as establishing at least one milkweed plant per milkweed plant removed as determined through field monitoring one year after the milkweed planting is undertaken. If the minimum success ratio is not met, milkweed seeding/planting shall continue in successive years until the success criterion is met. Documentation regarding milkweed re-establishment and success shall be provided to the federal lead agency on an annual basis until the success criterion is met. The planting program may be undertaken by the County, its contractors, or a third-party conservation-oriented such as the Western Shasta Resource Conservation District.

MM 4.4.9 The potential for introduction and spread of noxious weeds shall be avoided/minimized by:

a. Using only certified weed-free erosion control materials, mulch, and seed.

b. Limiting any import or export of fill to material known to be weed free.

c. Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the job site and upon leaving the job site.

MM 4.4.10 The potential for introduction and spread of invasive freshwater mollusks (quagga mussels and zebra mussels) shall be avoided/minimized by utilizing only vessels that have been cleaned, drained of all standing water, dried thoroughly, and determined not to harbor mussels prior to placement into Spring Creek or the Fall River. Vessels that harbor mussels shall undergo treatment to eradicate the mussels completely by being placed into dry storage for a minimum of five days prior to their next planned use.

MM 4.4.11 Mitigation for the permanent loss of jurisdictional waters shall be achieved at a minimum 1:1 ratio through payment of in-lieu fees to the Army Corps of Engineers, purchase of mitigation credits, or onsite/offsite habitat restoration.

MM 4.4.12 Avoid/Minimize Effects on Bats During Bridge Demolition.

Prior to bridge demolition, a visual survey of the bridge shall be conducted by a qualified bat biologist to identify signs of past or present bat activity. If work on the bridge occurs between November 1 and March 1, the survey shall include inspection of any cliff swallow nests that may be present on the bridge.

If the visual survey confirms that there are no signs of past or present bat activity, no further work is needed prior to demolition. If there are signs of past or present bat activity, then humane bat eviction or exclusion shall be undertaken as described below.

- **If needed, humane bat eviction or exclusion shall be conducted by a bat exclusion contractor or by the bridge contractor under direct supervision of a qualified bat biologist who is experienced in humane bat exclusion methods, materials, and techniques. Humane bat eviction may consist of installation of one-way exits at required locations to permit bats to escape from any roost crevices or non-contiguous portions of crevices. Humane bat eviction shall be conducted only during seasonal periods of bat activity, as defined by the bat biologist.**

MM 4.4.13 Replace Bat Roosting Habitat.

If the qualified bat biologist identifies signs of past or present bat activity during the survey and finds that the bridge provides roosting habitat for bats (even if bats are not present at the time of the survey), bat roosting habitat shall be incorporated into the new bridge in accordance with plans developed by a qualified bat biologist with experience in bridge structure bat roost habitat design.

CULTURAL

MM 4.5.1 Shasta County shall continue to coordinate with Caltrans (the designated federal Lead Agency for the project) throughout the duration of project construction to ensure that the County fulfills its responsibilities with respect to Section 106 of the National Historic Preservation Act.

MM 4.5.2 If any previously unevaluated cultural resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, etc.) are encountered, all earth-disturbing work shall stop within 25 feet (7.6 meters) of the find until a qualified

archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary.

MM 4.5.3 In the event that human remains are encountered during construction activities, all construction activities (ground-disturbing or not) shall stop within 50 feet (15 meters) of the find, and the County-Designated (CD) Archaeologist shall be immediately contacted. The CD-Archaeologist, in coordination with Shasta County, shall ensure that the requirements of §15064.5 (e) (1) of the CEQA Guidelines and §7050.5 of the Health and Safety Code are met. These requirements provide that (1) the Shasta County coroner shall be contacted to determine whether investigation of the cause of death is required and (2) if the remains are determined to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of the find. Together with representatives of the people of most likely descent, as identified by the NAHC, the CD-Archaeologist shall make an assessment of the discovery and recommend/implement mitigation measures as necessary.

MM 4.5.4 In order to ensure compliance with §6313 of the California Public Resources Code, in the event that any submerged archaeological sites and/or submerged historic resources (as defined in PRC §6313[b]) are discovered on land under the jurisdiction of the State Lands Commission (SLC) (i.e., the bed of the river) during construction activities, the County shall consult with the Staff Attorney for the State Lands Commission. The final disposition of archaeological and historical resources under the jurisdiction of the SLC must be approved by the SLC.

GEOLOGY AND SOILS

MM 4.7.1 All grading plans, foundation plans, and structural calculations shall be reviewed by a qualified professional to ensure that all recommendations included in the final CGI Geotechnical Report are implemented. Applicable notes shall be placed on the attachment sheet to the improvements plans and in applicable project plans and specifications. If significant engineering design changes occur during construction, the County shall consult with a qualified geotechnical engineer to identify any geotechnical constraints related to the design changes. Recommendations of the geotechnical engineer shall be implemented as warranted.

MM 4.7.2 The County shall ensure through contractual obligations that earthwork activities are monitored by a qualified professional to ensure that recommendations included in the CGI Geotechnical Report are implemented.

MM 4.7.3 If paleontological resources (fossils) are discovered during construction, all work within a 60-foot radius of the find shall be halted until a professional paleontologist can evaluate the significance of the find. If any find is determined to be significant by the paleontologist, the County shall meet with the paleontologist to determine the appropriate course of action. If necessary, a Treatment Plan prepared by a paleontologist outlining recovery of the resource, analysis, and reporting of the find shall be prepared. The Treatment Plan shall be reviewed and approved by the County prior to resuming construction.

HAZARDS/HAZARDOUS MATERIALS

Implementation of **Mitigation Measures MM 4.3.2, MM 4.3.3**, and **MM 4.3.4**.

MM 4.9.1 Treated wood waste (TWW) shall be handled, stored, transported, and disposed of in accordance with California Department of Toxic Substances Control and Caltrans requirements. All personnel that may come into contact with TWW will receive, at a minimum, training on Cal OSHA requirements, procedures for identifying and segregating TWW; safe handling practices; and proper disposal methods.

NOISE

Implementation of **Mitigation Measure MM 4.3.1(g).**

MM 4.13.1 Construction activities shall be prohibited between the hours of 9:00 PM and 6:00 AM.

MM 4.13.2 Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

TRIBAL CULTURAL RESOURCES

Implementation of **Mitigation Measures MM 4.5.1, MM 4.5.2, and MM 4.5.3.**

SECTION 2.0 CEQA DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ **I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION has been prepared.**

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a significant effect(s) on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT Is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or Negative Declaration pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

The Mitigated Negative Declaration was Adopted by the Shasta County Board of Supervisors on February 27, 2024, by Resolution 2025-015.

SECTION 3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

Shasta County, in cooperation with the California Department of Transportation (Caltrans), is proposing to replace the existing 135-foot-long by 14-foot-wide Spring Creek Road bridge (bridge No. 6C0209) over the Fall River.

According to as-built plans, the existing bridge was constructed in 1966 and consists of a seven-span timber structure founded on timber piles, with a wood deck and asphalt driving surface. The existing roadway approaches are gravel and approximately 16 feet wide with no shoulders.

The new bridge would be a single-span steel/concrete structure built on the same alignment and would measure 163-feet long and 20-feet wide. The new bridge would be about 3.5 to 5 feet higher than the existing bridge and would be supported on reinforced concrete seat-type abutments supported on driven piles. Because the new bridge would be higher than the existing bridge, the roadway approaches would be constructed on fill over the existing road.

The new approach roadways would be paved on both sides of the bridge and would be 20-feet wide with 1-foot shoulders. The northern approach would extend ±160 feet from the bridge and the southern approach would extend ±252 feet from the bridge. The County will need to acquire approximately 0.40 acres of right-of-way (ROW) for the new roadway approaches. The total area of earth disturbance associated with construction of the bridge and roadway approaches would be about 0.8 acres.

Facing southwest.

A roadside ditch would be installed on the north side of the bridge to facilitate drainage away from the road. No utilities would need to be relocated. Some vegetation would need to be removed to accommodate the proposed improvements; however, no mature trees would be removed. Staging for construction equipment and materials would occur in the existing road ROW. The County's Corporation Yard would be used for equipment storage.

The existing bridge would be removed during construction of the new bridge; thus, the road would be closed during construction. Work is scheduled to commence in 2025 and would be completed in approximately six to eight months, weather permitting.

Project design is based, in part, on recommendations included in a Geotechnical Report prepared by CGI Technical Services, Inc., in August 2018. The Geotechnical Report includes engineering design criteria for bridge foundations, structural pavement, retaining walls, and other related bridge improvements.

For purposes of this Initial Study, "study area" and "Project site" shall mean the Project footprint, which includes access roads, staging areas, and areas in which improvements are proposed.

3.2 PROJECT BACKGROUND, NEED AND OBJECTIVES

The purpose of the Project is to provide a safe crossing over the Fall River for the traveling public. According to Caltrans traffic counts, the bridge had 50 average daily trips in 2016. The bridge provides access to residential and agricultural properties on Spring Creek Road, and is also used to access Bureau of Land Management and Forest Service land north of the bridge. If the bridge is closed, residents would be required to take a detour to Fall River Mills on narrow roads that would be impassable in the winter.

The bridge, constructed in 1966, is structurally deficient, functionally obsolete for width and loading, and does not meet current federal or local design standards. According to the National Bridge Inventory, an inspection report completed in May 2016 indicates that the bridge is in poor condition. The report also states that the bank is beginning to slump, and embankment protection has widespread minor damage. The inspection report identifies the bridge as a high-priority for replacement.

3.3 PROJECT COMPONENTS / PHYSICAL IMPROVEMENTS

Table 3.0-1 identifies the type and depth of impacts associated with the proposed improvements.

TABLE 3.0-1
Overview of Project Impacts

Location	Type of Impact	Depth of Impact from Existing Grade (feet)	Details
North Side	Existing Bridge Demolition	≤ 1	Minor existing embankment excavation and grading behind the abutment timber piles and lagging. The timber pile and lagging wall will remain.
	Staging	Minimal	Limited to the existing roadway, shoulders, and area within the R/W. Gravel pads will be constructed at existing road grade to provide an equipment work area to an overall width of approximately 40 feet and length of approximately 150 feet.
	Abutment 1	≤ 68 for piles ≤ 4 for pile cap	Steel driven H-piles to support a short concrete pile cap and abutment seat. Upper 4 feet of height in new raised approach roadway fill prism.
	Road Cuts	≤ 4	Along north bridge abutment and drainage ditch leading to culvert.
	Culvert	≤ 2.5	Install 15-inch reinforced concrete pipe across northern approach.
	Road Fill	None	Engineered material from commercial source.
	Guardrail, Sign Posts, and ROW Fencing	≤ 3.5	Driven and/or placed in drilled holes.
River Channel	Existing Bridge Demolition	None	Remove existing bridge using a crane on gravel work pad on the roadway. Barges may be used to facilitate the work.
	Existing piles	None	Existing timber trestle piles will be sawn off at the channel bottom using a diver from a barge.
	New bridge construction	None	New bridge will be constructed with cranes from the two roadway approaches, and using a barge.

Location	Type of Impact	Depth of Impact from Existing Grade (feet)	Details
South Side	Existing Bridge Demolition	≤ 1	Minor existing embankment excavation and grading behind the abutment timber piles and lagging. The timber pile and lagging wall will remain.
	Staging	Minimal	Limited to the existing road way, shoulders, and area within the ROW. Gravel pads will be constructed at existing road grade to provide an equipment work area to an overall width of approximately 40 feet and length of approximately 150 feet.
	Abutment 2	≤ 65 for piles ≤ 3 for pile cap	Steel driven H-piles with a reinforced concrete pile cap. The upper 4 feet of height would be within the new raised approach roadway fill prism.
	Road Cuts	≤ 3	Along south bridge abutment.
	Road Fill	None	Engineered material from commercial source.
	Guardrail, Sign Posts, and ROW Fencing	≤ 3.5	Driven and/or placed in drilled holes.

Bridge Foundations and Abutments

Based on subsurface soil conditions and anticipated bridge loading conditions, deep foundation systems supported on driven piles are required to support the proposed bridge. Seat-type abutments, approximately 7.5 feet in height, would be installed on both sides of the bridge. Steel H-piles would be driven to a depth of about 68 feet below the existing ground surface at the north abutment (Abutment 1) and to a depth of about 65 feet at the south abutment (Abutment 2).

Maximum depth of excavation for the abutment foundation would be about 4 feet below the existing roadway surface at Abutment 1, and about 3 feet below the existing roadway surface at Abutment 2. Excavation would be into existing fill that is several feet deep that was placed during construction of the existing bridge abutments and roadway approaches; only shallow disturbance to the undisturbed subsurface soil is anticipated. The upper four feet of each abutment would be in the fill prism of the new raised roadway approach.

Road Cuts

Maximum cuts for various project elements are estimated as follows: 1.2 feet for roadway approach work, within mostly imported fill material; 2.5 feet to allow installation of a 15-inch reinforced concrete pipe across the north approach; 4 feet along the north bridge abutment; and 3 feet along the south bridge abutment. Cut for the drainage ditch leading to the culvert along the east side of the north approach varies from 0.0 feet to approximately 2.7 feet deep. No other drainage ditches would be constructed.

Road Fill

Earthwork for the new roadway would be mostly fill to raise the existing roadway profile by approximately 3.5 feet at the north Abutment 1 and approximately 5 feet at the south Abutment 2. To construct the elevated southern road approach, it is anticipated that the contractor will install silt fencing at the outer edge of the work area, clear and grub the fill footprint (which is within the mapped ordinary high-water mark of the river), lay down a layer of gravel, and then place and compact the road fill on top of the gravel layer. If water intrusion is a problem due to the consistency of the soils, sheet piles could be installed to help dewater the road fill footprint and/or the abutment work areas. The fill material for the raised roadway approaches would be imported from a commercial site.

Guardrails and Signage

Guardrail posts on the northern and southern approaches would be driven or placed in drilled holes to a depth of 2 to 3 feet below existing ground elevation, depending on location. The guardrail posts would be in the new fill prism with only shallow disturbance to the existing subsurface. Warning signs mounted on wood posts would be installed at each end of the bridge. Sign post depth below existing grade is anticipated to be 3.5 feet.

Fencing

Existing fences in the study area would be removed, and new fencing would be constructed just beyond the right-of-way lines in mostly intact/native soil. Anticipated fence post depth below ground is about 3 feet.

Existing Bridge Demolition

Bridge removal will not result in extensive impacts to original ground since the timber railing, stringers, decking, and timber bent cap beams are all above the water level and would be removed with a crane; timber piles in the water would be cut off by divers instead of pulled or excavated out. The crane would be placed on a gravel work pad on the roadway. Barges and divers from a barge may be used to facilitate the work in the river channel. There would be minor excavation (less than 1 foot) of the existing embankment and grading behind the abutment timber piles and lagging on the north and south sides of the bridge. The timber pile and lagging wall will remain at each abutment.

New Bridge Construction

The bridge would be constructed with cranes from the north and south approaches, and using a barge. There would be no subsurface impact from the cranes and barges.

Road Paving

The road approaches on both sides of the bridge would be paved with asphalt in accordance with Caltrans specifications.

Staging

Equipment staging would occur in the existing road ROW. The staging area would be limited to the existing roadway, shoulders, and area within the right-of-way. Gravel pads would be constructed at existing road grade to provide an equipment work area to an overall width of approximately 40 feet and length of approximately 150 feet. The County's Corporation Yard would be used for equipment storage. No earth disturbance would occur at the Corporation Yard.

SECTION 4.0 ENVIRONMENTAL IMPACT ANALYSIS (CHECKLIST)

4.1 AESTHETICS

Except as provided in Public Resources Code §21099 (Transit-Oriented Infill Projects), would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal or local regulations pertaining to aesthetics that apply to the proposed Project.

STATE

California Scenic Highway Program

The California Scenic Highway Program, administered by the California Department of Transportation (Caltrans), was established in 1963 to preserve and protect the natural beauty of scenic highway corridors in the State. The Scenic Highway System includes a list of highways that have been designated as scenic highways as well as a list of highways that are eligible for designation as scenic highways. Local jurisdictions can nominate scenic highways for official designation by identifying and defining the scenic corridor of the highway and adopting a Corridor Protection Program that includes measures that strictly limit development and control outdoor advertising along the scenic corridor.

DISCUSSION OF IMPACTS

Questions A and C

Scenic vistas are defined as expansive views of highly valued landscapes from publicly accessible viewpoints. Scenic vistas include views of natural features such as mountains, hills, valleys, water courses, outcrops, and natural vegetation, as well as man-made scenic structures.

Scenic resources in the Project area include the Fall River, Spring Creek, trees and other vegetation, open space, and forested hillsides (see **Photo 4.1-1**).

Photo 4.4-1. *Facing southwest from the existing bridge.*

As shown in Photos **4.4-2** and **4.4-3**, the existing bridge is a timber structure with a wood deck and asphalt driving surface. The existing roadway approaches are graveled. Warning and informational signs are located on both sides of the bridge.

Photo 4.4-2. *View of existing bridge, facing north-northwest.*

Photo 4.4-3. *View of existing bridge, facing northwest.*

Visual impacts are determined by assessing changes to the visual characteristics in an area and predicting viewer response to those changes. Project components that have the potential to result in a significant change in the visual environment include the bridge, bridge railing, pavement, fencing, and signs. The bridge is visible to individuals traveling on Spring Creek Road, recreational users of the Fall River and Spring Creek, and agricultural workers on adjacent properties. The bridge is not prominently visible from residences in the area.

Components of the Project that would be similar to the existing bridge include signage and replacement fencing on both sides of the bridge; thus, these components would not result in a significant change to the existing viewshed. Further, paving the roadway approaches would not result in an adverse visual impact.

Although the new bridge would be constructed on the same alignment as the current bridge, the new bridge would be larger and about 3.5 to 5 feet higher in elevation and would have the most pronounced change to the existing visual character of the area. Although the introduction of a larger structure at a higher elevation would change the visual character of the Project area, because the Project replaces an existing bridge, the Project would result in a relatively minor physical change to the existing viewshed.

Because the new bridge would be a single-span structure, recreational users would have a more open view of Spring Creek and the Fall River. The railing design would be similar to **Photo 4.4-4. Photo 4.4-5** is included to allow a comparison between the existing bridge and the new bridge.

Photo 4.4-4. *Proposed bridge railing.*

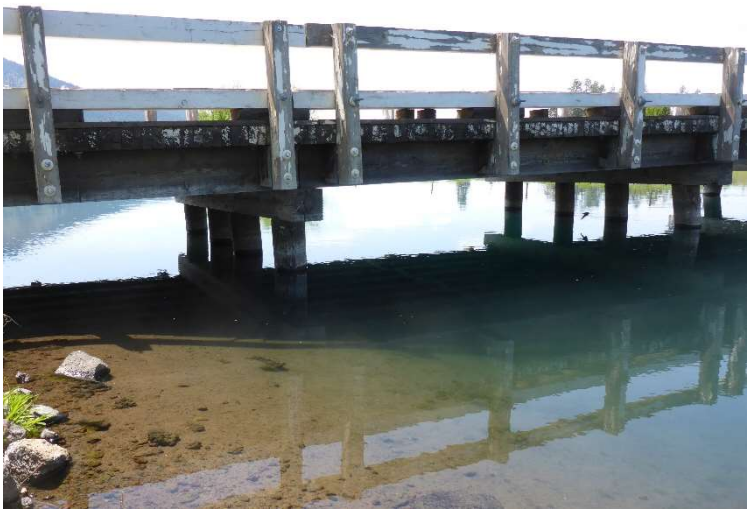

Photo 4.4-5. *Existing bridge railing.*

The proposed Project would have short-term visual impacts during construction due to the use of construction equipment and grading/ earthwork; however, this would cease when the Project is complete. Because design of the new bridge would not result in adverse visual impacts, and impacts during construction would be temporary and cease at completion of the project, impacts would be less than significant.

Question B

The nearest officially designated State Scenic Highway is Route 151 (Shasta Dam Boulevard), located approximately 55 miles southwest of the Project area. Therefore, there would be no impact to scenic resources within a designated State Scenic Highway.

Question D

The proposed Project does not include the installation of any new permanent exterior lighting. Because the nearest residents are about 0.4 miles from the bridge site, temporary lighting needed during construction activities would not adversely affect nighttime views in the area; therefore, there would be no impact.

CUMULATIVE IMPACTS

Potential cumulative projects in the area include growth according to the build-out projections in the County's General Plan. The proposed Project replaces an existing bridge with similar features and would not significantly change the visual character of the area. Project-related lighting would include the possibility of construction lighting, but this would be temporary and cease at the completion of construction. Therefore, the proposed Project's aesthetic impacts would not be cumulatively considerable.

MITIGATION

None necessary.

DOCUMENTATION

Caltrans. 2021. California State Scenic Highway Mapping System. Shasta County. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed January 2021.

4.2 AGRICULTURE AND FOREST RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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)) or result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
d. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

REGULATORY CONTEXT

FEDERAL

There are no federal regulations pertaining to agriculture or forest resources that apply to the proposed Project.

STATE

California Farmland Mapping and Monitoring Program (FMMP)

The FMMP was established in 1982 to provide data to decision makers to assist them in making decisions for the best utilization of California's farmland. Under the FMMP, the Department of Conservation (DOC) is responsible for mapping, monitoring, and reporting on the conversion of the State's farmland to and from agricultural use. The following mapping categories, which are determined based on soil qualities and current land use information, are included in the FMMP: prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, grazing land, urban and built-up land, other land, and water.

Williamson Act

The Williamson Act (California Land Conservation Act of 1965) was enacted as a means to protect agricultural uses in the State. Under the Williamson Act, local governments can enter into contracts with private landowners to ensure that specific parcels are restricted to agricultural and related open space uses. In return, landowners receive reduced property tax assessments. The minimum term for a Williamson Act contract is ten years, and the contract is automatically renewed for one-year terms unless the landowner files a notice of nonrenewal or a petition for cancellation.

Forest Land and Timberland

PRC §12220(g) defines Forest Land as *"land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits."*

PRC §4526 defines timberland as *"land, other than land owned by the federal government, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."* Government Code §51104(g) defines Timberland Production Zone as *"an area which has been zoned pursuant to [Government Code] §51112 or §51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h)."*

LOCAL

Shasta County

The Shasta County General Plan includes the following Objective and Policy that apply to the proposed Project:

Chapter 6.1, Agricultural Lands		
Objective:	AG-5	Protection of agricultural lands from development pressures and or uses which will adversely impact or hinder existing or future agricultural operations.
Policy:	AG-h	The site planning, design, and construction of on-site and off-site improvements for nonagricultural development in agricultural areas shall avoid unmitigable short- and long-term adverse impacts on facilities, such as irrigation ditches, used to supply water to agricultural operations.

DISCUSSION OF IMPACTS

Questions A, B, and D

According to the *Important Farmland in California* map, eastern areas of Shasta County were not surveyed for inclusion in the FMMP. Section 21060.1(b) of the California Environmental Quality Act states *"In those areas of the state where lands have not been surveyed… 'agricultural land' means land that meets the requirements of "prime agricultural land" as defined in paragraph (1), (2), (3), or (4) of subdivision (c) of Section 51201 of the Government Code."* "Prime agricultural land" means any of the following:

(1) All land that qualifies for rating as class I or class II in the Natural Resource Conservation Service land use capability classifications.

(2) Land which qualifies for rating 80 through 100 in the Storie Index Rating.

(3) Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre (AUM) as defined by the United States Department of Agriculture.

(4) Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars ($200) per acre.

The Land Capability Classification (LCC) Rating

The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops, and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating (Class I). The LCC also includes capability subclasses, which are soil groups that identify soil limitations that interfere with plant growth or cultivation. The subclasses are designated by the letters e (erosion), w (water), s (rooting zone issues), or c (very cold or very dry climate).

The Storie Index Rating

The Storie Index provides a numeric rating (based upon a 100-point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon the character of the soil profile, surface texture, steepness of the slope, drainage, alkalinity, fertility, wind and water erosion, acidity, and microrelief.

Soil types in the bridge site are summarized in **Table 4.2-1.**

TABLE 4.2-1
Project Site Soils

Map Unit Symbol	Soil Name	NRCS Designation	LCC Class and Subclass	Storie Index	AUM
274	Pastolla muck, 0 to 1 percent slopes	Prime Farmland if irrigated, drained, and protected from flooding.	IVw	Grade 3 Fair (41 - 60)	10
275	Pastolla muck, drained, 0 to 2 percent slopes	Prime farmland if irrigated, drained, and protected from flooding.	IVw	Grade 3 Fair (41 - 60)	10

Source: Natural Resources Conservation Service: Web Soil Survey, 2019, and Soil Survey of Intermountain Area, California, 2000.

As indicated, none of the soils have an LCC classification that categorizes them as prime farmland, and none of the soils have a Storie Index rating over 80.

However, AUMs for Pastola muck soils categorize them as prime farmland, and these soils are on property with a General Plan designation of Agricultural Croplands (GP) and zoning designations of Exclusive Agriculture-Agricultural Preserve (EA-AP) and Unclassified (U). In addition, according to the NRCS (2007), the bridge site and surrounding properties are enrolled as Williamson Act Non-Prime Agricultural Land. According to the NRCS, most Non-Prime Land is in agricultural use, such as grazing or non-irrigated crops; however, Non-Prime Land may also include other open space uses that are compatible with agriculture and consistent with local general plans.

Due to widening of the roadway approaches and installation of fencing just beyond the ROW lines, it is anticipated that about 0.27 acres of farmland would be removed from production as a result of the proposed Project (See **Figure 4.2-1**).

However, these small areas are not used for grazing and do not currently support agricultural crops. In addition, because these areas are adjacent to the existing bridge and road, they would not support agricultural uses in the future, either with or without implementation of the proposed Project. Further, the proposed Project does not include any components that would conflict with surrounding agricultural uses. Therefore, impacts to farmland are less than significant.

Question C

According to the Shasta County General Plan and County Zoning Map, there are no Timberland Production (TPZ) zones or Timberland (TLZ) zones in the Project area. The closest TLZ is about 0.7 miles northwest of the bridge site. The closest TPZ is about 0.7 miles west of the bridge site. The Project does not involve any work in or adjacent to timberlands; therefore, the Project would have no impact on timberland.

As stated under Regulatory Context above, “forest land” is defined in Public Resources Code §12220(g) as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The Project site does not support 10 percent native tree cover and does not meet the definition of forest land under the Public Resources Code. Further, the proposed Project does not include the removal of any mature trees. Therefore, the Project would have no impact on forest land.

Document Path: N:\companyfiles\01-Jobs Active\020-43 Shasta County - Spring Creek Road\3-Project GIS\3-Map Documents\Fig 1 Prime Farmland Impacts 080619.mxd

Feature and boundary locations depicted are approximate only. 08.20.19

Feet
0 100

Figure 4.2-1
Prime Farmland Impacts

ENPLAN

CUMULATIVE IMPACTS

The County's General Plan acknowledges that agricultural land uses are a major component of the County's resource land base and are also a major element in defining the quality of life available to the residents of Shasta County. Were agriculture to lose its land-based prominence in the County, the rural character and country living valued by its residents and important to its economy would likely decline.

As stated above, the proposed Project would impact about 0.27 acres of prime agricultural land as defined under §51201 of the Government Code. However, most of these lands are not currently in agricultural use and are not conducive to agricultural uses due to their proximity to the bridge and roadway. Although there would be temporary impacts during construction, the proposed Project would not interfere with current agricultural uses in the area in the long-term and would not detract from the rural character of the area. Therefore, the proposed Project would not contribute to cumulative impacts to agricultural resources.

MITIGATION

None necessary.

DOCUMENTATION

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4.3 AIR QUALITY

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐

c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

REGULATORY CONTEXT

FEDERAL

Federal Ambient Air Quality Standards

The U.S. Environmental Protection Agency (USEPA), under the federal Clean Air Act (CAA), establishes maximum ambient concentrations for criteria air pollutants (CAP), known as the National Ambient Air Quality Standards (NAAQSs). The NAAQSs are designed to protect the health and welfare of the populace with a reasonable margin of safety. **Table 4.3-1** identifies the seven CAPs as well as characteristics, health effects and typical sources for each CAP:

TABLE 4.3-1
Federal Criteria Air Pollutants

Pollutant	Characteristics	Primary Effects	Major Sources
Ozone (O_3)	Ozone is a colorless or bluish gas formed through chemical reactions between two major classes of air pollutants: reactive organic gases (ROG) and oxides of nitrogen (NO_X). These reactions are stimulated by sunlight and temperature; thus, ozone occurs in higher concentrations during warmer times of the year.	• Respiratory symptoms. • Worsening of lung disease leading to premature death. • Damage to lung tissue. • Crop, forest, and ecosystem damage. • Damage to a variety of materials, including rubber, plastics, fabrics, paints, and metals.	Motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.
Carbon Monoxide (CO)	Carbon monoxide is an odorless, colorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline and wood. Because CO is emitted directly from internal combustion engines, motor vehicles operating at slow speeds are the primary source of carbon monoxide.	• Chest pain in patients with heart disease. • Headache. • Light-headedness. • Reduced mental alertness.	Motor vehicle exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a reddish-brown gas formed when nitrogen (N_2) combines with oxygen (O_2). Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation and acid deposition.	• Respiratory symptoms. • Damage to lung tissue. • Worsening of cardiovascular disease. • Precursor to ozone and acid rain. • Contributes to global warming and nutrient overloading which deteriorates water quality.	Automobile and diesel truck exhaust, petroleum-refining operations, industrial sources, aircraft, ships, railroads, and fossil-fueled power plants.

Pollutant	Characteristics	Primary Effects	Major Sources
	Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere and is related to traffic density.	• Causes brown discoloration of the atmosphere.	
Sulfur Dioxide (SO_2)	Sulfur dioxide is a colorless, nonflammable gas that results mainly from burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries.	• Respiratory symptoms. • Worsening of cardiovascular disease. • Damage to a variety of materials, including marble, iron, and steel. • Damages crops and natural vegetation. • Impairs visibility. • Precursor to acid rain.	Petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and large ships, and fuel combustion in diesel engines.
Particulate Matter ($PM_{2.5}$ and PM_{10})	Particulate matter is a major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols that are small enough to remain suspended in the air for a long period of time. Particulate matter with a diameter of 10 microns or less (PM_{10}) is inhalable into the lungs and can induce adverse health effects. Fine particulate matter is defined as particles that are 2.5 microns or less in diameter ($PM_{2.5}$).	• Premature death. • Hospitalization for worsening of cardiovascular disease. • Hospitalization for respiratory disease • Asthma-related emergency room visits. • Increased symptoms, increased inhaler usage	Dust- and fume-producing construction activities, power plants, steel mills, chemical plants, unpaved roads and parking lots, woodburning stoves and fireplaces, wildfires, motor vehicles, and other combustion sources. Also a result of photochemical processes.
Lead	A heavy metal that occurs both naturally in the environment and in manufactured products.	• Impaired mental functioning in children • Learning disabilities in children • Brain and kidney damage. • Reproductive disorders. • Osteoporosis.	Lead-based industrial production (e.g., battery production and smelters), recycling facilities, combustion of leaded aviation gasoline by piston-driven aircraft, and crustal weathering of soils followed by fugitive dust emissions.

STATE

State Ambient Air Quality Standards

The California CAA establishes maximum concentrations for the seven federal CAPs, as well as the four additional air pollutants identified below. The four additional standards are intended to address regional air quality conditions, not project-specific emissions. These maximum concentrations are known as the California Ambient Air Quality Standards (CAAQSs). The California Air Resources Board (CARB) has jurisdiction over local air districts and has established its own standards and violation criteria for each CAP under the CAAQS. For areas within the State that have not attained air quality standards, the CARB works with local air districts to develop and implement attainment plans to obtain compliance with both federal and State air quality standards.

Visibility-Reducing Particles. Visibility-reducing particles vary greatly in shape, size, and chemical composition, and come from a variety of natural and manmade sources. Major sources include wildfires, residential fireplaces and woodstoves, windblown dust, ocean sprays, biogenic emissions, dust and fume-producing construction, industrial and agricultural operations, and fuel combustion. Primary effects include visibility impairment, respiratory symptoms, and worsening of cardiovascular disease.

Sulfate (SO_4). Sulfate is oxidized to sulfur dioxide (SO_2) during the combustion process and is subsequently converted to sulfate compounds in the atmosphere. Major sources include industrial processes and the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. Primary effects include respiratory symptoms, worsening of cardiovascular disease, damage to a variety of materials, including marble, iron, and steel, damage to crops and natural vegetation, and visibility impairment.

Hydrogen Sulfide (H_2S). Hydrogen sulfide is a colorless gas with the odor of rotten eggs. Major sources include geothermal power plants, petroleum refineries, and wastewater treatment plants. Primary effects include eye irritation, headache, nausea, and nuisance odors.

Vinyl Chloride (chloroethene). Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. It is also listed as a toxic air contaminant because of its carcinogenicity. Most vinyl chloride is used to make PVC plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites due to microbial breakdown of chlorinated solvents. Primary effects include dizziness, drowsiness, headaches, and liver damage.

Table 4.3-2 provides the federal and State ambient air quality standards:

TABLE 4.3-2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone (O_3)	8 Hour	0.070 ppm (137µg/m^3)	0.070 ppm (137µg/m^3)
	1 Hour	0.09 ppm (180 µg/m^3)	–
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 µg/m^3)	0.14
	3 Hour	–	–
	1 Hour	0.25 ppm (665 µg/m^3)	75 ppb (196 µg/m^3)
	Annual Arithmetic Mean	–	0.030 ppm
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	–
	24 Hour	50 µg/m^3	150 µg/m^3
Particulate Matter – Fine ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3
	24 Hour	–	35 µg/m^3
Sulfates	24 Hour	25 µg/m^3	–
Lead (Pb)	Calendar Quarter	–	1.5 µg/m^3
	30 Day Average	1.5 µg/m^3	–
	Rolling 3-Month Average	None	0.15 µg/m^3

Pollutant	Averaging Time	California Standards	National Standards
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m^3)	–
Vinyl Chloride (chloroethene)	24 Hour	0.01 ppm (26 μg/m^3)	–
Visibility-Reducing Particles	8 Hour	–	–

Source: CARB 2016. Notes: mg/m^3=milligrams per cubic meter; ppm=parts per million; ppb=parts per billion; μg/m^3=micrograms per cubic meter

Toxic Air Contaminants

In addition to the California CAPs, Toxic Air Contaminants (TACs) are another group of pollutants regulated under the California CAA. TACs are less pervasive in the urban atmosphere than the CAPs, but are linked to short-term (acute) and long-term (chronic or carcinogenic) adverse human health effects, including cancer, birth defects, neurological damage, and death. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), grading and demolition of structures (asbestos), and diesel-motor vehicle exhaust. Under Assembly Bill 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987, facilities found to release high volumes of toxic air pollution are required to conduct a detailed health risk assessment that estimates emission impacts to the neighboring community and recommends mitigation to minimize TACs.

LOCAL

Shasta County Air Quality Management District (SCAQMD)

The SCAQMD has the responsibility of enforcing federal and state air quality regulations in Shasta County. The SCAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs, and it regulates agricultural burning. All projects in Shasta County are subject to applicable SCAQMD rules and regulations in effect at the time of construction. Descriptions of specific rules applicable to the proposed Project may include, but are not limited to:

- SCAQMD Rule 3-2, Specific Air Contaminants, states that no person shall discharge contaminants from any single source into the atmosphere above the amounts designated in the Rule.
- Cutback and emulsified asphalt application shall be conducted in accordance with SCAQMD Rule 3-15, Cutback and Emulsified Asphalt.
- SCAQMD Rule 3-16, Fugitive, Indirect, or Non-Traditional Sources, controls the emission of fugitive dust during earth-moving, construction, demolition, bulk storage, and conditions resulting in wind erosion.
- Architectural coatings and solvents shall be compliant with SCAQMD Rule 3-31, Architectural Coatings.

Shasta County is currently designated a non-attainment-transitional area for State ozone standards, which indicates that pollution concentrations violate the State standard, but air quality is nearing attainment. The County is designated as an attainment or unclassified area for all other federal and State ambient air quality standards.

Due to the regional nature of the ozone problem, the air pollution control districts and air quality management districts of the seven counties located in the NSVPA originally prepared an Air Quality Attainment Plan in 1991, and have updated the plan triennially since then. Most recently, the Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEEP) prepared the NSVPA 2018 Triennial Air Quality Attainment Plan (2018 AQAP). The 2018 AQAP constitutes the region's State Implementation Plan (SIP). The 2018 AQAP was adopted by the SCAQMD Board on May 7, 2019, and includes updated control measures for the three-year period of 2019 through 2021. Shasta County has

determined that the County's primary emphasis in implementing the 2018 AQAP is to attempt to reduce emissions from mobile sources through public education and grant programs.

As shown in **Table 4.3-3**, Shasta County has adopted air quality thresholds for emissions of Reactive Organic Gases (ROG), Oxides of Nitrogen (NOx) and Particulate Matter, 10 microns in size (PM_{10}) to determine the level of significance for projects subject to CEQA review (Shasta County Rule 2:1, New Source Review, Part 300).

TABLE 4.3-3
Thresholds of Significance for Criteria Pollutants of Concern

Level	ROG	Nox	PM_{10}
Level A: Indirect Source	25 lbs/day	25 lbs/day	80 lbs/day
Level B: Indirect Source	137 lbs/day	137 lbs/day	137 lbs/day
Direct Sources	25 tons/year	25 tons/year	25 tons/year

Source: 2004 Shasta County General Plan, Chapter 6.5 (Air Quality).

All discretionary projects in Shasta County are required to implement Standard Mitigation Measures (SMMs) to achieve a reduction in emissions and contribute to a reduction in cumulative impacts. Projects that generate unmitigated emissions above Level A must implement Best Available Mitigation Measures (BAMMs) in addition to the SMMs. If a project is not able to reduce emissions below the Level B threshold, emissions offsets are required. If after applying the emissions offsets, the project emissions still exceed the Level B threshold, an Environmental Impact Report is required.

DISCUSSION OF IMPACTS

Questions A and B

As discussed under Regulatory Context, for areas within the State that have not attained air quality standards, the CARB works with local air districts to develop and implement attainment plans to obtain compliance with both federal and State air quality standards. The NSVAB 2018 AQAP serves as the air quality plan for the region.

Construction

The Project would result in the temporary generation of ROG, Nox, PM_{10}, and other regulated pollutants during construction. ROG and Nox emissions are associated with employee vehicle trips, delivery of materials, and construction equipment exhaust. PM_{10} is generated during site preparation, excavation, road paving, and from exhaust associated with construction equipment.

Project emissions were estimated using version 2020.4.0 of the California Emissions Estimator Model (CalEEMod). CalEEMod reports both maximum daily emissions (pounds per day) and overall annual emissions (tons per year) for both construction and operational emissions. Output files, including all site-specific inputs and assumptions, are provided in **Appendix A**.

Site-specific inputs and assumptions include, but are not limited to, the following. CalEEMod provides default values when site-specific inputs are not available.

- Emissions from construction are based on all construction-related activities, including but not limited to grading, site preparation, use of construction equipment, material hauling, trenching, and paving.
- Construction would start in 2025 and occur over a period of approximately six months.
- Total land disturbance would be 0.8 acres; 840 cubic yards (CY) of dirt would be imported.

- The total area to be paved following bridge replacement would be 0.2 acres.
- The total weight of demolition debris to be removed from the project site would be approximately 85 tons.
- The project would implement SCAQMD rules, regulations, and standard mitigation measures.

In addition, the proposed project is subject to the In-Use Off-Road Diesel Vehicle Regulation adopted by CARB. The off-road regulation imposes limits on idling, requires all vehicles be reported to CARB and subsequently labeled, restricts adding older vehicles into fleets, and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). Large and medium fleets have annual compliance deadlines through 2023. Small fleets have compliance deadlines each year from 2019-2028. **Table 4.3-4** shows the highest daily levels of project construction emissions regardless of construction phase.

TABLE 4.3-4
Projected Construction Emissions

Pollutants of Concern					
ROG	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**SO_2**
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
1.33	20.19	4.04	1.99	7.99	0.05

As shown in **Table 4.3-4,** construction of the proposed Project would not exceed the County's Level A or Level B thresholds (refer to **Table 4.3-3**). Although the proposed Project would not exceed the referenced thresholds, as discussed under Regulatory Context above, all discretionary projects in Shasta County are required to implement SMMs to achieve a reduction in emissions and contribute to a reduction in cumulative impacts (see **Mitigation Measure (MM) 4.3.1**).

Operation

The proposed Project is needed because the existing bridge is structurally deficient and does not meet current federal or local design standards. The improvements are not growth-related; therefore, the proposed Project would not directly or indirectly increase the population or vehicle miles traveled (VMT) that could result in a permanent increase in ROG, NO_X, or PM_{10} emissions and does not include any other components that would increase long-term operational emissions.

In addition, the proposed Project would not result in operational impacts associated with ozone, lead, hydrogen sulfide, vinyl chloride, or visibility reducing particles as discussed below.

Ozone. CalEEMod does not directly calculate ozone emissions. Instead, the emissions associated with ozone precursors (ROG and NO_X) are calculated. Because project construction would generate relatively low amounts of both ROG and NO_x, the potential for ozone production/emissions is less than significant.

Lead. Elevated levels of airborne lead at the local level are usually found near industrial operations that process materials containing lead, such as smelters and battery manufacturing/recycling facilities. As these conditions are not applicable to the proposed Project, the potential for lead emissions is less than significant.

Hydrogen Sulfide. Hydrogen sulfide is formed during the decomposition of organic material in anaerobic environments, including sewage treatment processes. However, the proposed Project would not result in an increase in the amount of wastewater treated at the WWTP or a change in the treatment process; therefore, the potential for an increase in hydrogen sulfide emissions is less than significant.

Vinyl Chloride. Vinyl chloride is used to manufacture polyvinyl chloride (PVC) plastic and other vinyl products. Approximately 98 percent of vinyl chloride produced in the United States is used during the manufacture of PVC. Additionally, vinyl chloride is produced during the microbial breakdown of chlorinated solvents (e.g., engine cleaner, degreasing agent, adhesive solvents, paint removers, etc.). The potential for vinyl chloride exposure is primarily limited to areas in close proximity to PVC production facilities. Because PVC manufacturing facilities are absent from the Project area, and project implementation would not result in an increase of chlorinated solvents, potential vinyl chloride emissions associated with the proposed Project would be less than significant.

Visibility-Reducing Pollutants. Visibility-reducing pollutants generally consist of sulfates, nitrates, organics, soot, fine soil dust, and coarse particulates. These pollutants contribute to the regional haze that impairs visibility, in addition to affecting public health. According to the California Regional Haze Management Plan, natural wildfires and biogenic emissions are the primary contributors to visibility-reducing pollutants. For the proposed Project, visibility-reducing pollutants (e.g., $PM_{2.5}$ and PM_{10}), would be generated only during construction activities. Because only relatively low amounts of particulates would be generated, potential impacts with respect to visibility-reducing pollutants are less than significant.

Because the proposed Project would not exceed the County's Level A or Level B thresholds during construction and does not have any components that would increase long-term operational emissions, impacts would be less than significant, and the proposed Project would be in conformance with the applicable SIP. Further, implementation of the County's SMMs (**MM 4.3.1**) ensures that cumulative impacts would be less than significant.

Question C

See discussion under Questions A and B. Sensitive receptors are individuals or groups of people that are more affected by air pollution than others, including young children, elderly people, and people weakened by disease or illness. Locations that may contain high concentrations of sensitive receptors include residential areas, schools, playgrounds, childcare centers, hospitals, convalescent homes, and retirement homes. As stated above, the proposed Project does not have any components that would result in long-term operational emissions.

The proposed Project would generate PM_{10} and other pollutants during construction. The closest single-family residences are located ±0.4 miles to the west, south, and southeast of the bridge site, and these residents would not be exposed to substantial pollutant concentrations due to the distance from the work area. As discussed under Questions A and B above, **MM 4.3.1** is included to address potential cumulative impacts. These measures would also minimize potential impacts to sensitive receptors.

Due to the age of the bridge, asbestos-containing materials and/or lead-based paint may be on the bridge, or within structural members of the bridge. Asbestos-containing materials, such as bolt thread compound, mastic, and sheet packing, are often present on bridges of this age. Further, lead-based paint is also frequently present on bridge components. Demolition of the bridge and other work in the roadway could release airborne lead and asbestos particles, which may affect construction workers, visitors to the site, and persons occupying areas adjacent to the site. Pursuant to the U.S. EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAP) and CARB rules, asbestos and lead testing is required prior to demolition of the bridge. In addition, materials containing asbestos and/or lead must be disposed of at a facility that is specifically licensed to accept asbestos and/or lead. The work must be completed by a contractor qualified to complete sampling, handling, and disposal. Compliance with federal, state, and local regulations, and implementation of **MM 4.3.1** through **MM 4.3.4** ensures that construction workers and sensitive receptors in the Project area are not adversely affected; therefore, impacts would be less than significant.

Question D

The Project does not include any components that would result in the generation of long-term odors or other emissions adversely affecting a substantial number of people. Construction activities that have the potential to emit odors and similar emissions include operation of diesel equipment, generation of fugitive dust, and paving (asphalt). Odors and similar emissions from construction would be intermittent and temporary, and generally would not extend beyond the construction area. Due to the temporary and intermittent nature of construction odors, impacts during construction would be less than significant.

CUMULATIVE IMPACTS

Past, present, and future development projects contribute to a region's air quality conditions on a cumulative basis; therefore, by its very nature, air pollution is largely a cumulative impact. If a project's individual emissions contribute toward exceedance of the NAAQS or the CAAQS, then the project's cumulative impact on air quality would be considered significant. In developing attainment designations for criteria pollutants, the USEPA considers the region's past, present, and future emission levels. In addition, AQMDs determine suitable significance thresholds based on an area's designated nonattainment status, which also considers the region's past, present, and future emissions levels.

Implementation of the proposed Project combined with future development in the region could lead to cumulative impacts to air quality. However, pursuant to the Air Quality Element of the County's General Plan, SMMs (refer to **MM 4.3.1**) apply to all discretionary projects in order to reduce cumulative impacts. In addition, as discussed in detail above, emissions resulting from the proposed Project would not exceed the SCAQMD's thresholds, and construction would be in conformance with CARB and SCAQMD rules and regulations, and the applicable SIP developed to address cumulative emissions of criteria air pollutants in the NSVAB. In addition, **MM 4.3.2, MM 4.3.3, and MM 4.3.4** are included to require appropriate sampling, handling, and disposal of asbestos and lead-based paint. Therefore, the proposed Project would have a less-than-significant cumulative impact on local and regional air quality with implementation of **MM 4.3.1 through MM 4.3.4**.

MITIGATION

MM 4.3.1 The County shall ensure through contractual obligations that the following measures are implemented throughout construction:

a. All material excavated, stockpiled, or graded shall be sufficiently watered to prevent fugitive dust from leaving property boundaries and causing a public nuisance or a violation of ambient air quality standards.

b. Unpaved areas with vehicle traffic shall be watered periodically or have dust palliatives applied for stabilization of dust emissions.

c. All on-site vehicles shall be limited to a speed of 15 miles per hour on unpaved roads.

d. All land clearing, grading, earth moving, and excavation activities on the project site shall be suspended if/when Shasta County's resident engineer determines that winds are causing excessive dust generation.

e. The contractor shall be responsible for applying non-toxic stabilizers (according to manufacturer's specifications) to all inactive construction areas (previously graded areas which remain inactive for 96 hours), in accordance with the Shasta County Grading Ordinance.

f. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least two feet of free board in accordance with the requirements of California Vehicle Code §23114.

g. When not in use, motorized construction equipment shall not be left idling for more than five minutes.

MM 4.3.2 Prior to demolition of the existing bridge, a comprehensive asbestos survey of all suspect materials shall be completed. Sampling shall be conducted by a California Division of Occupational Safety and Health (DOSH)-certified Asbestos Consultant (CAC) or a Site Surveillance Technician (SST). Asbestos-containing material shall be removed by a DOSH-registered licensed asbestos abatement contractor and disposed of at a landfill approved to receive asbestos-containing waste material.

MM 4.3.3 Prior to demolition of the existing bridge, a comprehensive survey shall be completed in locations where lead-based paint is suspected. If lead-based paint is identified, lead abatement shall be conducted by a qualified lead abatement contractor as defined by Title 17 CCR, Articles 5 and 7.

MM 4.3.4 In the event previously undetected asbestos or lead-containing materials are discovered during construction or demolition, activities that may affect the materials shall cease until results of additional surveys are reviewed. Alternatively, the County can assume that the materials are hazardous. Any identified hazardous materials shall be disposed of in accordance with applicable hazardous waste regulations.

DOCUMENTATION

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4.4 BIOLOGICAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community, including oak woodland, identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c. Have a substantial adverse effect on state or federally protected wetlands, (including, but not limited to, marsh, vernal pool, coastal wetlands, 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

REGULATORY CONTEXT

FEDERAL

Federal Clean Water Act

Section 404

Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into wetlands and waters of the U.S. The USACE requires that a permit be obtained prior to the placement of structures within, over, or under navigable waters and/or prior to discharging dredged or fill material into waters below the ordinary high-water mark (OHWM). There are several types of permits issued by the USACE that are based on the project's location and/or level of impact. Regional general permits are issued for recurring activities at a regional level. Nationwide permits (NWPs) authorize a wide variety of minor activities that have minimal effects. Projects that are not covered under a regional general permit and do not qualify for a NWP are required to obtain a standard permit (e.g., individual permit or letter of permission).

Section 401

Under Section 401 of the CWA, a project requiring a USACE Section 404 permit is also required to obtain a State Water Quality Certification (or waiver) to ensure that the project will not violate established State water quality standards. The RWQCB regulates waters of the State and has a policy of no-net-loss of wetlands. The RWQCB typically requires mitigation for impacts to wetlands before it will issue a water quality certification.

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 requires that all federal agencies ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of critical habitat. Projects that would result in "take" of any federally listed species are required to obtain authorization from National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project.

Federal Migratory Bird Treaty Act

Under the Migratory Bird Treaty Act (MBTA) of 1918, as amended, migratory bird species listed in CFR Title 50, §10.13, including their nests and eggs, are protected from injury or death, and any project-related disturbances. The MTBA applies to over 1,000 bird species, including geese, ducks, shorebirds, raptors, and songbirds, some of which were near extinction before MBTA protections were put in place in 1918. The MTBA provides protections for nearly all native bird species in the U.S., including non-migratory birds.

Fish and Wildlife Conservation Act

Under the Fish and Wildlife Conservation Act of 1980, as amended, the USFWS maintains lists of migratory and non-migratory birds that, without additional conservation action, are likely to become candidates for listing under the FESA. These species are known as Birds of Conservation Concern and represent the highest conservation priorities.

Bald and Golden Eagle Protection Act

This Act provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds and their occupied and unoccupied nests.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), also known as the Sustainable Fisheries Act, requires the identification of Essential Fish Habitat (EFH) for federally managed fishery species and implementation of appropriate measures to conserve and enhance EFH that could be affected by project implementation. All federal agencies must consult with NMFS on projects authorized, funded, or undertaken by that agency that may adversely affect EFH for species managed under the MSFCMA.

STATE

California Endangered Species Act

Under the California Endangered Species Act (CESA), the Fish and Game Commission is responsible for listing and delisting threatened and endangered species, including candidate species for threatened or endangered status. California Department of Fish and Wildlife (CDFW) provides technical support to the Commission, and may submit listing petitions and assist with the evaluation process. CDFW maintains documentation on listed species, including occurrence records. In addition, CDFW maintains a list of fully protected species, most of which are also listed as threatened or endangered. CDFW also maintains a

list of species of special concern (SSC). SSC are vulnerable to extinction but are not legally protected under CESA; however, impacts to SSC are generally considered significant under CEQA.

CESA prohibits the take of State-listed threatened and endangered species, but CDFW has the authority to issue incidental take permits under special conditions when it is demonstrated that impacts are minimized and mitigated. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take. One exception allows the collection of fully protected species for scientific research.

California Fish and Game Code §1600-1616 (Streambed Alteration)

California Fish and Game Code §1600 *et seq.*, requires that a project proponent enter into a Streambed Alteration Agreement (SAA) with CDFW prior to any work that would divert or obstruct the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; and/or deposit or dispose of material into any river, stream, or lake. The SAA will include conditions that minimize/avoid potentially significant adverse impacts to riparian habitat and waters of the state.

California Fish and Game Code §3503 and 3503.5 (Nesting Bird Protections)

These sections of the Code provide regulatory protection to resident and migratory birds and all birds of prey within the State and make it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Code.

California Fish and Game Code §1900-1913 (Native Plant Protection Act)

The Native Plant Protection Act (NPPA) includes measures to preserve, protect, and enhance native plants that are listed as rare and endangered under the CESA. The NPPA states that no person shall take, possess, sell, or import into the state, any rare or endangered native plant, except in compliance with provisions of the Act.

Oak Woodlands Conservation Act

The State of California provides for oak protection through the Oak Woodlands Conservation Act (Act), last amended in 2005. The Act applies only when the lead agency is a county and the project is located in an unincorporated county area. The Act requires a determination of whether the project may result in the conversion of oak woodlands that will have a significant effect on the environment as well as implementation of oak woodland mitigation measures, if necessary.

LOCAL

Shasta County

The Shasta County General Plan includes the following Objective and Policy that apply to the proposed Project:

Chapter 6.7, Fish and Wildlife		
Objective:	FW-1	Protection of significant fish, wildlife and vegetation resources.
Policy:	FW-c	Projects that contain or may impact endangered and/or threatened plant or animal species, as officially designated by the California Fish and Game Commission and/or the U. S. Fish and Wildlife Service, shall be designed or conditioned to avoid any net adverse project impacts on those species.

DISCUSSION OF IMPACTS

Question A

The following evaluation of potential impacts on special-status species is based on records searches and field studies conducted by ENPLAN biologists and detailed in the *Natural Environment Study (Minimal Impacts): Spring Creek Road Bridge Replacement Project at Fall River and Spring Creek* (NES) (ENPLAN, 2020). The Biological Study Area (BSA) encompasses ±2.3 acres and includes proposed disturbance and staging areas, including the off-site staging area at the County's Corporation Yard.

The records searches included review of California Natural Diversity Data Base (CNDDB) and USFWS records, critical habitat GIS data maintained by the USFWS and National Marine Fisheries Service (NMFS), and essential fish habitat (EFH) data maintained by NMFS. NMFS does not maintain a species list for the project quadrangle because construction of Shasta Dam and Keswick Dam prevented anadromous salmonids in the Sacramento River from accessing spawning/rearing habitat in the Fall River. Botanical/natural community field surveys were completed on May 25, and July 20, 2008; June 9, and August 10, 2010; and May 3 and September 10, 2018. Wildlife field surveys were conducted on May 12, 2008, and May 7, 2014; supplemental wildlife observations were made on May 3 and September 10, 2018.

Appendix B provides key biological data developed for the project, including the records search results, lists of plant and wildlife species observed during the field studies, and an evaluation of the potential for special-status plant and wildlife species to be affected by project implementation.

Special Status Plant Species

USFWS records identify one federally listed plant species (slender Orcutt grass) as potentially occurring in the vicinity of the bridge site. No critical habitat for federally listed plant species is designated in or adjacent to the BSA. Review of CNDDB records found that one special-status plant, watershield, was reported in the vicinity of the County's Corporation Yard one time in 1863. CNDDB does not identify any special-status plants in the BSA for the bridge site. Six special-status plant species have been reported within five miles of the BSA: Bellinger's meadowfoam, hairy marsh hedge-nettle, long-leaved starwort, marsh skullcap, tufted loosestrife, and water star-grass. Three non-special status species have also been reported within five miles of the BSA: Baker's globe mallow, profuse-flowered pogogyne, and woolly meadowfoam.

As documented in **Appendix B**, the BSA contains potentially suitable habitat for Bellinger's meadowfoam, hairy marsh hedge-nettle, long-leaved starwort, marsh skullcap, and tufted loosestrife. These plant species would have been identifiable at the time the botanical surveys were conducted. None of these nor any other special-status plant species were observed in or adjacent to the BSA during the botanical surveys. A list of vascular plant species observed during the botanical surveys is included in **Appendix B**.

Special-Status Wildlife Species

USFWS records identify four federally listed animal species (northern spotted owl, conservancy fairy shrimp, Shasta crayfish, and Delta smelt) and one Candidate species for federal listing (monarch butterfly) as potentially being present in the project vicinity. Review of the USFWS species list found no critical habitat designated in the BSA for the federally listed species. This finding was confirmed through review of NMFS critical habitat GIS data and the USFWS Critical Habitat Mapper. Review of the NMFS EFH Mapper determined that the project site is not within a hydrologic unit designated as EFH.

Review of CNDDB records found that five special-status animals (bigeye marbled sculpin, rough sculpin, Pit-Klamath brook lamprey, fisher-west coast DPS, and Sierra Nevada red fox) have been previously reported in the vicinity of the bridge site. Thirteen additional special-status animal species have been reported within five miles of the BSA: American badger, bald eagle,

bank swallow, California wolverine, greater sandhill crane, green sturgeon - southern DPS, hardhead, Oregon snowshoe hare, Oregon spotted frog, Shasta crayfish, Townsend's big-eared bat, tricolored blackbird, and western pond turtle. CNDDB records show that the following non-status animal species have also been reported within the search radius: Archimedes pyrg, canary duskysnail, Great Basin rams-horn, great blue heron, kneecap lanx, montane peaclam, nugget pebblesnail, osprey, scalloped juga, Sucker Springs pyrg, prairie falcon, North American porcupine, western pearlshell, western ridged mussel, and topaz juga. Detailed consideration of non-status species is not warranted as part of this study.

As documented in **Appendix B**, seven special-status animal species have the potential to occur in the BSA for the bridge site: bald eagle, greater sandhill crane, rough sculpin, bigeye marbled sculpin, Pit-Klamath brook lamprey, western pond turtle, and monarch butterfly. Further information on these species is provided below. No special-status animal species were observed or are expected to be present at the Corporation Yard. It should be noted that the Shasta crayfish (federal Endangered, State Endangered) is mapped by CNDDB as occurring a short distance upstream of the bridge site. However, due to encroachment of the signal crayfish into Shasta crayfish habitat, a barrier was installed in Spring Creek in 1996 to prevent upstream migration of the signal crayfish. Signal crayfish are an aggressive introduced species, and are thought to have contributed to the precipitous decline of the Shasta crayfish. The Spring Creek bridge site is approximately 1,500 feet downstream of the barrier and has no potential to support a self-sustaining population of Shasta crayfish.

Bald Eagle

Bald eagles are State-listed as Endangered and are a State Fully Protected species, and the birds and their nests are protected under Fish and Game Code §3503 and §3503.5. Although the bald eagle was delisted under the federal Endangered Species Act in 2007, both the bald eagle and golden eagle remain federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Bald eagles nest in large, old-growth trees or snags in mixed stands near open bodies of water. In California, the bald eagle nesting season is from February through July. One or two eggs (occasionally three) are laid in late winter or early spring, and incubation lasts about 35 days. Chicks fledge when they are 11 or 12 weeks old. California's resident breeding pairs remain in California during winter, typically in the vicinity of their nesting areas, except when winter conditions are too severe and they must move to lower elevations.

The Bald and Golden Eagle Protection Act prohibits anyone from taking, possessing, or transporting a bald eagle or golden eagle, or the parts, nests, or eggs of such birds without prior authorization. This includes both active and inactive nests. "Take" means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Activities that directly or indirectly lead to take are prohibited without a permit.

According to CNDDB records, a bald eagle nested approximately 0.2 miles from the BSA in 2015. Local residents have also observed bald eagles roosting in the large black walnut tree immediately adjacent to the bridge site. Although this black walnut and other large trees along the Fall River in the project vicinity provide suitable nesting habitat for bald eagles, no bald eagles or nests were observed during the wildlife surveys. Nonetheless, the bald eagle could nest in or near the project area in future years.

The USFWS developed National Bald Eagle Management Guidelines (USFWS, 2007) to help the public manage activities in a way that would not be in violation of either of these two federal acts. Under these guidelines, a 660-foot buffer is recommended between an active bald eagle nest and the project work area if there is no similar activity within a mile of the nest and the activity will be visible from the nest. If the activity is not visible from the nest, the buffer can be reduced to 330 feet. Work within the buffer should be

conducted outside the breeding season. Implementation of **MM 4.4.1** will ensure that project activities are consistent with State and federal requirements for the protection of nesting birds and do not lead to "take" of bald eagles or loss of their nests.

Greater Sandhill Crane

Greater sandhill cranes are State-listed as Threatened, are a State Fully Protected species, and the birds and their nests are protected under §3503 of the Fish and Game Code. Greater sandhill cranes use undisturbed wetland habitats for nesting. Nesting is typically not initiated in wetlands that are being grazed by cattle. Nests generally consist of large mounds of vegetation in shallow water. Shallow islands bordered by tules and cattails are ideal nesting sites; natural hummocks or muskrat houses may also be used as nest sites. In the local area, the nesting season for migratory birds generally extends from February 1 to August 31.

According to CNDDB records, several pairs of cranes were observed in 1988 foraging in agricultural fields in the Shasta County portion of the Fall River Valley, but nesting occurred primarily in the Lassen County portion of the Valley; only one pair was observed nesting in Shasta County. Six nesting pairs were observed in the Fall River Valley in 2000. The nearest nest site to the BSA was reported approximately 1.0 mile west of the bridge in 1988. No sandhill crane breeding activity was observed during the wildlife surveys, but sandhill crane vocalizations were heard on several occasions during the field studies. No potentially suitable sandhill crane nesting habitat is present in the immediate project area, but the cranes could potentially nest in the vicinity.

Although there are no State or federal standards for greater sandhill crane nest buffers, PG&E has established standard nest buffers for various common and special-status species. The recommended buffers are based on best available information, including relevant literature review and avian biology. Disturbance factors that may influence nesting behavior (e.g., nest location, human activity, activity duration, noise level, etc.) were considered in establishing standard buffer distances for individual species. PG&E recommends a standard buffer of 500 feet around active greater sandhill crane nests. Agency consultation is recommended if work must occur within this buffer.

Implementation of **MM 4.4.1** will ensure that project activities are consistent with state and federal requirements for the protection of nesting birds and do not lead to "take" of greater sandhill cranes.

Rough Sculpin

The rough sculpin is State-listed as Threatened and is also a State Fully Protected species. Rough sculpins are restricted to the Hat Creek and Fall River drainages, as well as the Pit River, from Lake Britton to just downstream of the Pit 1 Powerhouse. Within the Fall River drainage, rough sculpins are reported from the Fall, Tule, and Little Tule rivers; Lava, Spring, Mallard, Bear (lower reach), and Ja She creeks; Bowman Ditch; Big, Eastman, and Fall River lakes; Horr Pond; and Thousand, Crystal and Rainbow springs.

As discussed under Question B below, review of CNDDB records found that Spring Creek and the Fall River in the study area are designated as sensitive natural communities (*Pit River Drainage Rough Sculpin/Shasta Crayfish Spring Stream*).

Rough sculpins are bottom-dwelling ambush predators that feed on a wide variety of prey types. They are generally found in large spring-fed streams where water is cool, deep, rapidly flowing, and clear, and are often found in areas with gravel or sand bottoms and beds of aquatic vegetation. Spawning times vary between streams. Some populations spawn in fall to winter and others spawn in winter to spring. In the Fall River, nests have been observed from mid-September through late January. Nests are constructed in a variety of habitats, including riffles, pools, and in the vicinity of springs.

During an underwater survey conducted by Dr. Maria Ellis in 1990, rough sculpins were observed at the bridge site. Dr. Ellis reported that the water was deep (9.8 to 14.8 feet), the substrate consisted of lava cobbles with many obsidian chips on clean gravel. Signal crayfish were abundant. Both bigeye marbled sculpins and rough sculpins were found on the gravel and cobble.

Rough sculpins have a high potential to be present in the work area and could potentially be directly or indirectly affected by project implementation as a result of pile driving, removal of the current bridge's pilings, and any release of sediments or other pollutants into the river. As stated under Regulatory Context, Fully Protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take. One exception allows the collection of Fully Protected species for scientific research.

To allow the County to replace the bridge without the risk of violating the FGC regarding Fully Protected species, Assembly Bill (AB) 1845 (Dahle) was introduced in 2016 and approved by the Governor on September 16, 2016. AB 1845 incorporated amendments to FGC §5515, and added FGC §2081.4 to allow CDFW to authorize, by permit, the take of the rough sculpins resulting from impacts attributable to replacing the Spring Creek Road bridge if all of the following conditions are satisfied:

1. The take is incidental to an otherwise lawful activity.

2. The impacts of the authorized take shall be minimized and fully mitigated. The measures required to meet this obligation shall be roughly proportional in extent to the impact of the authorized taking on the species. Where various measures are available to meet this obligation, the measures required shall maintain the applicant's objectives to the greatest extent possible. All required measures shall be capable of successful implementation. For purposes of this section only, impacts of taking include all impacts on the species that result from any act that would cause the proposed taking.

3. The permit is consistent with any regulations adopted pursuant to FGC §2112 and §2114.

4. The applicant shall ensure adequate funding to implement the measures required by item 2 above, and for monitoring compliance with, and effectiveness of, those measures.

5. No permit may be issued if issuance of the permit would jeopardize the continued existence of the species. CDFW shall make this determination based on the best scientific and other information that is reasonably available, and shall include consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of known population trends, known threats to the species, and reasonably foreseeable impacts on the species from other related projects and activities.

6. CDFW must ensure that all further measures necessary to satisfy the conservation standard of FGC of §2805(d) are incorporated into the project. The conservation standard is as follows:

   §2805(d): *"Conserve," "conserving," and "conservation" mean to use, and the use of, methods and procedures within the plan area that are necessary to bring any covered species to the point at which the measures provided pursuant to Chapter 1.5 (commencing with Section 2050) are not necessary, and for covered species that are not listed pursuant to Chapter 1.5 (commencing with Section 2050), to maintain or enhance the condition of a species so that listing pursuant to Chapter 1.5 (commencing with Section 2050) will not become necessary.*

7. The take authorization provides for the development and implementation, in cooperation with federal and state agencies, of a monitoring program and an adaptive management process until the department determines that any impacts resulting from the replacement of the Spring Creek Road Bridge have been fully mitigated.

As noted in item 2 above, Shasta County must implement species-specific minimization and avoidance measures and fully mitigate the impacts of the project on rough sculpin. Avoidance/minimization measures that have been or will be implemented by Shasta County are as follows:

- The bridge design has been converted from a pier-supported structure that would necessitate considerable in-water work (pile driving, falsework construction, in-water gravel pads, etc.) to a clear-span structure that will require no in-water construction work. Under the current proposal, in-water work would be limited to removal of the existing in-water piers.
- To minimize the potential for pier removal to result in direct adverse effects to sculpin nests or larvae, during the summer prior to pier removal, a team of divers will remove all loose lava substrate from the immediate vicinity of the piers (i.e., within 15 feet from the piers, as feasible). This will minimize the potential for rough sculpins to nest near the piers. (See **MM 4.4.2**).
- To minimize indirect effects of pier removal such as channel bottom disturbance and turbidity generation, the piers will be sawn off at the channel bottom rather than being broken off or pulled out. (See **MM 4.4.3**).
- BMPs for spill prevention and erosion control (in accordance with the County's Erosion and Sediment Control Standards and regulatory agency permit conditions) will be implemented to further minimize the potential for indirect impacts on the rough sculpin.
- To further reduce the potential for inadvertent impacts to rough sculpins and their habitat, worker awareness training will be provided as called for under **MM 4.4.4**.

Even with the above avoidance measures, there is some potential that rough sculpins could be adversely affected by incidental sedimentation, vibration caused by driving piles for the bridge abutments, boat launching and landing, or other operations. In accordance with items 2 and 7 above, Shasta County is considering several options to provide mitigation roughly proportional in extent to the potential impacts on rough sculpin. The preferred approach is to provide funding to an organization such as Spring Rivers Foundation, which would be responsible for implementing stream enhancement measures in the Fall River watershed that would directly benefit rough sculpin. **MM 4.4.5** establishes procedures to be followed to ensure that the planning, implementation, monitoring, and adaptive management requirements are met.

Bigeye Marbled Sculpin

Bigeye marbled sculpin, a State Species of Special Concern, prefers large, clear, cold, spring-fed streams, but has adapted to living in reservoirs. Within its range, the sculpin is generally found in association with aquatic vegetation interspersed among coarse rocky substrates. Bigeye marbled sculpins typically spawn between February and March. Eggs are attached to the flat undersides of rocks and nests are typically guarded by males. Each female generally produces 140 to 650 eggs. Eggs from several females may be found in the same nest; up to about 2,200 embryos have been observed in a single nest.

Bigeye marbled sculpins inhabit the middle reach of the Pit River, and tributary streams including the Fall River, Burney Creek, Hat Creek, Sucker Springs Creek, and Clark Creek. The sculpin also occurs in Lake Britton and Tunnel Reservoir. The bigeye marbled sculpin is the least abundant of the three sculpins native to the Pit River watershed. As noted above, bigeye marbled sculpins were observed at the bridge site during a 1990 underwater survey conducted by Dr. Maria Ellis.

Bigeye marbled sculpins have a high potential to be present in the work area and could potentially be affected by in-water work during removal of the current bridge's piers, by increased erosion and sedimentation, or by inadvertent habitat damage during project construction. Because bigeye marbled sculpins co-occur with rough sculpins and have a similar life history, including nesting under rocks, construction of the bridge as currently proposed, along with implementation of the avoidance/minimization and mitigation measures benefitting rough sculpins, would also benefit bigeye marbled sculpins. No further mitigation is warranted.

Pit-Klamath Brook Lamprey

Pit-Klamath Brook Lamprey, a State Species of Special Concern, is typically found in cool, clear, low gradient streams with sandy or muddy edges and bottoms. The lampreys often share habitat with trout, marbled sculpins, rough sculpins, and speckled dace. Pit-Klamath brook lampreys are found within the Pit River drainage and the upper Klamath River upstream of the Klamath Lakes. In the Pit River system, they seem especially common in backwaters of the spring-fed Fall River and Hat Creek.

The larval lampreys (ammocoetes) burrow tail first into the soft substrate where they feed on algae and detritus. After at least four years, the ammocoetes metamorphose into the adult lamprey form, probably in the autumn. Spawning may begin in the early spring and may continue through the summer. Review of CNDDB records found that the species was reported in the BSA for the bridge site near the confluence of Spring Creek and Fall River in 2009.

Pit-Klamath Brook Lampreys have a high potential to be present in the work area and could potentially be affected by in-water work during removal of the current bridge's piers, by increased erosion and sedimentation, or by inadvertent habitat damage during project construction. Although Pit-Klamath brook lampreys have a very different life history than rough sculpins, the two species utilize the same habitats and co-occur at the bridge site. Construction of the bridge as currently proposed, along with implementation of the avoidance/minimization and mitigation measures benefitting rough sculpins, would thus also benefit Pit-Klamath brook lampreys. No further mitigation is warranted.

Western Pond Turtle

The western pond turtle, a State Species of Special Concern, is found in a variety of habitats (e.g., ponds, reservoirs, streams, rivers, ditches, and sloughs) from sea level to approximately 6,000 feet in elevation. Western pond turtles prefer ponds or slow-flowing streams with deep pools. Such habitats often have muddy bottoms. The presence of suitable basking sites is often an important habitat component for western pond turtles. Basking sites may include partially submerged logs, rocks, mats of floating vegetation, and open mud banks.

Courtship and mating occur primarily in late April or early May. Most egg laying occurs in May and June, although some females may deposit a second clutch of eggs later in summer. Nests are usually within 500 feet of water. Nests are generally found in substrates that have a high sand, clay, or silt component, and are generally located on unshaded, south-facing slopes. Using their hind feet, female turtles will excavate a shallow, 2- to 3-inch deep, flask-shaped nest with an opening approximately 1.5 inches in diameter. From 1 to 13 eggs are deposited in the nest. Females will often cover the nest

site with soil and leaf litter to conceal the nest. Eggs hatch approximately 80 to 130 days later. Hatchlings generally emerge from the nest in August and move to aquatic sites, although in the northern part of the species' range, hatchlings may overwinter and emerge from the nest the following spring. Adult and juvenile western pond turtles generally leave aquatic sites in the fall to overwinter in nearby uplands and return to aquatic sites in the spring.

According to CNDDB records, the western pond turtle has been reported in several areas of the Fall River, both upstream and downstream of the bridge site. The river reach in the bridge site is presumably used as a migration corridor for the species, and may support other life-stages of the turtle. Work in and adjacent to the Fall River has the potential to directly and indirectly affect the western pond turtle. Pond turtles are very wary and seek refuge in the water at any sign of threat; therefore, it is unlikely that pond turtles would be adversely affected by in-water work. However, there is a slight possibility that dewatering enclosures could trap turtles, leading to their death if they are not removed prior to construction within the enclosure. In addition, western pond turtles could attempt to nest in upland work areas in late spring or early summer.

To avoid/minimize potential impacts to western pond turtles **and other aquatic species**, **MM 4.4.6** requires that a qualified biologist inspect any dewatering enclosures for the presence of turtles during initial dewatering of each enclosure; any turtles present would be relocated outside the immediate work area. **MM 4.4.7** requires that in the event that western pond turtles enter a 100-foot buffer of on-going construction activities, a qualified biologist shall be contacted and construction activities shall be halted within 50 feet of the turtle until the turtle is confirmed to have left the project area or is relocated by a qualified biologist.

Worker awareness training required by **MM 4.4.4** would also address the western pond turtle. BMPs for spill prevention and erosion control (in accordance with the County's Erosion and Sediment Control Standards and regulatory agency permit conditions) will ensure that the potential for indirect impacts on the western pond turtle is negligible.

Monarch Butterfly

The monarch butterfly is currently designated as a Candidate species for federal listing under the Endangered Species Act. Monarch butterflies are reliant on milkweed species for egg-laying, larval feeding, and pupation. Adults migrate from their overwintering sites on the California Coast, Baja California, and to some extent, the central Mexico mountains, in February and March, and reach the northern limit of their North America range in California, Oregon, Washington, Idaho, and Nevada in early to mid-June. Eggs are laid singly on milkweed plants within their breeding range. Once hatched, larva reach the adult stage in 20 to 35 days; adults live 2 to 5 weeks. Several generations can be produced within one season, with the last generation beginning the southern migration to their overwintering range in August and September, where the butterflies live between 6 and 9 months before migrating north again for the summer.

Showy milkweed (*Asclepias speciosa*) was observed on the project site during the botanical surveys. The milkweed plant provides habitat for the monarch butterfly to lay eggs, and for the larvae to feed and undergo metamorphosis. Therefore, it is possible for the monarch butterfly to be present within the project site.

To avoid/minimize potential impacts to monarch butterflies, **MM 4.4.8** establishes procedures to be followed that require a field survey in advance of construction to determine if milkweeds are still present in or adjacent to the work corridor. Further procedures may be required depending on the presence of milkweeds.

In addition, bats could potentially roost on the bridge and/or in abandoned cliff swallow nests on the bridge (if present). MM 4.4.12 is included to minimize potential impacts on bats during bridge demolition. As required by MM 4.4.13, in the event that a qualified bat biologist determines that the bridge provides roosting habitat for bats, bat roosting habitat shall be incorporated into the design of the new bridge.

Project impacts on biological resources would be less than significant with implementation of the above mitigation measures, and if BMPs are implemented throughout construction to control erosion and sedimentation.

Question B

The principal terrestrial community in the bridge site is a disturbed road shoulder/grassland along Spring Creek Road. In addition, a sparsely developed riparian community is present along the Fall River. The roadside community is dominated by grasses and forbs, many of which are non-native. Representative species include mayweed, English peppergrass, alfalfa, red-stemmed filaree, showy milkweed, yellow star-thistle, woolly mullein, hare wall barley, soft chess, downy brome, and bulbous bluegrass. Lands on the west side of Spring Creek Road south of the bridge are heavily influenced by water levels in the Fall River (which can reach up to the road bed under summer conditions and overtop the road during storm events). Representative plants in the strip of land between the road and river include various sedges, wild teasel, western yellow cress, redtop, and tall oatgrass. Some woody riparian vegetation is present along the Fall River northeast of the bridge, including willows, Oregon ash, and black walnut. The Corporation Yard consists of paved and gravel-covered lands, with a disturbed annual grassland in less-utilized areas. The annual grassland is represented by: medusa-head, Idaho resin-weed, rose clover, and Fremont's calycadenia.

The USFWS does not identify any critical habitats for federally listed species within the BSA. NMFS does not identify Essential Fish Habitat in the study area. CNDDB records identify one sensitive natural community, *Pit River Drainage Rough Sculpin/Shasta Crayfish Spring Stream*, in and adjacent to the bridge site that includes Spring Creek and the Fall River. Two additional natural communities are mapped within a five-mile radius of the bridge site: Northern Interior Cypress Forest located ±5 miles northeast of the bridge site, and Big Lake, ±4 miles northeast of the bridge site. Due to the distance from the BSA, the Project would have no impact on the Northern Interior Cypress Forest or Big Lake.

Based on the biological field studies, sensitive habitats in the study area for the bridge site were found to include Spring Creek and the Fall River. No aquatic habitats or other sensitive communities were observed at the Corporation Yard. In addition, no earth disturbance would occur at the County's Corporation Yard, nor would use of the area for equipment staging substantially alter the intensity of activity at this location; thus, no impacts would occur at the Corporation Yard.

The following discussion evaluates potential effects of project implementation on sensitive natural communities, including potential indirect effects resulting from the introduction and spread of noxious weeds and invasive mollusks. Potential impacts to wetlands and other Waters of the U.S./State are addressed under Question C.

Spring Creek and the Fall River

Spring Creek, a large spring-fed stream, confluences with the Fall River approximately 100 feet upstream of the bridge site. The Fall River originates from springs that tap an aquifer beneath volcanic rock approximately five miles to the northwest near the confluence of Bear Creek and the Thousand Springs area of the Fall River Valley. In the project site, the Fall River is clear, cold, ±10 to 15 feet deep, and has slow velocity. Inspection of the visible areas of the riverbed from the bridge found that the shoreline along the banks consists mostly of unconsolidated fine material; the streambed is composed primarily of lava cobble and clean gravels. The Fall River is a tributary to the Pit River, which confluences with the Sacramento River via Shasta Lake.

Because the Fall River is spring-fed, flows are consistently high, even during the summer dry season. With the addition of irrigation runoff, flows can increase during the dry season. Therefore, it is likely that water will be encountered during installation of the abutments and placement of fill along the southern approach to the bridge. To construct the elevated southern road approach, it is anticipated that the contractor will install silt fencing at the outer edge of the work area, clear and grub the fill footprint (which is within the mapped ordinary high-water mark of the river), lay down a layer of gravel, and then place and compact the road fill on top of the gravel layer. If water intrusion is a problem due to the consistency of the soils, sheet piles could be installed to help dewater the road fill footprint and/or the abutment work areas.

Adverse effects could potentially occur if sediments or other pollutants enter the river and degrade habitat in the study area and/or downstream. Potential indirect effects on the aquatic environment will be minimized/avoided by implementing BMPs for erosion control/spill prevention in accordance with the County's Erosion and Sediment Control Standards and conditions of the regulatory agency permits identified in Section 1.6. Measures that may be implemented to minimize erosion include, but are not limited to, limiting construction to the dry season, and using straw wattles, silt fences, and/or gravel berms to prevent sediment from discharging off-site.

Potential Introduction and Spread of Noxious Weeds

The introduction and spread of noxious weeds during construction activities has the potential to adversely affect sensitive natural communities. Each noxious weed identified by the California Department of Agriculture receives a rating which reflects the importance of the pest, the likelihood that eradication or control efforts would be successful and the present distribution of the pest within the state. Below is a description of ratings categories that apply to the project area:

> **Category A.** A pest of known economic or environmental detriment that is either not known to be established in California or is present in a limited distribution that allows for the possibility of eradication or successful containment. A-rated pests are prohibited from entering the state because they have been determined to be detrimental to agriculture.
>
> **Category B.** A pest of known economic or environmental detriment and, if present in California, it is of limited distribution. B-rated pests are eligible to enter the state if the receiving county has agreed to accept them.
>
> **Category C.** A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the state as long as the commodities with which they are associated conform to pest cleanliness standards when found in nursery stock shipments.

Two noxious weed species were observed in the project area during the botanical field surveys: lens-podded hoarycress (B-rated) and yellow star-thistle (C-rated). Other noxious weeds could be introduced into the project area with imported fill material, erosion control materials, or by unwashed construction vehicles. Similarly, weeds could be exported offsite in soil or on unwashed construction vehicles. The potential for introduction and spread of noxious weeds would be avoided/minimized with implementation of **MM 4.4.9.**

Potential Introduction and Spread of Invasive Freshwater Mollusks

Quagga and zebra mussels are highly invasive freshwater bivalves native to Asia. Quagga mussels were reported at Lake Mead in Nevada in 2007, and have since been reported at numerous locations in southern California. Zebra mussels were reported at San Justo Lake in San Benito County in 2008; they have not been reported at any other locations in California. Once established, these mussels can clog water intake and delivery pipes; foul dam intake gates and pipes; adhere to boats, pilings, and most substrates; displace native species; and alter plankton communities. Further, these mussels could impact public water delivery systems and irrigation systems, and could require costly removal maintenance.

Although neither quagga nor zebra mussels are known to occur in the BSA, the use of vessels previously exposed to waters infested by these mussels could facilitate the spread of these species into the Fall River. Barges and other boats from outside the local area are expected to be used during bridge construction; therefore, the project has some potential to result in the spread of invasive aquatic species. FGC §2301 prohibits the transport of quagga and zebra mussels. The project will comply with FGC §2301 by implementing measures recommended by the CDFW to avoid the spread of quagga and zebra mussels. This includes utilizing only vessels that have been cleaned, drained of all standing water, dried thoroughly, and determined not to harbor mussels prior to placement into the Fall River. Vessels that harbor mussels must undergo treatment to eradicate the mussels completely by being placed into dry storage for a minimum of five days prior to their next planned use. The potential for introduction and spread of invasive mollusks shall be avoided/minimized with implementation of **MM 4.4.10.**

Implementation of BMPs for erosion control/spill prevention, compliance with conditions of regulatory agency permits, and implementation of **MM 4.4.9** and **MM 4.4.10** ensures that the Project's impacts to sensitive natural communities would be less than significant.

Question C

ENPLAN conducted field investigations on June 30 and August 10, 2010, with re-inspection on May 3, 2018, to identify potential USACE jurisdictional wetlands and other waters of the U.S. and State. To identify these waters, ENPLAN followed the methodology prescribed in the USACE 1987 *Wetland Delineation Manual*; the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*; and the *2008 Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*.

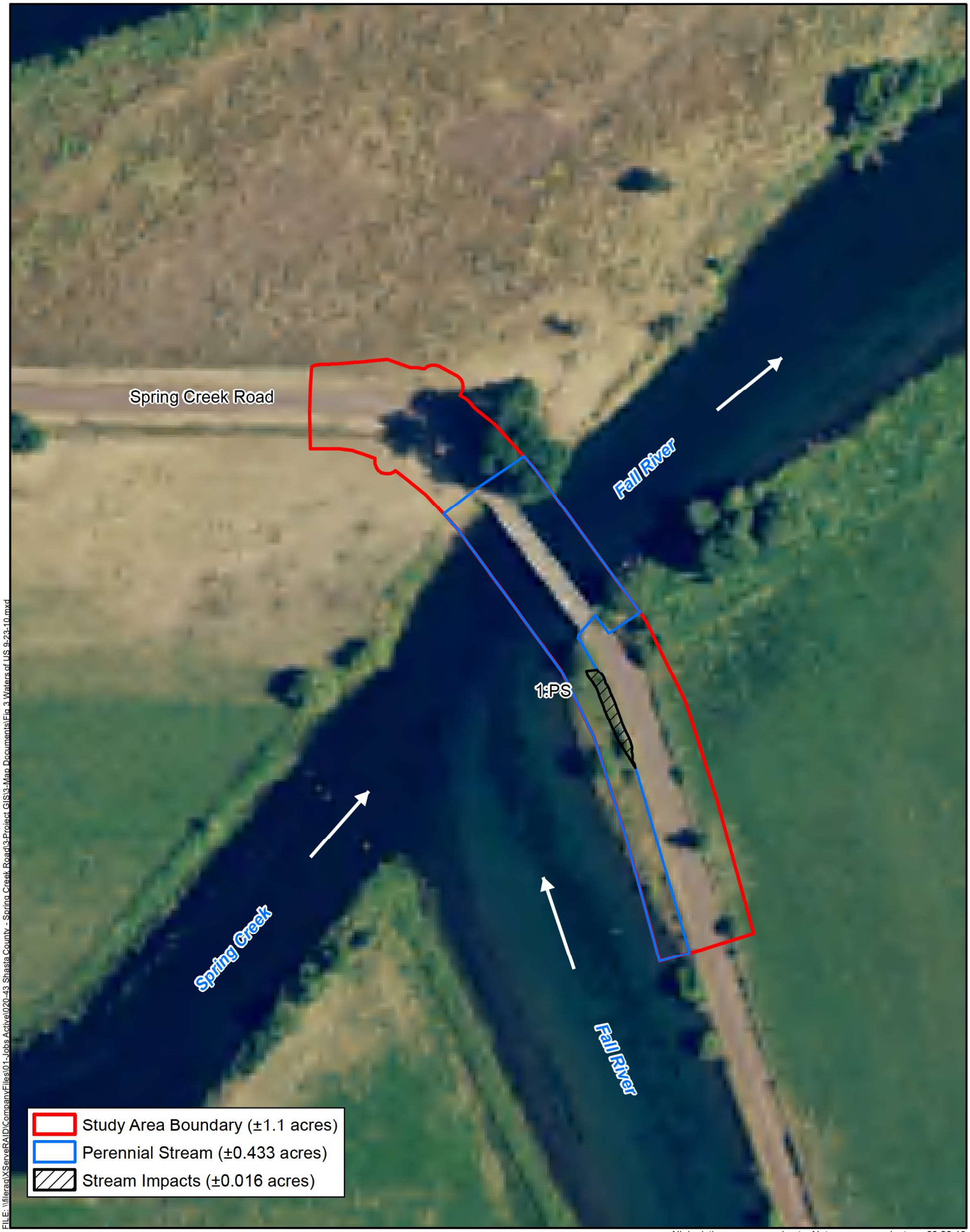
All jurisdictional waters identified during the field investigations are shown in **Figure 4.4-1.** As indicated, the bridge site includes ±0.433 acres of the Fall River (perennial stream), and installation of roadway approach improvements and guardrails on the south side of the bridge would result in the permanent fill of ±0.016 acres of land within the ordinary high water mark of the Fall River. The existing bridge contains six piers that consist of four wooden piles topped with wooden beams upon which the bridge deck is constructed. During bridge demolition, the piers would be removed at the channel bed elevation. Removal of the 24 wooden piles would have a beneficial effect on the perennial stream, partially offsetting the impact of the planned fill of waters.

The USACE issued a Preliminary Jurisdictional Determination (PJD) for the proposed Project on October 22, 2010 (SPK-2010-01227). Due to minor changes in the project footprint, ENPLAN submitted a request for reverification (including updated delineation maps) to the USACE on May 8, 2019. The USACE provided written concurrence with the revised delineation maps and issued a PJD on September 24, 2019.

The project is subject to conditions of a CWA Section 404 permit as required by the USACE. It is anticipated that the proposed Project qualifies for USACE Nationwide Permit (NWP) 14. NWP 14 applies to linear transportation projects that do not result in the loss of more than ½ acre of non-tidal waters.

Among other conditions, the USACE permit requires that temporary fills be removed in their entirety and the affected areas be returned to pre-construction contours to maintain the original wetland hydrology of the site. As discussed under Question B, potential indirect effects will be minimized/avoided by implementing BMPs for erosion control/spill prevention in accordance with the County's Erosion and Sediment Control Standards and conditions of the regulatory agency permits identified in Section 1.6.

In addition, as required by **MM 4.4.11**, mitigation for the permanent loss of jurisdictional waters shall be achieved through payment of in-lieu fees to the USACE, purchase of mitigation credits, or onsite/offsite habitat restoration.



FILE: \\fileraq\XServeRAID\CompanyFiles\01-Jobs Active\020-43 Shasta County - Spring Creek Road\3-Project GIS\3-Map Documents\Fig 3 Waters of US 9-23-10.mxd

All depictions are approximate. Not a survey product. 08.20.19

1 inch = 100 feet

0 100 Feet

Figure 4.4-1

Impacts to Waters of the U.S./State

ENPLAN

A project requiring a USACE Section 404 permit is also required to obtain a Section 401 State Water Quality Certification (or waiver) to ensure that the project will not violate established State water quality standards. In addition, a Streambed Alteration Agreement from CDFW is required.

Regulatory agency permits will be obtained by the County prior to commencement of construction. The bid specifications and contract documents will state that the contractor shall comply with the terms and conditions outlined in the permits. Compliance with regulatory agency permits conditions and implementation of **MM 4.4.11** ensures that impacts to jurisdictional waters would be less than significant.

Question D

Wildlife movement patterns can be disrupted by barriers (e.g., dams, reservoirs, highways, altered stream flows, urban development, habitat conversion, etc.) that impede the movement of migratory fish, birds, deer, and other wildlife species. In addition, during construction, increased human activity may impede the movement of wildlife.

The CDFW Biogeographic Information and Observation System (BIOS) Habitat Connectivity Viewer includes an Essential Connectivity Map that depicts large, relatively natural habitat blocks that support native biodiversity (Natural Landscape Blocks) and areas essential for ecological connectivity between them (Essential Connectivity Areas). The Project site is not included in an Essential Connectivity Area or a Natural Landscape Block. The closest Essential Connectivity Area is ±2.7 miles northeast of the bridge near Horr Pond; the closest Natural Landscape Block is ±1.4 miles northeast of the bridge near the Little Tule River.

While it is not anticipated that the Project site would be used as a regional wildlife movement corridor, the Fall River and Spring Creek provide open water habitat and terrestrial buffers that are likely used for local wildlife movement and foraging. Because the Project entails replacement of an existing bridge in the same location, and the new bridge will span the creek without utilizing piers in the water, the Project would not permanently impede the movement of any wildlife species. Potential temporary impacts that could occur during construction activities are discussed below.

Aquatic Wildlife Species

The river reach in the Project area supports various fish, turtles, and waterfowl, and may provide suitable foraging/dispersal habitat for other wildlife species. Temporary effects on the movement of aquatic species could potentially occur during demolition of the existing bridge when in-water work to remove the existing piers occurs. Because the new bridge would be a clear-span structure, no in-water construction work is required. Due to the limited amount of in-water work, temporary impacts on the movement of aquatic species during construction would be less than significant.

Terrestrial Wildlife Species

According to the Shasta County General Plan, the Project site is not located in or adjacent to a critical deer winter range, fall holding area, or fawning ground. The Shasta County General Plan indicates that no areas within ±5 miles of the bridge are identified as critical deer winter ranges that support migratory deer herds. In addition, no areas within ±20 miles of the bridge site are identified as fall or spring holding areas or summer ranges. Therefore, there would be no impact to deer winter ranges or fawning grounds.

Although daytime wildlife movement may be temporarily affected during the construction period, this impact would be of short duration and most animals can adapt by moving around the work area or moving during non-working hours. Potential permanent and temporary effects of construction on terrestrial wildlife movement would be less than significant.

Migratory Birds

The Project area is located within the Pacific Flyway, and migratory birds may potentially nest in and adjacent to the Project area. While no migratory bird nests were located during the biological survey, two species have the potential to occur at or near the Project site due to habitat conditions: Brewer's sparrow and the green-tailed towhee. Nesting migratory birds, if present, could be directly or indirectly affected by construction activities. Direct effects could include mortality resulting from removal of a tree/shrub or demolition of the existing bridge containing an active nest with eggs or chicks. Indirect effects could include nest abandonment by adults in response to loud noise levels or human encroachment, or a reduction in the amount of food available to young birds due to changes in feeding behavior by adults.

In the local area, most birds nest between February 1 and August 31, and the potential for adversely affecting nesting birds can be greatly minimized by removing vegetation and conducting construction activities either after August 31 or before February 1. If work must occur during the nesting season, **MM 4.4.1** requires that a nesting survey be conducted by a qualified biologist to identify active nests in and adjacent to the work area.

If active nests are found in the Project area, the biologist shall conduct agency consultation and recommend appropriate actions to be taken by the County to comply with applicable federal and State requirements. Therefore, because construction activities that may impede the movement of wildlife are a temporary impact that would cease at completion of the Project, and **MM 4.4.1** would reduce the potential for adversely affecting nesting birds, the proposed Project would have a less than significant impact on the movement of any migratory fish or wildlife species and would not impact migratory wildlife corridors or impede the use of native wildlife nursery sites.

Question E

Chapter 6.7 (Fish and Wildlife Habitat) of the Shasta County General Plan addresses the need to preserve unique and important aquatic, fish, and wildlife habitats, and plant communities for their biological and ecological values, as well as for their direct and indirect benefits to the citizens of Shasta County. **MM 4.4.1** through **MM ~~4.4.11~~ 4.4.13** are included to ensure consistency with General Plan policies and objectives. There are no other local policies or ordinances related to the protection of biological resources that would apply to the proposed Project. Impacts are considered less than significant with implementation of **MM 4.4.1** through **MM ~~4.4.11~~ 4.4.13.**

Question F

A Habitat Conservation Plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the Federal Endangered Species Act (FESA) when a project results in the "take" of a federally-listed threatened or endangered wildlife species. Regional HCPs address the "take" of listed species at a broader scale to avoid the need for project-by-project permitting. A Natural Community Conservation Plan (NCCP) is a state planning document administered by CDFW. There are no HCPs, NCCPs or other habitat conservation plans that apply to the proposed Project. Therefore, there would be no impact.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the Project area, including growth resulting from build-out of the County's General Plan, are anticipated to permanently remove plant and wildlife resources. As development in the area continues, sensitive plant and wildlife species native to the region and their habitat, including State and federally-listed special status species, will be lost through conversion of existing open space to urban development.

Although mobile species may have some ability to adapt to modifications to their environment by relocating, less mobile species may be locally extirpated. With continued conversion of natural habitat to human use, the availability and accessibility of remaining foraging and natural habitats in this ecosystem

would dwindle, and those remaining natural areas may not be able to support additional plant or animal populations. The conversion of plant and wildlife habitat on a regional level as a result of cumulative development would potentially result in a regionally significant cumulative impact on special-status species and their habitats.

However, development projects in the County are required to comply with federal, State, and local regulations as described under Regulatory Context above. In addition, all projects are required to implement appropriate BMPs to control erosion and sedimentation and prevent damage to streams, watercourses and aquatic habitat, and must implement appropriate mitigation measures to reduce project-specific impacts.

Compliance with the conditions of regulatory agency permits, implementation of BMPs for spill prevention and erosion control, and implementation of **MM 4.4.1 through MM ~~4.4.11~~ 4.4.13** avoids, reduces, or mitigates potential impacts to biological resources. These measures ensure that the proposed Project's contribution to cumulative regional impacts to biological resources would be less than significant.

MITIGATION

MM 4.4.1 To avoid impacts to special-status birds and nesting birds, including raptors protected under state and federal regulations: (1) removal of raptor nests at any time of year is prohibited unless appropriate permits are obtained, and (2) one of the following shall be implemented:

a. **Bridge modification and deconstruction**, vegetation removal, and other ground-disturbance activities associated with construction shall occur between September 1 and January 31, when birds are not nesting; or

b. If **bridge modification and deconstruction,** vegetation removal, or ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area.

Surveys shall begin prior to sunrise and continue until ~~vegetation and nests have~~ **the project area has** been sufficiently observed. The survey shall take into account acoustic impacts and line-of-sight disturbances occurring as a result of the project in order to determine a sufficient survey radius to avoid nesting birds. To the extent feasible given line-of-sight constraints and private property access, a minimum 330-foot buffer shall be surveyed for nesting eagles and a minimum 500-foot buffer shall be surveyed for nesting greater sandhill cranes. The survey report shall include a description of the area surveyed, date and time of the survey, ambient conditions, bird species observed in the area, a description of any active nests observed, any evidence of breeding behaviors (e.g., courtship, carrying nest materials or food, etc.), and a description of any outstanding conditions that may have affected the survey results (e.g., weather conditions, excess noise, the presence of predators, etc.).

The results of the survey shall be submitted electronically to the California Department of Fish and Wildlife at R1CEQARedding@wildlife.ca.gov upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed.

If active nests are found, the biologist shall conduct agency consultation as appropriate and then recommend appropriate actions to be taken by Shasta County to comply with applicable state and federal requirements. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.

Nests confirmed to be occupied by birds or bats shall be left undisturbed until birds have fledged, the nest is no longer active, or bats have left for the season, as confirmed by a qualified biologist.

MM 4.4.2. To minimize the potential for adverse effects to sculpin nests or larvae, during the summer (June-July) prior to pier removal, a team of divers shall remove all loose lava substrate from the stream bottom in the immediate vicinity of the piers (i.e., within 15 feet from the piers, as feasible).

MM.4.4.3. To minimize turbidity and channel bottom disturbance, in-water piers proposed for removal shall be sawn off at the channel bottom rather than being broken off or pulled out.

MM 4.4.4. Prior to commencement of any earth disturbance (e.g., clearing, grading, trenching, etc.), all construction personnel shall receive training from a qualified biologist regarding protective measures for the rough sculpin, western pond turtle, and other special-status species that may be present in the project area. If new personnel are added to the project, the County shall ensure that they receive the mandatory training before starting work. At a minimum, the training shall include the following:

a. A review of the special-status species that could occur in the project study area, the locations where the species could occur, the laws and regulations that protect these species, and the consequences of noncompliance with applicable laws and regulations.

b. Procedures to be implemented in the event that these species are encountered during construction.

c. A review of sensitive habitats that occur in the study area and the location of the sensitive habitats.

d. A review of applicable mitigation measures, standard construction measures, best management practices, and regulatory agency permit conditions that apply to the protection of special-status species and sensitive habitats.

MM 4.4.5. Prior to project implementation, Shasta County shall obtain a permit from the California Department of Fish and Wildlife authorizing incidental take of the rough sculpin. The County or its designee, in coordination with the California Department of Fish and Wildlife, shall also develop and implement a program to mitigate the unavoidable residual impacts of the bridge replacement project on rough sculpin.

Mitigation prescribed in the program shall be roughly proportional to the extent of impact, and an adaptive management process shall be included in the program to ensure that the objectives of the mitigation program are achieved. Shasta County or its designee shall monitor compliance with, and effectiveness of, the mitigation program until the California Department of Fish and Wildlife determines that impacts on rough sculpin resulting from bridge replacement have been fully mitigated.

MM 4.4.6 If in-stream dewatering enclosures are erected to facilitate construction, a qualified biologist shall be present during initial dewatering of each enclosure to ensure that no **aquatic species, including rough sculpin and** western pond turtles are trapped. If ~~turtles~~ **aquatic species** are present within the enclosure, they shall be relocated outside the work area by the qualified biologist.

MM 4.4.7. In the event that western pond turtles enter a 100-foot buffer of on-going construction activities, a qualified biologist shall be contacted and construction activities shall be

halted within 50 feet of the turtle until the turtle is confirmed to have left the project area or is relocated by the qualified biologist.

MM 4.4.8. The monarch butterfly is currently designated as a Candidate species for federal listing under the Endangered Species Act. If the western migratory population of the monarch butterfly is not listed and is no longer a federal Candidate for listing at the time project construction is initiated, no mitigation is required. If the western migratory population of the monarch butterfly remains a Candidate or is formally listed at the time of construction, then the following actions shall be taken:

a. A field survey shall be undertaken in early to mid-May (prior to arrival of the butterflies) to determine if milkweeds (*Asclepias* spp.) are present in or adjacent to the work corridor. If no milkweeds are present, nor further action is required.

b. If milkweeds are present in or adjacent to the work area, and can be avoided during construction, temporary fencing shall be established to protect the plants; the fencing shall be maintained in good condition throughout the duration of construction.

c. If the milkweeds cannot be avoided, then they shall be removed as early in the season as possible. If monarchs arrive in the general project area prior to removal of the milkweeds, a biologist shall inspect each milkweed for the presence of monarch butterfly eggs, larvae, and pupae prior to its removal. If monarch butterfly eggs, larvae, or pupae are present, the milkweed shall not be removed until the biologist determines that the milkweed is no longer hosting the monarch butterfly. This may require rescheduling of construction in those areas supporting milkweeds.

d. If removal of milkweeds is required at any time during the pre-construction or construction periods, one of the following options shall be implemented:

   i. If, prior to project initiation, the US Fish and Wildlife Service approves a mitigation banking or in-lieu fee program to offset impacts to the monarch butterfly, Shasta County shall purchase credits or pay fees at an amount/ratio acceptable to the Service. Proof of purchase shall be provided to the Caltrans prior to project completion.

   ii. If no mitigation banking or in-lieu fee program is approved by the US Fish and Wildlife Service prior to project initiation, Shasta County shall re-establish milkweeds in the immediate area in the fall or spring following completion of construction. This shall be accomplished by planting seeds or rooted milkweed seedlings/cuttings. The planted milkweeds shall be of the same species as those removed. Planting shall be conducted at a sufficiently high ratio to ensure success, which is defined as establishing at least one milkweed plant per milkweed plant removed as determined through field monitoring one year after the milkweed planting is undertaken. If the minimum success ratio is not met, milkweed seeding/planting shall continue in successive years until the success criterion is met. Documentation regarding milkweed re-establishment and success shall be provided to the federal lead agency on an annual basis until the success criterion is met. The planting program may be undertaken by the County, its contractors, or a third-party conservation-oriented such as the Western Shasta Resource Conservation District.

MM 4.4.9. The potential for introduction and spread of noxious weeds shall be avoided/minimized by:

a. Using only certified weed-free erosion control materials, mulch, and seed.

b. Limiting any import or export of fill to material known to be weed free.

c. Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering the job site and upon leaving the job site.

MM 4.4.10. The potential for introduction and spread of invasive freshwater mollusks (quagga mussels and zebra mussels) shall be avoided/minimized by utilizing only vessels that have been cleaned, drained of all standing water, dried thoroughly, and determined not to harbor mussels prior to placement into Spring Creek or the Fall River. Vessels that harbor mussels shall undergo treatment to eradicate the mussels completely by being placed into dry storage for a minimum of five days prior to their next planned use.

MM 4.4.11. Mitigation for the permanent loss of jurisdictional waters shall be achieved at a minimum 1:1 ratio through payment of in-lieu fees to the Army Corps of Engineers, purchase of mitigation credits, or onsite/offsite habitat restoration.

MM 4.4.12 Avoid/Minimize Effects on Bats During Bridge Demolition.

Prior to bridge demolition, a visual survey of the bridge shall be conducted by a qualified bat biologist to identify signs of past or present bat activity. If work on the bridge occurs between November 1 and March 1, the survey shall include inspection of any cliff swallow nests that may be present on the bridge.

If the visual survey confirms that there are no signs of past or present bat activity, no further work is needed prior to demolition. If there are signs of past or present bat activity, then humane bat eviction or exclusion shall be undertaken as described below.

- **If needed, humane bat eviction or exclusion shall be conducted by a bat exclusion contractor or by the bridge contractor under direct supervision of a qualified bat biologist who is experienced in humane bat exclusion methods, materials, and techniques. Humane bat eviction may consist of installation of one-way exits at required locations to permit bats to escape from any roost crevices or non-contiguous portions of crevices. Humane bat eviction shall be conducted only during seasonal periods of bat activity, as defined by the bat biologist.**

MM 4.4.13 Replace Bat Roosting Habitat.

If the qualified bat biologist identifies signs of past or present bat activity during the survey and finds that the bridge provides roosting habitat for bats (even if bats are not present at the time of the survey), bat roosting habitat shall be incorporated into the new bridge in accordance with plans developed by a qualified bat biologist with experience in bridge structure bat roost habitat design.

DOCUMENTATION

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4.5 CULTURAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

REGULATORY CONTEXT

FEDERAL

Section 106 of the National Historic Preservation Act (NHPA)

Section 106 of the NHPA and its implementing regulations require federal agencies to take into account the effects of their activities and programs on historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and material remains related to such a property (NHPA Sec. 301[5]). A resource is considered eligible for listing in the NRHP if it meets the following criteria as defined in CFR Title 36, §60.4:

> *The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:*
>
> - *That are associated with events that have made a significant contribution to the broad patterns of our history;*
> - *That are associated with the lives of persons significant in our past;*
> - *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
> - *That has yielded, or may be likely to yield, information important to prehistory or history.*

Sites younger than 50 years, unless of exceptional importance, are not eligible for listing in the NRHP. In addition to meeting at least one of the criteria outlined above, the property must also retain enough

integrity to enable it to convey its historic significance. To retain integrity, a property will always possess several, and usually most, of the seven aspects of integrity noted above. If a site is determined to be an eligible or historic property, impacts are assessed in terms of "effects." An undertaking is considered to have an adverse effect if it results in any of the following:

1. Physical destruction or damage to all or part of the property;
2. Alteration of a property;
3. Removal of the property from its historic location;
4. Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
5. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features; and
6. Neglect of a property that causes its deterioration; and the transfer, lease, or sale of the property.

If a project will adversely affect a historic property, feasible mitigation measures must be incorporated. The State Historic Preservation Officer (SHPO) must be provided an opportunity to review and comment on these measures prior to commencement of the proposed Project.

STATE

California Environmental Quality Act (CEQA)

CEQA requires that projects financed by or requiring the discretionary approval of public agencies in California be evaluated to determine potential adverse effects on historical and archaeological resources (California Code of Regulations [CCR], §15064.5).

Historical resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. Pursuant to §15064.5 of the CCR, a property may qualify as a historical resource if it meets any of the following criteria:

1. The resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR).
2. The resource is included in a local register of historic resources, as defined in §5020.1(k) of the Public Resources Code (PRC), or is identified as significant in a historical resources survey that meets the requirements of §5024.1(g) of the PRC (unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant).
3. The lead agency determines that the resource may be a historical resource as defined in PRC §5020.1(j), or §5024.1, or may be significant as supported by substantial evidence in light of the whole record. Pursuant to PRC §5024.1, a resource may be eligible for inclusion in the CRHR if it:
    - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    - Is associated with the lives of persons important in our past;
    - Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or
    - Has yielded, or may be likely to yield, information important in prehistory or history.

Resources must retain integrity to be eligible for listing on the CRHR. Resources that are listed in or formally determined eligible for listing in the NRHP are included in the CRHR, and thus are significant historical resources for the purposes of CEQA (PRC §5024.1(d)(1)).

A unique archaeological resource means an artifact, object, or site that meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

LOCAL

Shasta County

The Shasta County General Plan includes the following Objective and Policy that apply to the proposed Project:

Chapter 6.10, Heritage Resources		
Objective:	HER-1	Protection of significant prehistoric and historic cultural resources.
Policy:	HER-a	Development projects in areas of known heritage value shall be designed to minimize degradation of these resources. Where conflicts are unavoidable, mitigation measures which reduce such impacts shall be implemented. Possible mitigation measures may include clustering, buffer or nondisturbance zones, and building siting requirements.

DISCUSSION OF IMPACTS

Questions A and B

The proposed Spring Creek Road bridge replacement involves funding from the Federal Highway Administration (FHWA) and federal permitting by the U.S. Army Corps of Engineers (ACOE). The FHWA is the federal lead agency for NEPA compliance; however, the FHWA has delegated certain oversight responsibilities to Caltrans. Pursuant to the January 1, 2014, *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (Section 106 PA), Caltrans has on-going responsibilities for Section 106 compliance. Therefore, cultural resource studies for the proposed Project were completed in coordination with the Caltrans Office of Local Assistance.

As further described below, work conducted by ENPLAN included establishment of an appropriate study area boundary, a records search, Native American consultation, and field evaluation, resulting in preparation of an Archaeological Survey Report (ASR).

<u>Area of Direct Impact (ADI) / Area of Potential Effects (APE)</u>

The Area of Direct Impacts (ADI) is a term used to describe known areas of planned direct impact, such as those depicted on engineering plans. The Area of Potential Effects (APE) is generally a broader geographic area, and may include additional properties that could be indirectly affected by visual, audible, or atmospheric intrusions; shadow effects; vibrations from construction activities; or change in access or use. Cultural resource studies for the proposed Project focused on the broader APE and encompassed enough area to satisfy the concerns of agencies that have cultural resources review responsibilities for the project. The APE also encompasses enough area to satisfy USACE permitting requirements.

The APE takes into account all ground-disturbing activities associated with demolition of the existing bridge, construction of the new bridge and its approaches, relocation of fencing, and areas used for staging and maneuvering of construction equipment. The County's Corporation Yard would be used for equipment storage; however, no earth disturbance at the Corporation Yard would occur.

The vertical APE (associated with the potential for buried cultural resources) is based upon the existing topography, geological history, site development history, and the engineering design of the project. The vertical APE of a project is related to the proposed excavations associated with the project. The maximum anticipated depth of vertical disturbance associated with bridge construction is 68 feet for installation of steel-driven H-piles at Abutment 1. As shown in Table 3.0-1 (Overview of Project Impacts) in Section 3.3, the depth of disturbance for actual excavation work for other project elements and demolition of the existing bridge would be much less.

Records Search

The following sources were consulted to obtain information concerning known archaeological sites, historic properties, and historic activities within and/or adjacent to the study area: the Northeastern Center of the California Historical Resources Information System at California State University, Chico (NEIC/CHRIS); National Register of Historic Places (NRHP); the California Register of Historical Resources (CRHP); National Historic Landmarks; California Historical Landmarks; California Points of Historical Interest; Caltrans Historic Highway Bridge Inventory; Caltrans Cultural Resources Database; Fort Crook Historical Museum; Shasta County Historical Society; and the Shasta County Planning Department.

The NEIC/CHRIS records search identified the following:

- 2 cultural studies have been completed within a 0.5-mile radius of the APE, including one within a portion of the APE.
- 4 prehistoric archaeological resources have been mapped within a 0.5-mile radius of the APE.
- No built environment resources have been previously recorded within the search radius or the APE.
- The existing Fall River Bridge (6C0209) has been inventoried by Caltrans and determined not eligible for listing in the NRHP.

Native American Consultation

Native American consultation was initiated in March 2010. In response to ENPLAN's request for information, on March 8, 2010, the Native American Heritage Commission (NAHC) indicated that a search of the Sacred Lands File did not reveal any known Native American cultural resources within the vicinity of the APE. The NAHC also provided contact information for several Native American representatives and organizations, who were contacted by ENPLAN with a request to provide comments on the proposed Project.

Field Evaluation

Archaeological fieldwork undertaken by ENPLAN consisted of an intensive survey of the APE to identify cultural and historical resources that would be potentially affected by the proposed Project. Given the density of vegetation and limited ground visibility, surveys were conducted on several occasions to ensure that adequate coverage was provided.

Conclusions and Mitigation

As a result of the cultural resources survey and consultation efforts, it was determined that bridge construction has the potential to affect historic resources, as defined by the NHPA. Caltrans consulted with the State Office of Historic Preservation regarding the Project's potential to affect historic resources and has determined that preparation of an ESA Action Plan for the proposed Project is the appropriate means to prevent inadvertent direct or indirect adverse effects and to

provide for the resolution of any adverse effects on historic resources subsequent to approval of the Project.

Further, Caltrans has determined that the proposed Project would not result in physical destruction or damage to a cultural resource, would not change the character of the use or of physical features within the property's setting as a whole, and would not result in the introduction of visual, atmospheric, or audible elements out of character with existing conditions.

MM 4.5.1 requires the County to coordinate with Caltrans to ensure compliance with Section 106 of the NHPA; therefore, impacts to cultural resources would be less than significant. **MM 4.5.2** ensures that potential impacts to cultural resources that may be inadvertently discovered during construction would be less than significant. **MM 4.5.4 is included to ensure compliance with §6313 of the California Public Resources Code, which addresses submerged archaeological sites and/or submerged historic resources.**

Question C

It is always possible that undocumented human remains could be encountered during subsurface excavations within the APE. Implementation of **MM 4.5.3** would ensure that impacts are less than significant.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the Project area have the potential to impact cultural resources. Archaeological and historic resources are afforded special legal protections designed to reduce the cumulative effects of development. Cumulative projects and the proposed Project are subject to the protection of cultural resources afforded by the *CEQA Guidelines* Section 15064.5 and related provisions of the PRC. In addition, projects with federal involvement are subject to Section 106 of the NHPA.

Given the non-renewable nature of cultural resources, any impact to protected sites could be considered cumulatively considerable. As discussed above, implementation of **MM 4.5.1** through **MM 4.5.3**, ensures that the proposed Project's cumulative impacts to cultural resources would be less than significant.

MITIGATION

MM 4.5.1 Shasta County shall continue to coordinate with Caltrans (the designated federal Lead Agency for the project) throughout the duration of project construction to ensure that the County fulfills its responsibilities with respect to Section 106 of the National Historic Preservation Act.

MM 4.5.2 If any previously unevaluated cultural resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, etc.) are encountered, all earth-disturbing work shall stop within 25 feet (7.6 meters) of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary.

MM 4.5.3 In the event that human remains are encountered during construction activities, all construction activities (ground-disturbing or not) shall stop within 50 feet (15 meters) of the find, and the County-Designated (CD) Archaeologist shall be immediately contacted. The CD-Archaeologist, in coordination with Shasta County, shall ensure that the requirements of §15064.5 (e) (1) of the CEQA Guidelines and §7050.5 of the Health and Safety Code are met. These requirements provide that (1) the Shasta County coroner shall be contacted to determine whether investigation of the cause of death is required and (2), if the remains are determined to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of the find. Together with representatives of the people of most likely descent, as identified by

the NAHC, the CD-Archaeologist shall make an assessment of the discovery and recommend/implement mitigation measures as necessary.

MM 4.5.4 In order to ensure compliance with §6313 of the California Public Resources Code, in the event that any submerged archaeological sites and/or submerged historic resources (as defined in PRC §6313[b]) are discovered on land under the jurisdiction of the State Lands Commission (SLC) (i.e., the bed of the river) during construction activities, the County shall consult with the Staff Attorney for the State Lands Commission. The final disposition of archaeological and historical resources under the jurisdiction of the SLC must be approved by the SLC.

DOCUMENTATION

ENPLAN. 2013. Archaeological Survey Report for the Spring Creek Road Bridge (06C0209) Replacement Project, Shasta County, California. Prepared for Shasta County (Confidential Document).

4.6 ENERGY

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

REGULATORY CONTEXT

There are no federal or local regulations pertaining to energy that apply to the proposed Project.

STATE

California Environmental Quality Act (CEQA)

Section 15126.2(b) of the CEQA Guidelines states that if analysis of a project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the effects must be mitigated. The Guidelines provide suggestions of topics that may be included in the energy analysis, including identification of energy supplies that would serve the project and energy use for all project phases and components. In addition to building code compliance, other relevant considerations may include the project's size, location, orientation, equipment use and any renewable energy features that could be incorporated into the project. The energy use analysis may be included in related analyses of air quality, GHG emissions, transportation, or utilities at the discretion of the lead agency.

DISCUSSION OF IMPACTS

Questions A and B

The Project does not include any components that would result in a permanent increase in energy

use. Energy consumption during construction would occur from diesel and gasoline used for construction equipment, haul trucks, and construction workers travelling to and from the work site. Construction equipment must comply with State regulations that require the use of fuel-efficient equipment. Therefore, impacts would be less than significant. Potential impacts are also reduced because construction equipment would comply with regulations that restrict idling when not in use (see **Mitigation Measure MM 4.3.1(h)**).

CUMULATIVE IMPACTS

Completion of the proposed Project and other potential cumulative projects in the region, including growth resulting from build-out of the County's General Plan, could result in potentially significant impacts due to the wasteful, inefficient, or unnecessary consumption of energy resources. However, all new development projects in the State are required to comply with State regulations that require the use of fuel-efficient equipment during construction. Compliance with State these regulations will ensure that the proposed Project's cumulative impacts on energy resources would be less than significant.

MITIGATION

None necessary.

DOCUMENTATION

California Air Resources Board. 2016. Mobile Source Strategy. https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.pdf. Accessed April 2019.

_____. 2016. In-Use Off-Road Diesel Vehicle Regulation. https://ww3.arb.ca.gov/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf. Accessed June 2019.

4.7 GEOLOGY AND SOILS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death, involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

REGULATORY CONTEXT

FEDERAL

National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction (NEHR) Act was passed in 1977 to reduce the risks to life and property from future earthquakes in the United States. The Act established the National Earthquake Hazards Reduction Program, which was most recently amended in 2004. The Federal Emergency Management Agency (FEMA) is designated as the lead agency of the program. Other NEHR Act agencies include the National Institute of Standards and Technology, National Science Foundation, and the U.S. Geological Survey (USGS).

STATE

California Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (PRC §2621 *et seq.*) was passed in 1972 to reduce the risk to life and property from surface faulting in California. The Act prohibits the siting of most structures intended for human occupancy on the surface trace of active faults. Before a project can be permitted in a designated Alquist-Priolo Fault Study Zone, a geologic investigation must be prepared to demonstrate that proposed buildings would not be constructed across active faults.

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act (SHMA) of 1990 (PRC §2690–2699.6) addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction and seismically induced landslides. The SHMA also addresses expansive soils, settlement, and slope stability. Under the SHMA, cities and counties may withhold development permits for sites within seismic hazard areas until geologic/geotechnical investigations have been completed and measures to reduce potential damage have been incorporated into development plans.

California Building Standards Code

Title 24 of the CCR, also known as the California Building Standards Code (CBSC), provides minimum standards for building design and construction, including excavation, seismic design, drainage, and erosion control. The CBSC is based on the International Building Code (IBC) used widely throughout the country. The CBSC has been modified for California conditions to include more detailed and/or more stringent regulations.

LOCAL

Shasta County

The Shasta County General Plan includes the following Objectives and Policies that apply to the proposed Project:

Chapter 5.1, Seismic and Geologic Hazards		
Objectives:	SG-1	Protection of all development from seismic hazards by developing standards for the location of development relative to these hazards; and protection of essential or critical structures, such as schools, public meeting facilities, emergency services, high-rise and high-density structures, by developing standards appropriate for such protection.
	SG-2	Protection of development on unstable slopes by developing standards for the location of development relative to these hazards.
	SG-3	Protection of development from other geologic hazards, such as volcanoes, erosion, and expansive soils.
	SG-4	Protection of waterways from adverse water quality impacts caused by development on highly erodible soils.
Policies:	SG-d	Shasta County shall develop and maintain standards for erosion and sediment control plans for new land use development. Special attention shall be given to erosion prone hillside areas, including those with extremely erodible soils types such as those evolved from decomposed granite.
	SG-e	When soil tests reveal the presence of expansive soils, engineering design measures designed to eliminate or mitigate their impacts shall be employed.

DISCUSSION OF IMPACTS

Question A

i and ii)

According to the Alquist-Priolo Earthquake Fault Zoning Maps, the closest Special Study Zone is the McArthur Fault Zone, approximately 5.3 miles east of the bridge site. According to the California Geological Survey, the closest mapped potentially active fault is an unnamed fault approximately three miles west of the bridge site. These faults could produce moderate to strong ground shaking in the area that could cause significant structural damage.

The Project does not include any components that would increase the likelihood of a seismic event. Further, as stated in the Geotechnical Study (CGI, 2018), the project is required to be designed in accordance with Caltrans Seismic Design Criteria to ensure that potential seismically induced hazards do not affect the proposed replacement bridge. Because the construction plans would be prepared by a registered professional engineer in conformance with Caltrans Seismic Design Criteria, impacts would be less than significant.

iii)

Liquefaction results from an applied stress on the soil, such as earthquake shaking or other sudden change in stress condition, and is primarily associated with saturated, cohesionless soil layers located close to the ground surface. During liquefaction, soils lose strength and ground failure may occur. This is most likely to occur in alluvial (geologically recent, unconsolidated sediments) and stream channel deposits, especially when the groundwater table is high. According to the CGI Geotechnical Study, the Project site is underlain by soils with high fine

content overlaying dense to very dense sand, and these soils and sands are not susceptible to liquefaction; therefore, there would be no impact.

iv)

With the exception of the river banks, the bridge site is relatively flat. According to the CGI Geotechnical Study, no signs of recent or incipient landsliding or slope instabilities were observed in the Project site. Therefore, the potential for landslides is less than significant.

Question B

Construction of the proposed Project would involve grading, excavation, and installation of Project components, which would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events. This could generate accelerated runoff, localized erosion, and sedimentation. In addition, construction activities could expose soil to wind erosion that could adversely affect on-site soils and the revegetation potential of the area.

Potential impacts will be minimized/avoided by implementing BMPs for erosion control in accordance with the County's Erosion and Sediment Control Standards and conditions. Measures that may be implemented to minimize erosion include, but are not limited to, limiting construction to the dry season; use of straw wattles, silt fences, and/or gravel berms to prevent sediment from discharging off-site; and revegetating temporarily disturbed sites upon completion of construction. Because BMPs for erosion and sediment control would be implemented in accordance with existing requirements, the potential for soil erosion and loss of top soil would be less than significant.

Questions C and D

See discussion under Question A(iii) and (iv). Field investigations completed in conjunction with the Geotechnical Study did not identify signs of slope instability. However, if site preparation is performed in the winter, spring, or early summer, or shortly after significant rain events or high flows within the river channel, near-surface soils may be significantly over optimum moisture content and could hinder equipment access due to unstable soil conditions; however, over-optimum soil moisture content conditions can be adequately addressed with disking to aerate, replacement with imported material, chemical treatment, stabilization with a geotextile fabric or grid, and/or other methods to facilitate earthwork operations.

Some soils have a potential to swell when they absorb water and shrink when they dry out. These expansive soils generally contain clays that expand when moisture is absorbed into the crystal structure. As stated in the Geotechnical Report, testing conducted on a soil sample at the bridge site revealed that the soils have a moderate potential for expansion; however, expansive soils pose a low risk to the proposed Project. The Report concludes that the site is considered adequately stable with incorporation of recommendations included in the Geotechnical Report. The Report recommends that CGI observe excavations for bridge abutments and piers prior to placement of reinforcing steel or concrete, and observe and test roadway subgrades and aggregate base materials before paving to confirm that geotechnical conditions are as anticipated, and to make recommendations to ensure compliance if conditions differ.

As recommended in the Geotechnical Report, **MM 4.7.1** requires that final bridge construction plans be reviewed by a qualified professional as recommended in the Geotechnical Report to ensure that recommendations included in the final report are implemented. **MM 4.7.2** requires that site earthwork activities be monitored by a qualified professional as recommended in the Geotechnical Report to ensure that recommendations included in the Geotechnical Report are implemented. Implementation of **MM 4.7.1** and **MM 4.7.2** will ensure that impacts would be less than significant.

Question E

The proposed Project does not include the installation or use of alternative wastewater disposal systems. Therefore, there would be no impact.

Question F

Paleontological resources include fossils and the deposits that contain fossils. Fossils are evidence of ancient life preserved in sediments and rock, such as the remains of animals, animal tracks, plants, and other organisms.

According to the California Geological Survey, rock formations on the bridge site are relatively young and date to the Pleistocene-Holocene. According to the NRCS Soil Survey, the parent material of the soil is stratified alluvium from volcanic ash. Younger alluvial deposits generally have a low potential to harbor paleontological resources because they consist of sediments that are too young to produce fossils. Further, the Project area has no unique geological features. Although no unique geologic features or paleontological sites are known to exist in the study area, **MM 4.7.3** addresses the inadvertent discovery of paleontological resources and ensures that impacts are less than significant.

CUMULATIVE IMPACTS

Completion of the proposed Project and other potential cumulative projects in the region, including growth resulting from build-out of the County General Plan, could result in increased erosion and soil hazards and could expose additional structures and people to seismic hazards. In addition, cumulative projects have the potential to destroy paleontological resources and unique geologic features.

All development projects in the County must implement BMPs for erosion control in accordance with the County's Erosion and Sediment Control Standards and conditions of applicable regulatory agency permits to ensure that potential impacts associated with soil erosion are minimized/avoided. In addition, pursuant to existing State regulations, incorporation of standard seismic safety and engineering design measures are required for all public infrastructure projects. Further, all discretionary projects are analyzed to determine potential effects on paleontological resources and unique geologic features. Implementation of **MM 4.7.1, MM 4.7.2, and 4.7.3**, compliance with State regulations related to seismic design, and implementation of BMPs for erosion and sediment control, ensures that the proposed Project's cumulative impacts on geology and soils would be less than significant.

MITIGATION

MM 4.7.1 All grading plans, foundation plans, and structural calculations shall be reviewed by a qualified professional to ensure that all recommendations included in the final CGI Geotechnical Report are implemented. Applicable notes shall be placed on the attachment sheet to the improvements plans and in applicable project plans and specifications. If significant engineering design changes occur during construction, the County shall consult with a qualified geotechnical engineer to identify any geotechnical constraints related to the design changes. Recommendations of the geotechnical engineer shall be implemented as warranted.

MM 4.7.2 The County shall ensure through contractual obligations that earthwork activities are monitored by a qualified professional to ensure that recommendations included in the CGI Geotechnical Report are implemented.

MM 4.7.3 If paleontological resources (fossils) are discovered during construction, all work within a 60-foot radius of the find shall be halted until a professional paleontologist can evaluate the significance of the find. If any find is determined to be significant by the paleontologist, the County shall meet with the paleontologist to determine the appropriate course of action. If necessary, a Treatment Plan prepared by a paleontologist outlining recovery of the resource, analysis, and reporting of the find shall be prepared. The Treatment Plan shall be reviewed and approved by the County prior to resuming construction.

DOCUMENTATION

CGI Technical Services, Inc. 2018. *Geotechnical Study, Fall River Bridge on Spring Creek Road, Shasta County, California.*

Shasta County. 2004. Shasta County General Plan, Chapter 5.1 (Seismic and Geologic Hazards). http://www.co.shasta.ca.us/docs/Resource_Management/docs/51seismic.pdf?sfvrsn=0. Accessed July 2019.

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University of California, Berkeley, Museum of Paleontology. 2020. Fossil Index. https://ucmpdb.berkeley.edu/. Accessed December 2020.

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4.8 GREENHOUSE GAS EMISSIONS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

REGULATORY CONTEXT

FEDERAL

U.S. Environmental Protection Agency

On April 2, 2007, in *Massachusetts v. EPA,* 549 U.S. 497 (2007), the Supreme Court found that greenhouse gas emissions (GHGs) are air pollutants covered by the federal Clean Air Act (CAA). In reaching its decision, the Court also acknowledged that climate change is caused, in part, by human

activities. The Supreme Court's ruling paved the way for the regulation of GHG emissions by the USEPA under the CAA. The USEPA has enacted regulations that address GHG emissions, including, but not limited to, mandatory GHG reporting requirements, carbon pollution standards for power plants, and air pollution standards for oil and natural gas.

STATE

California Executive Order (EO) S-3-05

EO S-03-05 was signed by the Governor on June 1, 2005, and established the goal of reducing statewide GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Assembly Bill 32 (Global Warming Solutions Act of 2006)

As required by AB 32 (2006), CARB adopted the initial Climate Change Scoping Plan in 2008 that identified the State's strategy to achieve the 2020 GHG emissions limit via regulations, market-based mechanisms, and other actions. AB 32 requires that the Scoping Plan be updated every five years. CARB's first update to the Climate Change Scoping Plan (2014) addressed post-2020 goals and identified the need for a 2030 mid-term target to establish a continuum of actions to maintain and continue reductions. Executive Order B-30-15 (2015) extended the goal of AB 32 and set a GHG reduction goal of 40 percent below 1990 levels by 2030. In December 2017, CARB adopted the second update to the Scoping Plan that includes strategies to achieve the 2030 mid-term target and substantially advance toward the 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels.

The 2017 Scoping Plan Update recommends that local governments aim to achieve a community-wide goal of no more than 6 MT CO_2e per capita by 2030 and no more than 2 MT CO_2e per capita by 2050, which is consistent with the State's long-term goals.

Senate Bill 32/Assembly Bill 197

These two bills were signed into legislation on September 8, 2016. As set forth in EO B-30-15, SB 32 requires CARB to reduce GHG emissions to 40 percent below the 1990 levels by 2030. AB 197 requires that GHG emissions reductions be achieved in a manner that benefits the state's most disadvantaged communities. AB 197 requires CARB to prioritize direct GHG emission reductions in a manner that benefits the state's most disadvantaged communities and to consider social costs when adopting regulations to reduce GHG emissions.

Renewables Portfolio Standard

In 2002, SB 1078 was passed to establish the State's Renewables Portfolio Standard (RPS) Program, with the goal of increasing the amount of electricity generated and sold to retail customers from eligible renewable energy resources. SB 350 (2015) codified a target of 50 percent renewable energy by 2030, and requires California utilities to develop integrated resource plans that incorporate a GHG emission reduction planning component beginning January 1, 2019. SB100 (2018) codified targets of 60 percent renewable energy by 2030 and 100 percent renewable energy by 2045.

California Executive Order B-55-18

EO B-55-18 was issued by the Governor on September 10, 2018. It sets a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets.

Senate Bill 375 (Sustainable Communities and Climate Protection Act of 2008)

Under SB 375, the CARB sets regional targets for the reduction of GHG emissions from passenger vehicles and light duty trucks. Each Metropolitan Planning Organization (MPO) in the State, or Regional Transportation Planning Agency for regions without a MPO, must include a Sustainable Communities

Strategy in the applicable Regional Transportation Plan that demonstrates how the region will meet the GHG emissions reduction targets.

Mobile Source Strategy

CARB's Mobile Source Strategy, adopted in 2016, describes the State's strategy for containing air pollutant emissions from vehicles, and quantifies growth in vehicle miles traveled that is compatible with achieving state climate targets. The Strategy demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risks from transportation emissions, and reduce petroleum consumption over the next fifteen years.

Senate Bill 210 (2019), Heavy-Duty Vehicle Inspection and Maintenance Program

Under SB 210, heavy-duty diesel trucks will have to pass a smog check to ensure vehicle emission controls are maintained in order to register or operate in California. Upon implementation of the Program, CARB must provide mechanisms for out-of-state owners of heavy-duty vehicles to establish and verify compliance with State regulations for heavy-duty diesel trucks prior to entering the State.

Senate Bill 44 (2019), Medium- and Heavy-Duty Vehicles: Comprehensive Strategy

SB 44 requires CARB to update the State's Mobile Source Strategy no later than January 1, 2021, to include a comprehensive strategy to reduce emissions from medium- and heavy-duty vehicles in order to meet federal ambient air quality standards and reduce GHG emissions from this sector. The Bill also requires CARB to establish emission reduction goals for 2030 and 2050 for medium- and heavy-duty vehicles.

CEQA Guidelines

§15064.4 of the California Environmental Quality Act (CEQA) Guidelines states that the lead agency should focus its GHG emissions analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A lead agency has the discretion to determine whether to use a model or methodology to quantify GHG emissions or to rely on a qualitative or performance-based standard.

The GHG analysis should consider: 1) the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting, 2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project, and 3) the extent to which the project complies with any regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an Environmental Impact Report (EIR) must be prepared for the project. To determine transportation-generated greenhouse gas emissions in particular, lead agencies may determine that it is appropriate to use the same method used to determine the transportation impacts associated with a project's VMT.

In *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) 62 Cal.4th 204, which involved the Newhall Ranch project, the California Supreme Court concluded that a legally appropriate approach to assessing the significance of GHG emissions was to determine whether a project was consistent with "*'performance based standards' adopted to fulfill 'a statewide . . . plan for the reduction or mitigation of greenhouse gas emissions' (CEQA Guidelines §15064.4(a)(2), (b)(3)… §15064(h)(3) [determination that impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including 'plans or regulations for the reduction of greenhouse gas emissions'].)"* (62 Cal.4th at p. 229.)

Greenhouse Gases Defined

Table 4.8-1 provides descriptions of the GHGs identified in California Health and Safety Code §38505(g) (HSC).

TABLE 4.8-1
Greenhouse Gases

Greenhouse Gas	Description
Carbon dioxide (CO_2)	CO_2 is the primary greenhouse gas emitted through human activities. In 2019, CO_2 accounted for about 80 percent of all U.S. greenhouse gas emissions from human activities. The main human activity that emits CO_2 is the combustion of fossil fuels (coal, natural gas, and oil) for energy and transportation, although certain industrial processes and land-use changes also emit CO_2.
Methane (CH_4)	CH_4 is the second most prevalent greenhouse gas emitted in the United States from human activities. Methane is emitted by natural sources such as wetlands, as well as human activities such as the raising of livestock; the production, refinement, transportation, and storage of natural gas; methane in landfills as waste decomposes; and in the treatment of wastewater.
Nitrous oxide (N_2O)	In 2019, N_2O accounted for about 7 percent of all U.S. greenhouse gas emissions from human activities. Nitrous oxide is naturally present in the atmosphere as part of the Earth's nitrogen cycle. Human activities such as agricultural soil management (adding nitrogen to soil through use of synthetic fertilizers), fossil fuel combustion, wastewater management, and industrial processes are also increasing the amount of N_2O in the atmosphere.
Hydrofluorocarbons (HFCs)	HFCs are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products such as refrigerants, aerosol propellants, solvents, and fire retardants. They are released into the atmosphere through leaks, servicing, and disposal of equipment in which they are used.
Perfluorocarbons (PFCs)	PFCs are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F_4). Perfluorocarbons are produced as a byproduct of various industrial processes associated with aluminum production and the manufacturing of semiconductors.
Sulfur hexafluoride (SF_6)	SF_6 is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF_6 is primarily used in magnesium processing and as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF_6 produced worldwide.
Nitrogen trifluoride (NF_3)	NF_3 is a colorless, odorless, nonflammable gas that is highly toxic by inhalation. It is one of several gases used in the manufacture of liquid crystal flat-panel displays, thin-film photovoltaic cells and microcircuits.

Source: *U.S. Environmental Protection Agency, 2021.*

LOCAL

Shasta County

Shasta County developed a draft Shasta Regional Climate Action Plan in August 2012 (RCAP) that includes GHG inventories and projections for each jurisdiction in Shasta County for 2008, 2020, 2035, and 2050. The plan shows that the County would achieve a reduction in GHG emissions in the year 2020 below 2008 business as usual (BAU) emissions with implementation of State and federal reduction measures, and new technologies and State/federal policies would assist the County to achieve the 2035 goal. The County has not adopted thresholds of significance for greenhouse gases. According to SCAQMD staff, the District's GHG policy is to quantify, minimize, and mitigate greenhouse gas emissions, as feasible.

DISCUSSION OF IMPACTS

Question A

Gases that trap heat in the atmosphere create a greenhouse effect that results in global warming and climate change. These gases are referred to as greenhouse gases (GHGs). As described in **Table 4.8-1**, some GHGs occur both naturally and as a result of human activities, and some GHGs are exclusively the result of human activities. The atmospheric lifetime of each GHG indicates how long the gas stays in the atmosphere before natural processes (e.g., chemical reactions) remove it. A gas with a long lifetime can exert more warming influence than a gas with a short lifetime. In addition, different GHGs have different effects on the atmosphere. For this reason, each GHG is assigned a global warming potential (GWP) which is a measure of the heat-trapping potential of each gas over a specified period of time.

Gases with a higher GWP absorb more heat than gases with a lower GWP, and thus have a greater effect on global warming and climate change. The GWP metric is used to convert all GHGs into CO_2 equivalent (CO_2e) units, which allows policy makers to compare impacts of GHG emissions on an equal basis. The GWPs and atmospheric lifetimes for each GHG are shown in **Table 4.8-2**.

TABLE 4.8-2
Greenhouse Gases: Global Warming Potential and Atmospheric Lifetime

GHG	GWP (100-year time horizon)	Atmospheric Lifetime (years)
CO_2	1	50 -200
CH_4	25	12
N_2O	298	114
HFCs	Up to 14,800	Up to 270
PFCs:	7,390-12,200	2,600 – 50,000
SF_6	22,800	3,200
NF_3	17,200	740

Source: *U.S. Environmental Protection Agency, 2020.*

Thresholds of Significance

As stated under Regulatory Context, §15064.4 of the CEQA Guidelines gives lead agencies the discretion to determine whether to use a model or other method to quantify GHG emissions and/or to rely on a qualitative or performance-based standard.

For a quantitative analysis, a lead agency could determine a less-than-significant impact if a project did not exceed an established numerical threshold. For a qualitative/performance-based threshold, a lead agency could determine a less-than-significant impact if a project complies with State, regional, and/or local programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

If a qualitative approach is used, lead agencies should still quantify a project's construction and operational GHG emissions to determine the amount, types, and sources of GHG emissions resulting from the project. Quantification may be useful in indicating to the lead agency and the public whether emissions reductions are possible, and if so, from which sources. For example, if quantification reveals that a substantial portion of a project's emissions result from mobile sources (automobiles), a lead agency may consider whether design changes could reduce the project's vehicle miles traveled (OPR, 2018).

Shasta County has not adopted numerical thresholds of significance or performance-based standards for GHG emissions. Numerical thresholds that have been referenced for other projects in the region range

from 900 MT/year CO_2e (Tehama County) to 1,100 MT/year CO_2e for both construction and operational emissions and 10,000 MT/year CO_2e for stationary sources (various communities in the Sacramento Valley and Northeast Plateau air basins). The proposed project does not include any components that would result in a permanent increase in GHG emissions above existing levels, either directly or indirectly; therefore, only GHGs associated with construction activities were considered. For this project, a conservative threshold of 900 MT/year CO_2e for construction emissions was determined to be appropriate.

Project GHG Emissions

GHG emissions for the proposed project were estimated using CalEEMod version 2020.4.0. CalEEMod is a statewide model designed to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. As noted above, the project does not include any components that would result in an increase in operational emissions over existing levels, and only construction-related GHG emissions were considered. Site-specific inputs and assumptions for the proposed project include, but are not limited to, the following. Output files, as well as site-specific inputs and assumptions, are provided in **Appendix A**.

- Emissions from construction are based on all construction-related activities, including but not limited to grading, site preparation, use of construction equipment, material hauling, trenching, and paving.
- Construction would start in 2022 and occur over a period of approximately six months.
- Total land disturbance would be 0.8 acres; 840 cubic yards (CY) of dirt would be imported.
- The total area to be paved following bridge replacement would be 0.2 acres.
- The total weight of demolition debris to be removed from the project site would be approximately 85 tons.
- The project would implement SCAQMD rules, regulations, and standard mitigation measures.

Construction of the proposed project would emit GHG emissions as shown in **Table 4.8-3**, primarily from the combustion of diesel fuel in heavy equipment.

TABLE 4.8-3
Construction-Related Greenhouse Gas Emissions

Maximum Emissions (Total Metric Tons)			
Carbon Dioxide (CO_2)	**Methane (CH_4)**	**Nitrous Oxide (N_2O)**	**Carbon Dioxide Equivalent (CO_2e)**
77.09	0.02	0.002	78.03

As indicated in Table 4.8-3, CO_2e associated with construction of the proposed project would not exceed the referenced numerical threshold of 900 MT/year of CO_2e. Further, the project replaces an existing bridge in a rural area and there would be no increase in VMT. Therefore, potential impacts associated with GHG emissions would be less than significant.

Question B

See discussion under Regulatory Context and Question A above. There are no adopted local plans associated with GHG emissions. The County would ensure compliance with applicable State regulations adopted for the purpose of reducing GHG emissions through contractual obligations. Therefore, the project would not conflict with a plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

CUMULATIVE IMPACTS

GHG emissions and global climate change are, by nature, cumulative impacts. Unlike criteria pollutants, which are pollutants of regional and local concern, GHGs are global pollutants and are not limited to the area in which they are generated. As discussed under Regulatory Context above, the State legislature has adopted numerous programs and regulations to reduce statewide GHG emissions. As documented above, construction-related GHG emissions would not exceed the referenced numerical threshold of 900 MT/year CO_2e, and there would be no permanent increase in VMT, energy use, or GHG emissions as a result of the project. Therefore, the proposed project's contribution to cumulative GHG emissions would be less than significant.

MITIGATION

None necessary.

DOCUMENTATION

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4.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 § 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 area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

REGULATORY CONTEXT

FEDERAL

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) is the primary federal law for the regulation of solid waste and hazardous waste in the United States and provides for the “cradle-to-grave” regulation that requires businesses, institutions, and other entities that generate hazardous waste to track such waste from the point of generation until it is recycled, reused, or properly disposed of. The U.S. Environmental Protection Agency (USEPA) has primary responsibility for implementing the RCRA.

USEPA’s Risk Management Plan

Section 112(r) of the federal CAA (referred to as the USEPA’s Risk Management Plan) specifically covers “extremely hazardous materials” which include acutely toxic, extremely flammable, and highly explosive substances. Facilities involved in the use or storage of extremely hazardous materials must implement a Risk Management Plan (RMP), which requires a detailed analysis of potential accident factors and implementation of applicable mitigation measures.

Federal Occupational Safety and Health Administration (OSHA)

The Occupational Safety and Health Act (OSHA) prepares and enforces occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure.

U.S. Department of Transportation

The United States Department of Transportation regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications.

Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

STATE

California Code of Regulations (CCR), Title 22, Definition of Hazardous Material

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22, §66260.10, of the CCR as: *"A substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed."*

Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the RCRA and the State Hazardous Waste Control Law. Both laws impose "cradle-to-grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

California Occupational Safety and Health Administration (Cal/OSHA)

The California Occupational Safety and Health Administration (Cal/OSHA) has primary responsibility for developing and enforcing state workplace safety regulations, including requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation.

Regional Water Quality Control Board

The SWRCB and RWQCBs regulate hazardous substances, materials, and wastes through a variety of state statutes, including the Porter-Cologne Water Quality Control Act and underground storage tank cleanup laws. The Regional Boards regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. Any person proposing to discharge waste within the State must file a report of waste discharge with the appropriate regional board. The proposed project is located within the jurisdiction of the CVRWQCB.

Hazardous Materials Emergency Response/Contingency Plan

Chapter 6.95, §25503, of the California Health and Safety Code requires businesses that handle/store a hazardous material or a mixture containing a hazardous material to establish and implement a Business Plan for Emergency Response (Business Plan). A Business Plan is required when the amount of hazardous materials exceeds 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases. A Business Plan is also required if federal thresholds for extremely hazardous substances are exceeded. The Business Plan includes procedures to deal with emergencies following a fire, explosion, or release of hazardous materials that could threaten human health and/or the environment.

California Accidental Release Prevention Program (CalARP)

The goal of the California Accidental Release Prevention Program (CalARP) is to prevent accidental releases of substances that pose the greatest risk of immediate harm to the public and the environment. Facilities are required to prepare a Risk Management Plan in compliance with CCR Title 19, Division 2, Chapter 4.5, if they handle, manufacture, use, or store a federally regulated substance in amounts above established federal thresholds; or if they handle a state regulated substance in amounts greater than state thresholds and have been determined to have a high potential for accident risk.

LOCAL

Shasta County

The Shasta County General Plan includes the following Objectives that apply to the proposed Project:

Chapter 5.6, Hazardous Materials; Chapter 5.4, Fire Safety and Sheriff Protection		
Objectives:	HM-1	Protection of life and property from contact with hazardous materials through site design and land use regulations and storage and transportation standards.
	HM-2	Protection of life and property in the event of the accidental release of hazardous materials through emergency preparedness planning.
	FS-1	Protect development from wildland and non-wildland fires by requiring new development projects to incorporate effective site and building design measures commensurate with level of potential risk presented by such a hazard and by discouraging and/or preventing development from locating in high risk fire hazard areas.

DISCUSSION OF IMPACTS

Questions A and B

The Project would not result in long-term impacts related to the transport of hazardous materials. During construction, it is anticipated that limited quantities of hazardous substances, such as gasoline, diesel fuel, hydraulic fluid, solvents, oils, etc., would temporarily be brought into areas where improvements are proposed. There is a possibility of accidental release of hazardous substances into the environment, such as spilling petroleum-based fuels used for construction equipment. However, construction contractors are required to comply with applicable federal and state environmental and workplace safety laws. Additionally, construction contractors are required to implement BMPs for the storage, use, and transportation of hazardous materials.

In addition to the potential presence of asbestos and lead discussed in Section 4.3 (Air Quality) above, the wooden piles and beams on the existing bridge may have been treated with preserving chemicals in order to protect them against insect attack and fungal decay. The preserving chemicals may include, but are not limited to, arsenic, chromium, copper, creosote, and pentachlorophenol. These chemicals are known to be toxic or carcinogenic and require specific handling prescribed by State and federal regulations.

When the treated wood has reached the end of its usefulness, it is regarded as treated wood waste (TWW). If TWW is not properly disposed of, the chemicals it contains can contaminate surface water and groundwater. This poses a risk to human health and the environment.

The handling, storing, transporting, and disposing of TWW is subject to Caltrans requirements and provisions included in California Health and Safety Code 25230 *et seq.*

The County will include provisions in the construction contract to ensure the proper removal and disposal of TWW in accordance with these requirements. **MM 4.9.1** reduces environmental impacts that could result from TWW removal to a less than significant level. Implementation of **MM 4.9.1** and compliance with existing federal and State regulations, ensures that impacts associated with the transport and disposal of hazardous materials would be less than significant.

Question C

According to the Shasta County Office of Education, the closest school to the bridge site is Fall River Community Day school on A Street in McArthur, approximately 6.8 miles southeast of the bridge site.

The closest school to the Corporation Yard is Fall River Elementary School on Curve Street in Fall River Mills, approximately 0.52 miles east of the Corporation Yard. As described under Questions A and B above, construction activities would involve use of relatively small quantities of materials such as diesel, gasoline, oils, and other engine fluids. However, existing State standards govern the transport, use, and disposal of hazardous materials. Because work would be conducted in accordance with these existing requirements, and the closest schools are over one-half mile from the Project sites, there would be no impact.

Question D

The Cortese list is prepared in accordance with California Government Code §65962.5. The following databases were reviewed to locate "Cortese List" sites.

- List of Hazardous Waste and Substances sites from the Department of Toxic Substances Control (DTSC) EnviroStor database.
- SWRCB GeoTracker Database
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit.

A search of the above records revealed that there are no active clean-up sites within a 5-mile radius of the bridge site. Therefore, there would be no impact.

Question E

According to the Shasta County General Plan, the Project area is not within an airport land use plan area. According to the Federal Aviation Administration (FAA), the nearest public airport is Fall River Mills Airport, approximately 7.1 miles southeast of the bridge site. Therefore, the proposed Project would not result in a safety hazard associated with an airport for people residing or working in the Project area. There would be no impact.

Question F

The proposed Project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. As stated under Section 3.2, the bridge provides access to residential and agricultural properties on Spring Creek Road, and is also used to access Bureau of Land Management and Forest Service land north of the bridge. The bridge would be impassable for the duration of construction, and vehicles would be detoured around the bridge site, which could interfere with emergency response times. In addition, a temporary increase in traffic could occur during construction and could interfere with emergency response times.

However, construction-related traffic would be minor due to the overall scale of the construction activities, and construction-related traffic would be spread over the duration of the construction schedule and would be minimal on a daily basis. Further, impacts are temporary and would cease at completion of the Project. Therefore, impacts would be less than significant.

Question G

The proposed Project does not include any development or improvements that would increase the long-term risk of wildland fires or expose people or structures to wildland fires. However, equipment used during construction activities may create sparks that could ignite dry grass. Also, the use of power tools and/or acetylene torches may increase the risk of wildland fire hazard. In accordance with Cal/OSHA regulations (Division 1, Chapter 4, Subchapter 4, Article 36 (Fire Protection and Prevention), a fire protection program must be followed throughout all phases of construction. Implementation of the fire protection program ensures that impacts would be less than significant.

CUMULATIVE IMPACTS

Hazard-related impacts from the proposed Project are site specific and have the potential to affect only a limited area on a temporary basis during completion of the improvements. Use and storage of hazardous materials during completion of the improvements would take place in a limited area surrounding the Project site and in designated staging areas. Completion of the proposed improvements requires implementation of mitigation measures to reduce the potential for adverse impacts associated with hazards and hazardous materials. These measures ensure that impacts are less than significant and that activities do not result in impacts that would be cumulatively considerable.

MITIGATION

Implementation of **MM 4.3.2, MM 4.3.3**, and **MM 4.3.4**.

MM 4.9.1 Treated wood waste (TWW) shall be handled, stored, transported, and disposed of in accordance with California Department of Toxic Substances Control and Caltrans requirements. All personnel that may come into contact with TWW will receive, at a minimum, training on Cal OSHA requirements, procedures for identifying and segregating TWW; safe handling practices; and proper disposal methods.

DOCUMENTATION

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U.S. Environmental Protection Agency. 2019. Overview of Wood Preservative Chemicals. https://www.epa.gov/ingredients-used-pesticide-products/overview-wood-preservative-chemicals-0. Accessed July 2019.

4.10 HYDROLOGY AND WATER QUALITY

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
(i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
(iv) impede or redirect flood flows?	☐	☐	☒	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

REGULATORY CONTEXT

FEDERAL

Clean Water Act (CWA)

The CWA (33 USC §1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality and was established to *"restore and maintain the chemical, physical, and biological integrity of the Nation's waters."* Pertinent sections of the Act are as follows:

1. Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
2. Section 401 (Water Quality Certification) requires an applicant for any federal permit that would authorize a discharge to waters of the U.S to obtain certification from the state that the discharge will comply with other provisions of the Act.
3. Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the U.S. This permit program is administered by the SWRCB and is discussed in detail below.
4. Section 404, jointly administered by the USACE and USEPA, establishes a permit program for the discharge of dredged or fill material into waters of the U.S.

Federal Anti-Degradation Policy

The federal Anti-Degradation Policy is part of the CWA (Section 303(d)) and is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that protects designated uses of water bodies (e.g., fish and wildlife, recreation, water supply, etc.). The water quality necessary to support the designated use(s) must be maintained and protected.

Safe Drinking Water Act (SDWA)

Under the 1974 Safe Drinking Water Act, most recently amended in 1996, USEPA regulates contaminants of concern to domestic water supply, which are those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are classified as either primary or secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially.

Federal Emergency Management Agency (FEMA)

FEMA is responsible for mapping flood-prone areas under the National Flood Insurance Program (NFIP). Communities that participate in the NFIP are required to adopt and enforce a floodplain management ordinance to reduce future flood risks related to new construction in a flood hazard area. In return, property owners have access to affordable federally-funded flood insurance policies.

National Pollutant Discharge Elimination System (NPDES)

Under Section 402(p) of the CWA, the USEPA established the NPDES to enforce discharge standards for both point-source and non-point-source pollution. Dischargers can apply for individual discharge permits, or apply for coverage under the General Permits that cover certain qualified dischargers. Point-source discharges include municipal and industrial wastewater, stormwater runoff, combined sewer overflows, sanitary sewer overflows, and municipal separate storm sewer systems. NPDES permits impose limits on discharges based on minimum performance standards or the quality of the receiving water, whichever type is more stringent in a given situation.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code §13000 *et seq.*) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of waters of the State. The Porter-Cologne Act applies to surface waters, wetlands, and groundwater, and to both point and non-point sources of pollution. The Act requires a Report of Waste Discharge for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. The RWQCBs enforce waste discharge requirements identified in the Report.

State Anti-Degradation Policy

In 1968, as required under the Federal Anti-Degradation Policy, the SWRCB adopted an Anti-Degradation Policy, formally known as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (State Water Board Resolution No. 68-16). Under the Anti-Degradation Policy, any actions that can adversely affect water quality in surface or ground waters must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial use of the water, and not result in water quality less than that prescribed in water quality plans and policies.

National Pollution Discharge Elimination System

Pursuant to the federal CWA, the responsibility for issuing NPDES permits and enforcing the NPDES program was delegated to the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB). NPDES permits are also referred to as waste discharge requirements (WDRs) that regulate discharges to waters of the United States. Below is a description of relevant NPDES general permits.

Construction Activity

Discharges from construction sites that disturb one acre or more of total land area are subject to the NPDES permit for *Discharges of Storm Water Runoff associated with Construction Activity* (currently Order No. 2009-009-DWQ), also known as the Construction General Permit. The permitting process requires the development and implementation of an effective Storm Water Pollution Prevention Plan (SWPPP). Coverage under the Construction General Permit is obtained by submitting a Notice of Intent (NOI) to the SWRCB and preparing the SWPPP prior to the beginning of construction. The SWPPP must include BMPs to reduce pollutants and any more stringent controls necessary to meet water quality standards. Dischargers must also comply with water quality objectives (WQO) as defined in the applicable Basin Plan. If Basin Plan objectives are exceeded, corrective measures are required.

Dewatering Activities (Discharges to Surface Waters and Storm Drains)

Construction dewatering activities that involve the direct discharge of relatively pollutant-free wastewater that poses little or no threat to the water quality of waters of the U.S., are subject to the provisions of CVRWQCB Order R5-2016-0076-01 (NPDES No. CAG995002), *Waste Discharge Requirements, Limited Threat Discharges to Surface Water*, as amended. WDRs for this order include discharge prohibitions, receiving water limitations, monitoring, and reporting, etc. Coverage is obtained by submitting a NOI to the applicable RWQCB.

Dewatering Activities (Discharges to Land)

Construction dewatering activities that are contained on land and do not enter waters of the U.S. are authorized under SWRCB Water Quality Order No. 2003-003-DWQ, provided that the dewatering discharge is of a quality as good as or better than the underlying groundwater, and there is a low risk of nuisance.

Water Quality Control Plans (Basin Plans)

Each of the State's RWQCBs is responsible for developing and adopting a basin plan for all areas within its region. The Plans identify beneficial uses to be protected for both surface water and groundwater. Water quality objectives for all waters addressed through the plans are included, along with implementation programs and policies to achieve those objectives. Waste discharge requirements (WDRs) were adopted in order to attain the beneficial uses listed for the Basin Plan areas.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA), enacted in September 2014, established a framework for groundwater resources to be managed by local agencies in areas designated by the Department of Water Resources as "medium" or "high" priority basins. Basins were prioritized based, in part, on groundwater elevation monitoring conducted under the California Statewide Groundwater Elevation Monitoring (CASGEM) program.

The SGMA requires local agencies in medium- and high-priority basins to form Groundwater Sustainability Agencies (GSAs) and be managed in accordance with locally-developed Groundwater Sustainability Plans (GSPs). Medium- and high-priority basins must be managed under a GSP by January 31, 2022. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans.

LOCAL

Shasta County

The Shasta County General Plan includes the following Objective and Policies that apply to the proposed Project:

Chapter 5.2, Flood Protection; Chapter 6.6, Water Resources and Water Quality		
Objective:	FL-1	Protection of public health and safety, both on-site and downstream, from flooding through floodplain management which regulates the types of land uses which may locate in the floodplain, prescribes construction designs for floodplain development, and requires mitigation measures for development which would impact the floodplain by increasing runoff quantities.
Policies:	FL-c	Whenever possible, flood control measures should consist of channel diversions or limited floodplain designs which avoid alteration of creeks and their immediate environs.
	FL-h	The impacts of new development on the floodplain or other downstream areas due to increased runoff from that development shall be mitigated. In the case of the urban or suburban areas, and in the

	urban and town centers, the County may require urban or suburban development to pay fees which would be used to make improvements on downstream drainage facilities in order to mitigate the impacts of upstream development.
W-a	Sedimentation and erosion from proposed developments shall be minimized through grading and hillside development ordinances and other similar safeguards as adopted and implemented by the County.

DISCUSSION OF IMPACTS

Questions A and E

As stated above, Section 303(d) of the CWA requires states to identify waters that do not meet, or are not expected to meet, water quality standards. Total Maximum Daily Loads (TMDLs) must be prepared for impaired waterbodies. A TMDL is a written plan that describes how an impaired water body will meet water quality standards. RWQCBs are responsible for preparing TMDLs.

A segment of the Fall River approximately 0.6 miles downstream of the bridge site is included on the 303(d) list as a Category 5 impaired water body due to sedimentation and siltation from historic logging, grazing, channelization, road, and railroad activities. Category 5 refers to a water body segment where at least one beneficial use is not supported and a TMDL is required but has not yet been completed. The beneficial use identified for this segment of the Fall River is cold freshwater habitat. Because the CVRWQCB has not yet adopted TMDLs for this segment of the Fall River, no specific actions related to the 303(d) listing are required.

The proposed Project has the potential to temporarily degrade water quality due to increased erosion during project construction; however, as discussed in Section 4.4 under Question B, the County will implement BMPs for erosion/sediment control and spill prevention in accordance with the County's Erosion and Sediment Control Standards and conditions of the regulatory agency permits identified in Section 1.6. Implementation of BMPs will avoid/minimize damage to streams, watercourses, and aquatic habitat.

In addition, as discussed under Regulatory Context above, the CVRWQCB regulates dewatering activities that result in direct discharges to storm drains and surface waters, as well as discharges to land. The County would be subject to the provisions of the appropriate dewatering permit. The dewatering permit would include specific requirements for the proposed Project (e.g., monitoring, reporting, BMPs, etc.).

In accordance with conditions of the CVRWQCB Section 401 permit, continuous visual surface water monitoring must be conducted during active construction periods to detect accidental discharge of construction-related pollutants (e.g., oil and grease, turbidity plume, uncured concrete, etc.). In addition, surface water sampling may be required when performing in-water work, and/or if construction activities result in materials reaching surface waters or if activities create a visible plume in surface waters. If the impact thresholds of the permit are exceeded, the County must immediately implement corrective actions to ensure compliance. Corrective actions may include implementation of additional soil stabilization and/or sediment control measures. Compliance with conditions of CVRWQCB permits would ensure impacts are less than significant.

Question B

The proposed Project would not involve direct groundwater withdrawal or injection and would not significantly increase the amount of impervious surface in a manner that would prevent the infiltration of water into the soil. Therefore, the Project would have no impact on groundwater supplies and recharge.

Question C

The proposed Project would not substantially alter the existing drainage pattern of the Project area, either through the alteration of the course of the creek or river, or through the addition of impervious surfaces.

The CGI Geotechnical Report includes recommendations for drainage measures to minimize impacts both during and post-construction. Drainage measures would be designed and installed at the base of all excavations and retaining structures. Finished grading would provide positive surface gradient away from all structures.

In addition, the Project would not increase the amount of surface runoff in a manner that would cause flooding or exceed the capacity of the stormwater drainage system due to a change in the existing drainage pattern. A Design Hydraulic Study prepared in June 2018 for the proposed Project by Norman S. Braithwaite, P.E., with Pacific Hydrologic Incorporated concluded that replacement of the existing bridge with the proposed bridge is not expected to significantly affect the energy slope or sediment transport in the river channel during floods up to the most probable 100-year flood. Therefore, impacts associated with a change in drainage patterns would be less than significant.

Question D

A seiche is a large wave generated in an enclosed body of water in response to ground shaking. The largest bodies of water close to the Project site are Big Lake and Horr Pond, about 4.0 miles east of the bridge site. Seismic activity could potentially create a large wave in these water bodies; however, it is not expected that such wave would be large enough to overtop the banks of these waterbodies and result in adverse effects in the Project area.

A tsunami is a wave generated in a large body of water (typically the ocean) by fault displacement or major ground movement. The Project area is located approximately 140 miles east of the Pacific Ocean and is not at risk for inundation by tsunami. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Shasta County (Panel 06089C0475G, effective March 17, 2011), the bridge site is located within a 100-year special flood hazard area. As stated under Question C above, the Design Hydraulic Study prepared for the proposed Project concluded that the proposed Project is not expected to significantly affect the energy slope or sediment transport in the river channel during floods up to the most probable 100-year flood. Therefore, the potential for release of pollutants due to project inundation is less than significant.

CUMULATIVE IMPACTS

All projects in Shasta County are required to comply with the State Water Board's General Construction permit and/or the County's regulations for erosion and sediment control (County Code Chapter 12.12-Grading, Excavating, and Filling). These regulations are intended to control erosion and sedimentation and prevent damage to streams, watercourses, and aquatic habitat, as well as to avoid the creation of unstable slopes or filled areas that could adversely influence stormwater runoff. Cumulatively considerable projects are also subject to conditions of regulatory agency permits and County regulations. Compliance with existing regulatory agency requirements ensures that the proposed Project's cumulative impacts to hydrology and water quality are less than significant.

MITIGATION

None necessary.

DOCUMENTATION

California Department of Water Resources. 2021. Sustainable Groundwater Management Act, Basin Prioritization Dashboard. https://gis.water.ca.gov/app/bp-dashboard/final/. Accessed February 2021.

California Department of Transportation. n.d. Field Guide to Construction Site Dewatering. http://www.dot.ca.gov/hq/construc/stormwater/field-guide-to-construction-site-dewatering.pdf. Accessed July 2019.

Central Valley Regional Water Quality Control Board. 2016. Water Quality Control Plan for the Sacramento and San Joaquin River Basins. https://www.epa.gov/sites/production/files/2015-03/documents/ca5-plan-sacramento-sanjoaquin.pdf. Accessed July 2019.

_____. 2016. Clean Water Act Section 305(b) and 303(d) 2014 Integrated Report for the Central Valley Region. https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/#intrpt2014_2016. July 2019.

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Federal Emergency Management Agency. National Flood Hazard Map (Panel 06089C0475G, effective March 17, 2011). https://msc.fema.gov/portal/search?AddressQuery=Fall%20River%20Mills%2C%20CA#. Accessed July 2019.

Pacific Hydrologic Incorporated. 2018. Design Hydraulic Study, Spring Creek Road over Fall River, Bridge 6C0209. June 20.

Shasta County. 2018. Shasta County Code of Ordinances, Chapter 12.12 (Grading, Excavating, and Filling). https://library.municode.com/ca/shasta_county/codes/code_of_ordinances?nodeId=CD_ORD_TIT12STSIPUPL_CH12.12GREXFI_12.12.010PU. Accessed July 2019.

4.11 LAND USE AND PLANNING

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☒	☐
b. Cause a significant environmental impact due to a conflict with any applicable land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

REGULATORY CONTEXT

FEDERAL

There are no federal regulations pertaining to land use and planning that apply to the proposed Project.

STATE

California Government Code

California Government Code (CGC) §65300 *et seq.* contains many of the State laws pertaining to the regulation of land uses by cities and counties. These regulations include requirements for general plans, specific plans, subdivisions, and zoning. State law requires that all cities and counties adopt General Plans that include seven mandatory elements: land use, circulation, conservation, housing, noise, open space, and safety. A General Plan is defined as a comprehensive long-term plan for the physical development of the county or city, and any land outside its boundaries that is determined to bear relation to its planning. A development project must be found to be consistent with the General Plan prior to project approval.

LOCAL

Shasta County

The Shasta County General Plan includes objectives and policies designed for the purpose of avoiding or minimizing impacts to the natural environment. The General Plan recognizes that major factors of the natural environment are landforms, water, climate, minerals, soils, vegetation, and wildlife. The Shasta County Code implements the County's General Plan. The purpose of the land use and planning provisions of the Code (Title 17, Zoning) is to provide for the orderly and efficient application of regulations and to implement and supplement related laws of the state of California, including but not limited to the California Environmental Quality Act (CEQA).

DISCUSSION OF IMPACTS

Question A

Land use impacts are considered significant if a proposed project would physically divide an existing community (a physical change that interrupts the cohesiveness of the neighborhood). As discussed in Section 4.9 under Question F, the bridge would be impassable for the duration of construction, and vehicles would be detoured around the bridge site, which would temporarily interrupt the cohesiveness of the neighborhood; however, the Project does not include any components that would create a permanent barrier. Because the Project would not result in permanent impacts, and impacts during construction would be temporary and cease at completion of the Project, impacts would be less than significant.

Question B

As discussed in each resource section of this Initial Study, the proposed Project is consistent with applicable objectives and policies of the Shasta County General Plan and regulations of the regulatory agencies identified in Section 1.6 of this Initial Study. Where necessary, mitigation measures are included to reduce impacts to less than significant levels. Therefore, with implementation of the Mitigation Measures identified in Section 1.9, the proposed Project would not conflict with any plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. No additional mitigation measures are necessary.

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the Project area, including population growth resulting from build-out of the County's General Plan, would be developed in accordance with local and regional planning documents. Thus, cumulative impacts associated with land use compatibility are expected be less than significant. In addition, with implementation of the recommended mitigation measures, the proposed Project is consistent with the General Plan land use designations, goals, and policies, and would not contribute to the potential for adverse cumulative land use effects.

MITIGATION

No additional mitigation necessary.

DOCUMENTATION

Shasta County. 2004. Shasta County General Plan. https://www.co.shasta.ca.us/index/drm_index/planning_index/plng_general_plan.aspx. Accessed July 2019.

_____. 2018. Shasta County Code of Ordinances. Title 17, Zoning. https://www.municode.com/library/ca/shasta_county/codes/code_of_ordinances?nodeId=CD_ORD_TIT17ZO. Accessed July 2019.

4.12 MINERAL RESOURCES

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

REGULATORY CONTEXT

FEDERAL

There are no federal or local regulations pertaining to mineral resources that apply to the proposed Project.

STATE

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act (SMARA), Chapter 9, Division 2 of the Public Resources Code (PRC), provides a comprehensive surface mining and reclamation policy to ensure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. Mineral Resource Zones (MRZs) are applied to sites determined by the California Geological Survey (CGS) as being a resource of regional significance, and are intended to help maintain mining operations and protect them from encroachment of incompatible uses. The Zones indicate the potential for an area to contain significant mineral resources.

DISCUSSION OF IMPACTS

Questions A and B

A mineral resource is land on which known deposits of commercially viable mineral or aggregate deposits exist. The designation is applied to sites determined by the California Geological Survey as

being a resource of regional significance, and is intended to help maintain any mining operations and protect them from encroachment of incompatible uses. According to the Shasta County Zoning Map, there are no areas zoned Mineral Resource (MR) in the Fall River Mills area. In addition, the California Department of Conservation has not designated any Mineral Resource Zones in the Project area. Therefore, there would be no impact on mineral resource availability.

CUMULATIVE IMPACTS

As documented above, the proposed Project would not result in impacts to mineral resources; therefore, the proposed Project would not cumulatively contribute to adverse impacts to mineral resources.

MITIGATION

None necessary.

DOCUMENTATION

California Department of Conservation, Division of Mine Reclamation. 2021. Mines Online Maps. https://maps.conservation.ca.gov/mol/index.html. Accessed February 2021.

_____. California Geological Survey. Mineral Land Classifications. https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps. Accessed 2021.

_____. 1997. Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite within Shasta County, California. https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc. Accessed November 2021.

Shasta County. 2019. Shasta County Zoning Map. https://maps.co.shasta.ca.us/ShastaCountyMap/. Accessed July 2019.

4.13 NOISE

Would the project result in:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

REGULATORY CONTEXT

FEDERAL

There are no federal regulations pertaining to noise that apply to the proposed Project.

STATE

California Department of Transportation

For local agency projects that receive federal funding, noise associated with construction is controlled by Caltrans Standard Specification Section 14-8.02, "Noise Control," which states the following:

- Do not exceed 86 dBA Lmax (highest instantaneous sound level) at 50 feet from the job site activities from 9:00 PM to 6:00 AM.
- Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

California Government Code §65302(f)

California Government Code §65302(f) requires a Noise Element to be included in all city and county General Plans. The Noise Element must identify and appraise major noise sources in the community (e.g., highways and freeways, airports, railroad operations, local industrial plants, etc.). A noise contour diagram depicting major noise sources must be prepared and used as a guide for establishing land use patterns to minimize the exposure of residents to excessive noise. The Noise Element must include implementation measures and possible solutions that address existing and foreseeable noise levels.

LOCAL

Shasta County

The Shasta County General Plan includes the following Objectives and Policies that apply to the proposed Project:

Chapter 5.5, Noise		
Objectives:	N-1	To protect County residents from the harmful and annoying effects of exposure to excessive noise.
	N-2	To protect the economic base of the County by preventing incompatible land uses from encroaching upon existing or programmed land uses likely to create significant noise impacts.
	N-3	To encourage the application of state-of-the-art land use planning methodologies in the area of managing and minimizing potential noise conflicts.
Policies:	N-b	Noise likely to be created by a proposed non-transportation land use shall be mitigated so as not to exceed the noise level standards of Table N–IV as measured immediately within the property line of adjacent lands designated as noise-sensitive. Noise generated from existing or proposed agricultural operations conducted in accordance with generally accepted agricultural industry standards and practices is not required to be mitigated.
	N-i	Where noise mitigation measures are required to achieve the standards of Tables N-IV and N-VI, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving compliance with the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

General Plan Table N-IV

Noise Level Descriptor	L_{eq}, or energy-equivalent noise level (hourly average)
Daytime (7:00 AM – 10:00 PM):	55 decibels
Nighttime (10:00 PM – 7:00 AM):	50 decibels

NOISE FUNDAMENTALS

Commonly used technical acoustical terms are defined as follows:

Ambient Noise The distinctive pre-project acoustical characteristics of a given area consisting of all noise sources audible at that location.

Attenuation The reduction of noise.

A-Weighting The sound level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

Decibel, or dB The fundamental unit of measurement that indicates the intensity of a sound, defined as ten times the logarithm of the ratio of the sound pressure squared over the reference pressure squared.

A change of 1 dBA generally cannot be perceived by humans; a 3 dBA change is considered to be a barely noticeable difference; a 5 dBA change is typically noticeable; and a 10 dBA increase is considered to be a doubling in loudness. Depending on the type of construction, interior noise levels are about 10-15 dBA lower than exterior levels with the windows partially open, and approximately 20-25 decibels lower than exterior noise levels with the windows closed.

DISCUSSION OF IMPACTS

Question A

Some individuals and groups of people are considered more sensitive to noise than others and are more likely to be affected by the existence of noise. A sensitive receptor is defined as any living entity or aggregate of entities whose comfort, health, or well-being could be impaired or endangered by the existence of noise. Locations that may contain high concentrations of noise-sensitive receptors include residential areas, schools, parks, churches, hospitals, and long-term care facilities.

The proposed Project does not include any components that would result in a permanent increase in noise levels in the area. Construction of the proposed Project would temporarily increase noise levels in the area of the bridge site. The closest sensitive receptors to the bridge site are single-family residences ±0.4 miles (±2,100 feet) to the west, south, and southeast.

Temporary noise impacts would occur from an increase in traffic from construction crews and delivery of construction equipment and materials to the Project site. However, most heavy equipment would remain on-site for the duration of the construction season, and it is not anticipated that worker commutes would significantly increase daily traffic volumes.

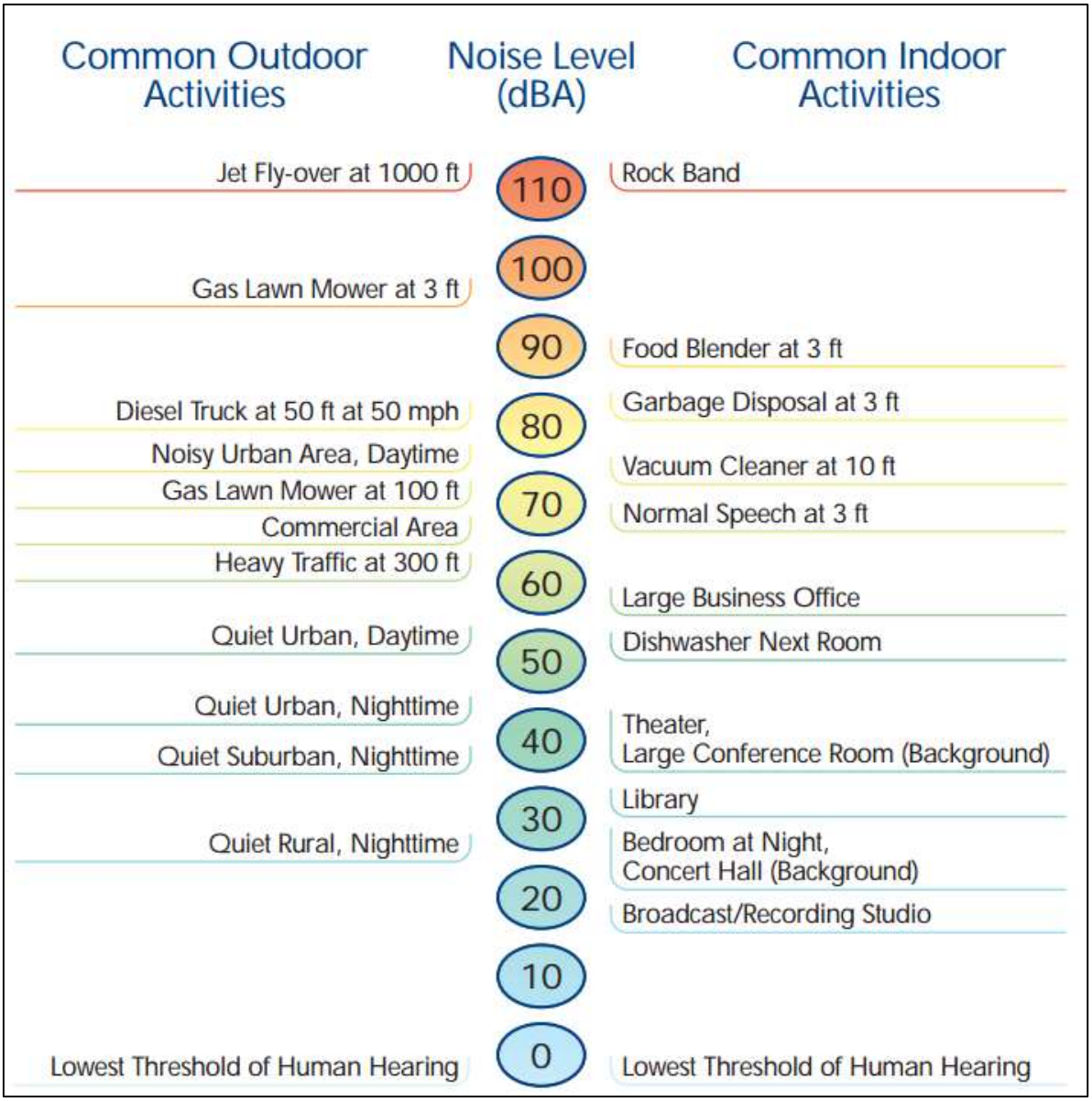
Noise impacts resulting from construction activities would depend on: 1) the noise generated by various pieces of construction equipment; 2) the timing and duration of noise-generating activities; 3) the distance between construction noise sources and noise-sensitive receptors; and 4) existing ambient noise levels. **Figure 4.13-1** shows noise levels of common activities to enable the reader to compare construction-noise with common activities.

As shown in Table 3.0-1 (Summary of Project Impacts), construction activities that would expose people to excessive noise levels during construction, include, but may not be limited to:

- Drilling for temporary piles and guardrail posts
- Steel driven H-piles (abutments)
- Demolition of the existing bridge
- Use of heavy equipment during construction.

Noise levels from construction-related activities would fluctuate, depending on the number and type of construction equipment operating at any given time. As shown in **Table 4.13-1**, construction equipment anticipated to be used for Project construction typically generates maximum noise levels ranging from 76 to 101 decibels (dBA) at a distance of 50 feet.

FIGURE 4.13-1
Noise Levels for Common Activities



Source: Caltrans, 2016

TABLE 4.13-1
Examples of Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 ft from Source
Air compressor	80
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	82
Grader	85
Jack hammer	88
Loader	80
Paver	85
Pile-driver (Impact)	101
Pile-driver (Sonic)	95
Pump	77
Rock drill	95
Roller	85
Saw	76
Scraper	85
Shovel	82
Truck	84

Source: Federal Transit Administration, 2018.

Noise from construction activities generally attenuates at a rate of 6 dBA per doubling of distance, assuming the intervening ground is a smooth surface without much vegetation, which is the case in the Project area. In the worst-case scenario, noise levels at the exteriors of the nearest residences could reach ±68.5 dB during pile driving (impact). Interior noise levels at these residences could reach 48.5 dBA during pile driving activities.

Because it is a logarithmic unit of measurement, a decibel cannot be added or subtracted arithmetically. The combination of two or more identical sound pressure levels at a single location involves the addition of logarithmic quantities as shown in **Table 4.13-2.** A doubling of identical sound sources results in a sound level increase of ±3 dB. Three identical sound sources would result in a sound level increase of ±4.8 dB.

For example, if the sound from one backhoe resulted in a sound pressure level of 80 dB, the sound level from two backhoes would be 83 dB, and the sound level from three backhoes would be 84.8 dB.

TABLE 4.13-2
Cumulative Noise: Identical Sources

Number of Sources	Increase in Sound Pressure Level (dB)
2	3
3	4.8
4	6
5	7
10	10
15	11.8
20	13

Sources: U.S. Department of Transportation, Federal Transit Administration, 2018. The Engineering Toolbox, 2018.

In addition, as shown in **Table 4.13-3**, the sum of two sounds of a different level is only slightly higher than the louder level. For example, if the sound level from one source is 88 dB, and the sound level from the second source is 95 dB, the level from both sources together would be 96 dB; if the sound level from one source is 80, and the sound level from the second source is 89 dB, the level from both sources together would be 89.5.

TABLE 4.13-3
Cumulative Noise: Different Sources

Sound Level Difference between two sources (dB)	Decibels to Add to the Highest Sound Pressure Level
0	3
1	2.5
2	2
3	2
4	1.5
5	1
6	1
7	1
8	0.5
9	0.5
10	0.5
Over 10	0

Sources: U.S. Department of Transportation, Federal Transit Administration, 2018. The Engineering Toolbox, 2018.

With three pieces of equipment with a noise level of 89 dBA operating simultaneously, noise levels could reach ±61.3 dBA at the nearest residences.

The exposure to loud noises (above 85 dB) over a long period of time may lead to hearing loss. The longer the exposure, the greater the risk for hearing loss, especially when there is not enough time for the ears to rest between exposures. Hearing loss can also result from a single extremely loud sound at very close range, such as sirens and firecrackers (Centers for Disease Control, 2018).

The California Division of Safety and Health (CDSH) and OSHA have established thresholds for exposure to noise in order to prevent hearing damage. The maximum allowable daily noise exposure is 90 dBA for 8 hours, 95 dBA for 4 hours, 100 dBA for 2 hours, 105 dBA for 1 hour, 110 dBA for 30 minutes, and 115 dBA for 15 minutes (Caltrans, 2013). As noted above, in the worst-case scenario,

exterior noise levels from construction equipment operation could reach ±68.5 dBA at the exteriors and ±48.5 dBA at the interiors of the nearest residences. Therefore, noise levels at the nearest residences would be moderate most of the time and would not exceed CDSH or OSHA noise exposure thresholds for hearing damage.

Even when noise is not at a level that could result in hearing loss, excessive noise can affect quality of life, especially during nighttime hours. As stated under Regulatory Context above, Caltrans Standard Specifications restrict noise levels to no more than 86 dBA Lmax at 50 feet from the job site from 9:00 PM to 6:00 AM and require that internal combustion engines be equipped with the manufacturer-recommended muffler.

In order to ensure consistency with Caltrans requirements and minimize potential noise impacts during nighttime hours, **MM 4.13.1** prohibits construction activities between the hours of 9:00 PM and 6:00 AM. **MM 4.13.2** requires that construction equipment be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds. In addition, **MM 4.3.1(g)** requires that off-road construction equipment and other diesel-fueled construction vehicles (e.g., dump trucks) shall not be left idling for periods longer than five minutes when not in use, which would also minimize noise levels during construction.

Noise impacts would be less than significant because the proposed Project does not include any components that would result in a permanent increase in ambient noise levels; noise levels during construction would not be at a duration and intensity that would cause hearing loss; and **MM 4.13.1, MM 4.13.2,** and **MM 4.3.1(g)** minimize noise during construction. Further, construction noise is a temporary impact that would cease at completion of the Project.

Question B

Excessive vibration during construction occurs only when high vibration equipment (e.g., pile drivers, compactors, large dozers, etc.) are operated. The proposed Project would require use of equipment with high vibration levels during construction. Potential effects of ground-borne vibration include perceptible movement of building floors, rattling windows, shaking of items on shelves or hangings on walls, and rumbling sounds. In extreme cases, vibration can cause damage to buildings.

Both human and structural responses to ground-borne vibration are influenced by various factors, including ground surface, distance between the source and the receptor, and duration. The most common measure used to quantify vibration amplitude is the peak particle velocity (PPV). PPV is a measurement of ground vibration defined as the maximum speed (measured in inches per second) at which a particle in the ground is moving relative to its inactive state.

Although there are no federal, state, or local regulations for ground-borne vibration, Caltrans has developed criteria for evaluating vibration impacts, both for potential structural damage and for human annoyance. The *Caltrans Transportation and Construction Vibration Guidance Manual* (2020), was referenced in the analysis of construction-related vibration impacts. **Table 4.13-4** includes the potential for damage to various building types as a result of ground-borne vibration. Transient sources include activities that create a single isolated vibration event, such as blasting. Continuous, frequent, or intermittent sources include impact pile drivers, vibratory pile drivers, and vibratory compaction equipment.

TABLE 4.13-4
Structural Damage Thresholds from Ground-borne Vibration

Structure Type	Vibration Level (Inches per Second) PPV	
	Transient Sources	Continuous/ Frequent/ Intermittent Sources
Older residential structures	0.5	0.3
Newer residential structures	1.0	0.5
Historic and some old buildings	0.5	0.25
Newer industrial/commercial buildings	2.0	0.5

Source: Caltrans, 2020

Table 4.13-5 indicates the potential for annoyance to humans as a result of ground-borne vibration.

TABLE 4.13-5
Human Response to Ground-borne Vibration

Human Response	Vibration Level (Inches per Second) PPV	
	Transient Sources	Continuous/ Frequent/ Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.10
Disturbing	2.0	0.4

Source: Caltrans, 2020

Table 4.13-6 indicates vibration levels for various types of construction equipment that may be used for the proposed Project.

TABLE 4.13-6
Examples of Construction Equipment Ground-borne Vibration

Equipment Type	PPV at 25 feet (inches per second)
Bulldozer (small)	0.003
Bulldozer (large)	0.089
Jackhammer	0.035
Loaded trucks	0.076
Pile Driver (Impact)	0.65
Pile Driver (Vibratory)	0.17
Vibratory roller	0.210

Source: Caltrans, 2020

Vibration levels from construction equipment at varying distances from the source can be calculated using the following formula:

$$PPV_{Equipment} = PPV_{Ref} \times (25/D)^{n}$$

Vibration levels from pile driving at varying distances from the source can be calculated using the following formula:

$$PPV_{Impact\ Pile\ Driver} = PPV_{Ref} \times (25/D)^{n} \times (E_{equip}/E_{Ref})^{0.5}$$

Where:

PPV_{Ref} = 0.65 in/sec for a reference pile driver at 25 feet

D = distance from pile driver to the receiver in feet

n = a value related to the vibration attenuation rate through ground[1]

E_{Ref} = 36,000 ft-lbs (rated energy of reference pile driver)

E_{equip} = rated energy of impact pile driver in ft-lbs[2]

Using the footnoted assumptions, in the worst-case scenario, a vibratory roller would generate a PPV of up to 0.002 inches per second at the nearest residences. This vibration level would not cause structural damage (refer to **Table 4.13-4**) and would not be perceptible at the nearest residences during operation of a vibratory roller (refer to **Table 4.13-5**).

Ground-borne vibration levels from impact pile driving could reach approximately 0.008 PPV inches per second at the nearest residences. This vibration level would not cause structural damage (refer to **Table 4.13-4**) and would not be perceptible at the nearest residences during pile driving (refer to **Table 4.13-5**). Therefore, impacts from ground-borne vibration during construction would be less than significant.

Question C

As stated in Section 4.9 under Question E, the Project area is not within an airport land use plan area. The nearest public airport is Fall River Mills Airport, approximately 7.1 miles southeast of the bridge site. Therefore, the proposed Project would not expose people to excessive noise associated with an airport.

CUMULATIVE IMPACTS

The proposed Project would result in a temporary increase in daytime noise and ground-borne vibration levels during construction activities. However, all construction would take place in compliance with applicable policies governing noise levels. With implementation of **MM 4.3.1(g), MM 4.13.1,** and **MM 4.13.2**, the Project's cumulative noise impacts would be less than significant.

MITIGATION

Implementation of **MM 4.3.1(g).**

MM 4.13.1 Construction activities shall be prohibited between the hours of 9:00 PM and 6:00 AM.

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[1] The attenuation rate (n) for vibration impacts is based, in part, on site-specific soil conditions. The *Caltrans Transportation and Construction Vibration Guidance Manual* (2013), recommends using an attenuation rate of 1.3 for competent soils (most sands, sandy clays, silty clays, weathered rock), and 1.1 for hard soils (dense compacted sand, dry consolidated clay, some exposed rock). Because test borings identified the presence of some very dense sand and moderately stiff clay, an attenuation rate of 1.1 was used (CGI, 2019).

[2] Eequip value is based on a D36-32 hammer, which has a fully rated energy of 90,540 ft-lbs. The actual energy will depend on the hammer selected; further, because no bedrock is present, the needed hammer energy is anticipated to be about 75 to 80 percent of the fully rated energy.

MM 4.13.2 Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

DOCUMENTATION

California Department of Transportation. 2020. *Transportation and Construction Vibration Guidance Manual*. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf. Accessed June 2021.

Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment Manual*. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed August 2018.

Shasta County. 2004. Shasta County General Plan, Chapter 5.5 (Noise). http://www.co.shasta.ca.us/docs/Resource_Management/docs/55noise.pdf?sfvrsn=0. Accessed August 2018.

4.14 POPULATION AND HOUSING

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal, State, or local regulations pertaining to population or housing that apply to the proposed Project.

DISCUSSION OF IMPACTS

Questions A and B

The proposed Project is needed because the existing bridge is structurally deficient, functionally obsolete for width and loading, and does not meet current federal or local design standards. The improvements are not growth-related, and no houses would be demolished to accommodate the proposed improvements. Therefore, there would be no impact.

CUMULATIVE IMPACTS

As documented above, the proposed Project would not induce population growth or displace people or housing; therefore, the proposed Project would not contribute to adverse impacts associated with cumulative impacts to population and housing.

MITIGATION

None necessary.

DOCUMENTATION

Shasta County Department of Public Works. Personal communications with ENPLAN. November 2018.

4.15 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 following public services:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Fire protection?	☐	☐	☐	☒
b. Police protection?	☐	☐	☐	☒
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal, State, or local regulations pertaining to public services that apply to the proposed Project.

DISCUSSION OF IMPACTS

Questions A through E

The proposed Project does not include the construction of houses or businesses that would increase the number of residents in the area. In addition, as discussed in Section 4.14 under Question A, the proposed Project would not induce substantial population growth in the area. Therefore, the proposed Project would not result in the need for new or physically altered governmental facilities; there would be no impact.

CUMULATIVE IMPACTS

As described above, the proposed Project would not increase the demand for long-term public services; therefore, no cumulatively considerable impacts would occur.

MITIGATION

None necessary.

DOCUMENTATION

Shasta County Department of Public Works. Personal communications with ENPLAN. November 2018.

4.16 RECREATION

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. 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. Include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal, State, or local regulations pertaining to recreation that apply to the proposed Project.

DISCUSSION OF IMPACTS

Questions A and B

The proposed Project does not include the construction of houses or businesses that would increase the number of residents in the area. In addition, as discussed in Section 4.14 under Question A, the proposed Project would not induce substantial unplanned population growth in the area, either directly or indirectly. Therefore, the proposed Project would not result in an increased use of existing recreational facilities or require the construction or expansion of recreational facilities. There would be no impact.

CUMULATIVE IMPACTS

The proposed Project would not impact any existing recreational facilities and would not require the construction or expansion of recreational facilities; therefore, no cumulatively considerable impacts to recreational facilities would occur.

MITIGATION

None necessary.

DOCUMENTATION

Shasta County Department of Public Works. Personal communications with ENPLAN. November 2018.

4.17 TRANSPORTATION

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☐	☒
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) (criteria for analyzing transportation impacts – vehicle miles traveled)?	☐	☐	☐	☒
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d. Result in inadequate emergency access?	☐	☐	☒	☐

REGULATORY CONTEXT

FEDERAL

There are no federal regulations pertaining to transportation/traffic that apply to the proposed Project.

STATE

CEQA Guidelines

SB 743 of 2013 (CEQA Guidelines §15064.3 *et seq.*) was enacted as a means to balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHGs. Pursuant to SB 743, traffic congestion is no longer considered a significant impact on the environment under CEQA. The new metric bases the traffic impact analysis on vehicle-miles travelled (VMT). VMT refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's VMT, including whether to express the change in absolute terms, per capita, per household, or in any other measure.

Caltrans Standards

Because funding for the Project is provided through the Caltrans Local Assistance Program, the Project is subject to Caltrans standard plans and specifications for bridges, roadways, and appurtenant improvements (e.g., signs, bridge rails, drainage, etc.).

LOCAL

Shasta County

The Shasta County General Plan includes the following Objective and Policy that apply to the proposed Project:

Chapter 7.4, Circulation		
Objective:	C-6	Formulate and adopt circulation design standards that:

		• are uniformly applied on a Countywide basis according to development type; • respond to public safety and health considerations, especially vehicle and pedestrian safety, emergency access, evacuation routes, and the existing noise environments of communities; • address all modes of transportation; and • will not result in substantial deterioration of air quality.
Policy	C-6a	Future road and street development, including future right-of-way, shall comply with the adopted County Development Standards.

DISCUSSION OF IMPACTS

Questions A through D

The proposed Project does not include the construction of housing or commercial/industrial development that would cause a permanent increase in traffic in the area. The proposed Project does not include any components that would remove or change the location of any sidewalk, bicycle lane, trail, or public transportation facility.

As discussed in Section 4.9 under Question F, the bridge would be impassable for the duration of construction, and vehicles would be detoured around the bridge site, which could interfere with emergency response times. In addition, a temporary increase in traffic could occur during construction and could interfere with emergency response times. However, construction-related traffic would be minor due to the overall scale of the construction activities, and construction-related traffic would be spread over the duration of the construction schedule and would be minimal on a daily basis. The proposed Project does not include any components that would permanently increase the potential for hazards due to a design feature or incompatible uses. Further, impacts are temporary and would cease at completion of the Project. Therefore, impacts would be less than significant.

CUMULATIVE IMPACTS

The proposed Project would not result in a permanent increase in traffic. Traffic impacts would occur temporarily during construction activities. However, no concurrent construction activities near the roadway network are anticipated. Therefore, no cumulative impacts would occur.

MITIGATION

None necessary.

DOCUMENTATION

State of California, Department of Transportation. 2021. *Department of Transportation Standard Specifications* (Updated April 16, 2021). https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications. Accessed June 2021.

State of California, Department of Transportation. 2021. *Department of Transportation Standard Plans* (Updated April 16, 2021). https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications. Accessed June 2021.

4.18 TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code (PRC) 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:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. A resource listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)?	☐	☒	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC section 5024.1? In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

REGULATORY CONTEXT

There are no federal or local regulations pertaining to tribal cultural resources that apply to the proposed Project.

STATE

California Environmental Quality Act

Assembly Bill 52 of 2014 (Public Resources Code [PRC] §21084.2) establishes that *"a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."* In order to determine whether a project may have such an effect, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if:

1. The tribe requested to the lead agency, in writing, to be informed through formal notification of proposed projects in the geographical area; and

2. The tribe responds, in writing, within 30 days of receipt of the formal notification and requests the consultation.

The consultation must take place prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Pursuant to PRC §21084.3, lead agencies must, when feasible, avoid damaging effects to a tribal cultural resource and must consider measures to mitigate any identified impact.

PRC §21074 defines "tribal cultural resources" as either of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the CRHR; or are included in a local register of historical resources as defined in PRC §5020.1(k).

A historical resource described in §21084.1, a unique archaeological resource as defined in §21083.2(g), or a "nonunique archaeological resource" as defined in §21083.2(h) may also be a tribal cultural resource if it meets this criteria.

2. A resource determined by the lead agency, taking into consideration the significance of the resource to a California Native American tribe, to be significant pursuant to criteria set forth in PRC §5024.1(c).

DISCUSSION OF IMPACTS

Questions A and B

As discussed in Sections 1.7 (Tribal Cultural Resources Consultation and 4.5 (Cultural Resources) consultation with the Pit River Tribal Council and Ajumawi Band of the Pit River Tribe was conducted as provided in PRC §21080.3.1 and §21080.3.2. The objective of consultation was to ensure that Project implementation would not adversely affect tribal cultural resources. As documented in **Appendix C**, following review of Project plans, the Pit River Tribe and Ajumawi Band of the Pit River Tribe concurred that the proposed Project, with implementation of **MM 4.5.1** through **MM 4.5.3**, would not adversely affect tribal cultural resources. Consultation is considered concluded pursuant to PRC §21080.3.2(b).

CUMULATIVE IMPACTS

Cumulative projects in the vicinity of the Project area have the potential to impact tribal cultural resources. Tribal cultural resources are afforded special legal protections designed to reduce the cumulative effects of development. Potential cumulative projects and the proposed Project would be subject to the protection of tribal cultural resources afforded by Public Resources Code §21084.3. Given the non-renewable nature of tribal cultural resources, any impact to tribal cultural sites, features, places, landscapes or objects could be considered cumulatively considerable.
As discussed above, the proposed Project will not adversely impact tribal cultural resources with implementation of **MM 4.5.1** through **MM 4.5.3.** Therefore, the proposed Project would have less than significant cumulative impacts to tribal cultural resources.

MITIGATION

Implementation of **MM 4.5.1** through **MM 4.5.3.**

DOCUMENTATION

ENPLAN. 2013. Archaeological Survey Report for the Spring Creek Road Bridge (06C0209) Replacement Project, Shasta County, California. Prepared for Shasta County (Confidential Document).

4.19 UTILITIES AND SERVICE SYSTEMS

Would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	☒
c. Result in a determination by the wastewater treatment provider that 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?	☐	☐	☐	☒
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

REGULATORY CONTEXT

There are no federal or local regulations pertaining to utilities and service systems that apply to the proposed Project.

STATE

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act (CIWMA) of 1989 is designed to increase landfill life and conserve other resources through increased source reduction and recycling. Goals of the CIWMA include diverting approximately 50 percent of solid waste from landfills and identifying programs to stimulate local recycling in manufacturing and the purchase of recycled products.

The CIWMA requires cities and counties to prepare Solid Waste Management Plans and Source Reduction and Recycling Elements to implement CIWMA goals

Caltrans Standards

Because funding for the Project is provided through the Caltrans Local Assistance Program, the Project is subject to Caltrans standard specifications. Section 14-10 of the Specifications includes requirements for solid waste disposal and/or recycling of paint waste, concrete, metal scraps, timber, pipe, packaging materials, and other trash and debris. Specific requirements are included in bid documents for the applicable project.

DISCUSSION OF IMPACTS

Question A

As discussed in Section 4.14 under Question A, the proposed Project would not induce substantial population growth in the area, either directly or indirectly; therefore, the proposed Project would not result in the need for new or expanded water, wastewater treatment, electric power, natural gas, or telecommunications facilities. In addition, no water, wastewater treatment, electric power, natural gas, or telecommunications facilities would need to be relocated to accommodate the proposed Project. Therefore, there would be no impact.

Questions B and C

Relatively small amounts of water would be used during Project construction, but this is a temporary impact. In addition, the Project would have no demand for wastewater treatment. Therefore, there would be no impact.

Questions D and E

The proposed Project would generate a large amount of solid waste, mainly from demolition of the existing bridge. Construction and demolition materials would be recycled to the extent feasible. Solid waste that remains after recycling would be disposed of at a landfill within the region. **MM 4.3.2, MM 4.3.3, MM 4.3.4,** and **MM 4.9.1** require disposal of materials containing asbestos, lead or TWW at a facility that is specifically licensed to accept these hazardous waste materials. In the long-term, the proposed Project would not result in a demand for additional solid waste services. The construction contractor would be responsible for disposing of all construction waste. The County would ensure through contractual obligations that the contractor complies with all federal, State and local statutes related to solid waste disposal. Therefore, there would be no impact.

CUMULATIVE IMPACTS

Utility and service systems in the area would not experience a permanent increase in demand for services over existing conditions. Therefore, the proposed Project would not contribute to cumulative impacts to utility and service systems.

MITIGATION

None necessary.

DOCUMENTATION

Shasta County. 2004. Shasta County General Plan, Chapter 7.5 (Public Facilities). http://www.co.shasta.ca.us/docs/Resource_Management/docs/75pubfac.pdf?sfvrsn=0. Accessed June 2019.

4.20 WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire, or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

REGULATORY CONTEXT

FEDERAL

There are no federal regulations pertaining to wildfire that apply to the proposed Project.

STATE

California Department of Forestry and Fire Protection (CAL FIRE)

The Bates Bill (AB 337), enacted in 1992, required CAL FIRE to work with local governments to identify high fire hazard severity zones throughout each county in the State. CAL FIRE adopted Fire Hazard Severity Zone (FHSZ) Maps for State Responsibility Areas (SRA) in November 2007. Pursuant to California Government Code §51175-51189, CAL FIRE also recommended FHSZs for Local Responsibility Areas (LRA). Over the years, CAL FIRE has updated the maps and provided new recommendations to local governments based on fire hazard modeling.

The fire hazard model considers wildland fuels (natural vegetation that burns during the wildfire); topography (fires burn faster as they burn up-slope); weather (fire burns faster and with more intensity when air temperature is high, relative humidity is low, and winds are strong); and ember production and movement (how far embers move and how receptive the landing site is to new fires). The model recognizes that some areas of California have more frequent and severe wildfires than other areas.

California Fire Code

California Fire Code, Part 9, Chapter 49 (Wildland-Urban Interface Fire Areas), and California Building Code Chapter 7A (Materials and Construction Methods for Exterior Wildfire Exposure) include standards for new construction in Wildland-Urban Interface Fire Areas (fire hazard severity zones). The purpose of the standards is to prevent a building from being ignited by flying embers that can travel as much as a mile away from a wildfire and to contribute to a systematic reduction in fire-related losses through the use of performance and prescriptive requirements.

LOCAL

Shasta County

The Shasta County General Plan includes the following Objective and Policy that apply to the proposed Project:

Chapter 5.6, Hazardous Materials; Chapter 5.4, Fire Safety and Sheriff Protection		
Objective:	FS-1	Protect development from wildland and non-wildland fires by requiring new development projects to incorporate effective site and building design measures commensurate with level of potential risk presented by such a hazard and by discouraging and/or preventing development from locating in high risk fire hazard areas.
Policy	FS-a	All new land use projects shall conform to the County Fire Safe Standards.

DISCUSSION OF IMPACTS

According to FHSZ maps prepared by CAL FIRE, the Project site is on a boundary between the SRA and LRA. Properties west of the bridge site and south of the Fall River are located in a LRA Moderate FHSZ. The remainder of the Project site is identified as an "unzoned" portion of the LRA.

Question A

See discussion in Section 4.9 under Question F. The Project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. Although the bridge would be impassible for the duration of construction and vehicles would be detoured around the bridge site, which could interfere with emergency response times, impacts are temporary and would cease at completion of the Project. Therefore, impacts would be less than significant.

Questions B and C

The proposed Project would not require installation of infrastructure that could exacerbate fire hazards (e.g., power lines in vegetated areas); would not construct new public roads or otherwise intrude into natural spaces in a manner that would increase wildlife hazards in the long term; and would not require construction of fuel breaks, installation of emergency water sources, or other fire prevention/suppression infrastructure.

As stated in Section 4.9 (Hazards and Hazardous Materials) under Question G, Cal/OSHA regulations require implementation of a fire protection program throughout all phases of construction to minimize potential fire risks during construction. There are no factors such as slope or prevailing winds that would increase the potential for a wildfire in the area that could result in pollutant concentrations from a wildfire or uncontrolled spread of a wildfire. Therefore, impacts would be less than significant.

Question D

Post-fire risks include an increased potential for flooding and landslides. Flooding can be exacerbated because fires may remove the vegetative cover, which helps retain runoff and stabilizes the soil. Fires can also change the chemical composition of the soil, causing it to be less permeable, resulting in increased volume of stormwater runoff. Similarly, the potential for landslides may increase due to the loss of vegetation that helps hold soil in place, and as a result of increased stormwater flows that can erode the destabilized banks and cause slope failure.

The bridge site is relatively flat, with little potential for post-fire erosion, landslides, or other slope instability. Likewise, the bridge is designed to pass the 100-year flood flow, and, because it will be a free-span structure, it will be much less likely than the current bridge to catch downed trees or other large debris that could be washed downstream following a fire. Therefore, the Project's potential to expose people or structures to significant post-fire risks would be less than significant.

CUMULATIVE IMPACTS

In the long term, the proposed Project would not impair an adopted emergency response plan or evacuation plan. Further, the proposed Project would not contribute individually or cumulatively to increased risks of wildfire, effects of fire prevention/suppression infrastructure, or post-fire hazards. Although wildfire risks could occur during construction, implementation of a fire protection program in accordance with Cal/OSHA requirements would minimize risks during construction. Therefore, the Project's cumulative impact associated with wildfire risks would be less than significant.

MITIGATION

None necessary.

DOCUMENTATION

California Department of Forestry and Fire Protection (CAL FIRE). 2021. Fire Hazard Severity Zone Map Viewer. https://egis.fire.ca.gov/FHSZ/. Accessed February 2021.

Shasta County. 2004. Shasta County General Plan, Chapter 5.4 (Fire Safety and Sheriff Protection). https://www.co.shasta.ca.us/docs/libraries/resource-management-docs/docs/54firesafety.pdf?sfvrsn=204962bd_0. Accessed March 2020.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

Issues and Supporting Evidence	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.	☐	☒	☐	☐
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

Question A

As discussed in the applicable environmental resource section above, Project implementation could result in possible effects to special-status wildlife species, loss of waters of the U.S., disturbance of nesting birds (if present), impacts to cultural resources and tribal cultural resources (if present), impacts to paleontological resources (if present), temporarily increased air emissions, temporarily increased risk of exposure to contaminated materials, potential introduction and spread of invasive weeds, potential introduction and spread of invasive freshwater mollusks, temporarily increased risk of wildfires, and temporarily increased noise and vibration levels. However, mitigation measures are included to reduce all potential impacts to less than significant levels (see Section 1.9, Proposed Mitigation Measures).

Question B

The potential cumulative impacts of the proposed Project have been analyzed within the discussion of each environmental resource area above. As documented, implementation of the mitigation measures identified in Section 1.9 ensures that the Project's impacts are not cumulatively considerable.

Question C

As discussed in the applicable environmental resource sections above, the proposed Project could result in adverse effects on human beings due to temporarily increased risk of wildfires, temporarily increased risk of exposure to contaminated materials, temporarily increased air emissions, and temporarily increased noise and vibration levels. However, mitigation measures are included to reduce all potential impacts to less than significant levels.

SECTION 5.0 LIST OF PREPARERS

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SECTION 6.0 ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
AQAP	Air Quality Attainment Plan
AQMD	Air Quality Management District
APCD	Air Pollution Control District
APE	Area of Potential Effects
AUM	Animal Unit Month
BAU	Business as Usual
BIOS	Biogeographic Information and Observation System
BMP	Best Management Practice
BSA	Biological Study Area
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Criteria Air Pollutants
CARB	California Air Resources Board
CBSC	California Building Standards Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDSH	California Division of Safety and Health
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	Methane
CNDDB	California Natural Diversity Data Base
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
County	Shasta County
CRHR	California Register of Historical Resources
CGS	California Geological Survey
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CY	Cubic Yards

dBA	Decibels
DBH	Diameter at Breast Height
DOC	Department of Conservation
DTSC	California Department of Toxic Substances Control
EA-AP	Exclusive Agriculture-Agricultural Preserve
EFH	Essential Fish Habitat
EO	Executive Order
ESH	Essential Fish Habitat
FEMA	Federal Emergency Management Act
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
GHG	Greenhouse Gas Emissions
GP	General Plan
GWP	Global Warming Potential
H_2S	Hydrogen Sulfide
HBRRP	Highway Bridge Replacement and Rehabilitation Program
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbons
HSC	California Health and Safety Code
IBC	International Building Code
IS	Initial Study
LRA	Local Responsibility Area
MACT	Maximum Achievable Control Technology
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
mg/m^3	Milligrams per Cubic Meter
MND	Mitigated Negative Declaration
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan

NEIC/CHRIS	Northeast Information Center of the California Historical Resources Information System
NEHRA	National Earthquake Hazards Reduction Act
NEPA	National Environmental Policy Act
NF_3	Nitrogen Trifluoride
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
N_2	Nitrogen
N_2O	Nitrous Oxide
NO_2	Nitrogen Dioxide
NO_X	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSVAB	Northern Sacramento Valley Air Basin
NSVPA	Northern Sacramento Valley Planning Area
NWI	National Wetlands Inventory
NWP	Nationwide Permit
O_3	Ozone
OHWM	Ordinary High-Water Mark
OSHA	Occupational Safety and Health Act
Pb	Lead
PCN	Pre-Construction Notification
PF	Public Facilities
PFC	Perfluorocarbons
PG&E	Pacific Gas and Electric
PJD	Preliminary Jurisdictional Determination
$PM_{2.5}$	Particulate Matter, 2.5 microns in size
PM_{10}	Particulate Matter, 10 microns in size
PPB	Parts per Billion
PPM	Parts per Million
PPV	Peak Particle Velocity (PPV)
PRC	Public Resources Code
Project	Spring Creek Road Bridge Replacement
PVC	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
ROG	Reactive Organic Gases

RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SB	Senate Bill
SCAQMD	Shasta County Air Quality Management District
SCS	Sustainable Communities Strategy
SDWA	Safe Drinking Water Act
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMARA	The Surface Mining and Reclamation Act
SO_2	Sulfur Dioxide
SO_4	Sulfates
SRA	State Responsibility Area
SSC	Species of Special Concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SVAQEEP	Sacramento Valley Air Quality Engineering and Enforcement Professionals
TAC	Toxic Air Contaminants
TLZ	Timberland Zone
TMDL	Total Maximum Daily Loads
TPZ	Timberland Production Zone
U	Unclassified
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDECS	Verified Diesel Emission Control Strategies
VMT	Vehicle Miles Travelled
WDRs	Waste Discharge Requirements
WQO	Water Quality Objectives
$\mu g/m^3$	Micrograms per Cubic Meter

APPENDIX A

Air Quality and Greenhouse Gas Emissions

CalEEMod Reports

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Spring Creek Road Bridge Replacement

Shasta County AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.80	Acre	0.80	34,848.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	82
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase -

Grading -

Demolition -

Area Coating -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialImported	0.00	840.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.3288	20.1925	7.9993	0.0475	6.3961	0.6003	6.9964	2.8574	0.5553	3.4127	0.0000	4,897.5180	4,897.5180	0.4534	0.5420	5,070.3573
Maximum	**1.3288**	**20.1925**	**7.9993**	**0.0475**	**6.3961**	**0.6003**	**6.9964**	**2.8574**	**0.5553**	**3.4127**	**0.0000**	**4,897.5180**	**4,897.5180**	**0.4534**	**0.5420**	**5,070.3573**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.3288	20.1925	7.9993	0.0475	3.4404	0.6003	4.0407	1.4395	0.5553	1.9948	0.0000	4,897.5180	4,897.5180	0.4534	0.5420	5,070.3573
Maximum	**1.3288**	**20.1925**	**7.9993**	**0.0475**	**3.4404**	**0.6003**	**4.0407**	**1.4395**	**0.5553**	**1.9948**	**0.0000**	**4,897.5180**	**4,897.5180**	**0.4534**	**0.5420**	**5,070.3573**

Spring Creek Road Bridge Replacement - Shasta County AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**46.21**	**0.00**	**42.25**	**49.62**	**0.00**	**41.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0157	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.8000e-004	1.8000e-004	0.0000		1.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0157	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.8000e-004	1.8000e-004	0.0000		1.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2022	5/13/2022	5	10	
2	Site Preparation	Site Preparation	5/14/2022	5/16/2022	5	1	
3	Grading	Grading	5/17/2022	5/18/2022	5	2	
4	Building Construction	Building Construction	5/19/2022	10/5/2022	5	100	
5	Paving	Paving	10/6/2022	10/12/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.8

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	8.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	105.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	15.00	6.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1847	0.0000	0.1847	0.0280	0.0000	0.0280			0.0000			0.0000
Off-Road	0.7094	6.4138	7.4693	0.0120		0.3375	0.3375		0.3225	0.3225		1,147.9025	1,147.9025	0.2119		1,153.2001
Total	**0.7094**	**6.4138**	**7.4693**	**0.0120**	**0.1847**	**0.3375**	**0.5223**	**0.0280**	**0.3225**	**0.3505**		**1,147.9025**	**1,147.9025**	**0.2119**		**1,153.2001**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.1000e-003	0.1244	0.0242	4.9000e-004	0.0140	1.2600e-003	0.0153	3.8400e-003	1.2000e-003	5.0500e-003		52.3066	52.3066	1.4000e-004	8.2200e-003	54.7601
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0529	0.0327	0.4962	1.2400e-003	0.1277	7.2000e-004	0.1285	0.0339	6.6000e-004	0.0345		125.0991	125.0991	3.1300e-003	3.0500e-003	126.0864
Total	**0.0560**	**0.1571**	**0.5204**	**1.7300e-003**	**0.1418**	**1.9800e-003**	**0.1437**	**0.0377**	**1.8600e-003**	**0.0396**		**177.4057**	**177.4057**	**3.2700e-003**	**0.0113**	**180.8465**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0831	0.0000	0.0831	0.0126	0.0000	0.0126			0.0000			0.0000
Off-Road	0.7094	6.4138	7.4693	0.0120		0.3375	0.3375		0.3225	0.3225	0.0000	1,147.9025	1,147.9025	0.2119		1,153.2001
Total	**0.7094**	**6.4138**	**7.4693**	**0.0120**	**0.0831**	**0.3375**	**0.4207**	**0.0126**	**0.3225**	**0.3351**	**0.0000**	**1,147.9025**	**1,147.9025**	**0.2119**		**1,153.2001**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.1000e-003	0.1244	0.0242	4.9000e-004	0.0140	1.2600e-003	0.0153	3.8400e-003	1.2000e-003	5.0500e-003		52.3066	52.3066	1.4000e-004	8.2200e-003	54.7601
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0529	0.0327	0.4962	1.2400e-003	0.1277	7.2000e-004	0.1285	0.0339	6.6000e-004	0.0345		125.0991	125.0991	3.1300e-003	3.0500e-003	126.0864
Total	**0.0560**	**0.1571**	**0.5204**	**1.7300e-003**	**0.1418**	**1.9800e-003**	**0.1437**	**0.0377**	**1.8600e-003**	**0.0396**		**177.4057**	**177.4057**	**3.2700e-003**	**0.0113**	**180.8465**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5797	6.9332	3.9597	9.7300e-003		0.2573	0.2573		0.2367	0.2367		942.5179	942.5179	0.3048		950.1386
Total	**0.5797**	**6.9332**	**3.9597**	**9.7300e-003**	**0.5303**	**0.2573**	**0.7876**	**0.0573**	**0.2367**	**0.2940**		**942.5179**	**942.5179**	**0.3048**		**950.1386**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0265	0.0164	0.2481	6.2000e-004	0.0639	3.6000e-004	0.0642	0.0169	3.3000e-004	0.0173		62.5495	62.5495	1.5600e-003	1.5300e-003	63.0432
Total	**0.0265**	**0.0164**	**0.2481**	**6.2000e-004**	**0.0639**	**3.6000e-004**	**0.0642**	**0.0169**	**3.3000e-004**	**0.0173**		**62.5495**	**62.5495**	**1.5600e-003**	**1.5300e-003**	**63.0432**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.5797	6.9332	3.9597	9.7300e-003		0.2573	0.2573		0.2367	0.2367	0.0000	942.5179	942.5179	0.3048		950.1386
Total	**0.5797**	**6.9332**	**3.9597**	**9.7300e-003**	**0.2386**	**0.2573**	**0.4959**	**0.0258**	**0.2367**	**0.2625**	**0.0000**	**942.5179**	**942.5179**	**0.3048**		**950.1386**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0265	0.0164	0.2481	6.2000e-004	0.0639	3.6000e-004	0.0642	0.0169	3.3000e-004	0.0173		62.5495	62.5495	1.5600e-003	1.5300e-003	63.0432
Total	**0.0265**	**0.0164**	**0.2481**	**6.2000e-004**	**0.0639**	**3.6000e-004**	**0.0642**	**0.0169**	**3.3000e-004**	**0.0173**		**62.5495**	**62.5495**	**1.5600e-003**	**1.5300e-003**	**63.0432**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3739	0.0000	5.3739	2.5779	0.0000	2.5779			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759		1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**5.3739**	**0.5173**	**5.8912**	**2.5779**	**0.4759**	**3.0538**		**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2032	8.1617	1.5881	0.0324	0.9200	0.0825	1.0024	0.2523	0.0789	0.3312		3,432.6189	3,432.6189	9.4500e-003	0.5395	3,593.6332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0424	0.0262	0.3969	9.9000e-004	0.1022	5.7000e-004	0.1028	0.0271	5.3000e-004	0.0276		100.0793	100.0793	2.5000e-003	2.4400e-003	100.8691
Total	**0.2456**	**8.1878**	**1.9851**	**0.0334**	**1.0221**	**0.0830**	**1.1052**	**0.2794**	**0.0794**	**0.3588**		**3,532.6982**	**3,532.6982**	**0.0120**	**0.5420**	**3,694.5023**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4183	0.0000	2.4183	1.1601	0.0000	1.1601			0.0000			0.0000
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759	0.0000	1,364.8198	1,364.8198	0.4414		1,375.8551
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**2.4183**	**0.5173**	**2.9356**	**1.1601**	**0.4759**	**1.6360**	**0.0000**	**1,364.8198**	**1,364.8198**	**0.4414**		**1,375.8551**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2032	8.1617	1.5881	0.0324	0.9200	0.0825	1.0024	0.2523	0.0789	0.3312		3,432.6189	3,432.6189	9.4500e-003	0.5395	3,593.6332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0424	0.0262	0.3969	9.9000e-004	0.1022	5.7000e-004	0.1028	0.0271	5.3000e-004	0.0276		100.0793	100.0793	2.5000e-003	2.4400e-003	100.8691
Total	**0.2456**	**8.1878**	**1.9851**	**0.0334**	**1.0221**	**0.0830**	**1.1052**	**0.2794**	**0.0794**	**0.3588**		**3,532.6982**	**3,532.6982**	**0.0120**	**0.5420**	**3,694.5023**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6863	7.0258	7.1527	0.0114		0.3719	0.3719		0.3422	0.3422		1,103.9393	1,103.9393	0.3570		1,112.8652
Total	**0.6863**	**7.0258**	**7.1527**	**0.0114**		**0.3719**	**0.3719**		**0.3422**	**0.3422**		**1,103.9393**	**1,103.9393**	**0.3570**		**1,112.8652**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0136	0.3208	0.1023	1.1800e-003	0.0368	3.3700e-003	0.0402	0.0106	3.2200e-003	0.0138		124.7915	124.7915	7.1000e-004	0.0182	130.2371
Worker	0.0794	0.0491	0.7443	1.8600e-003	0.1916	1.0700e-003	0.1927	0.0508	9.9000e-004	0.0518		187.6486	187.6486	4.6900e-003	4.5800e-003	189.1296
Total	**0.0930**	**0.3699**	**0.8466**	**3.0400e-003**	**0.2284**	**4.4400e-003**	**0.2328**	**0.0614**	**4.2100e-003**	**0.0656**		**312.4402**	**312.4402**	**5.4000e-003**	**0.0228**	**319.3667**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6863	7.0258	7.1527	0.0114		0.3719	0.3719		0.3422	0.3422	0.0000	1,103.9393	1,103.9393	0.3570		1,112.8652
Total	**0.6863**	**7.0258**	**7.1527**	**0.0114**		**0.3719**	**0.3719**		**0.3422**	**0.3422**	**0.0000**	**1,103.9393**	**1,103.9393**	**0.3570**		**1,112.8652**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0136	0.3208	0.1023	1.1800e-003	0.0368	3.3700e-003	0.0402	0.0106	3.2200e-003	0.0138		124.7915	124.7915	7.1000e-004	0.0182	130.2371
Worker	0.0794	0.0491	0.7443	1.8600e-003	0.1916	1.0700e-003	0.1927	0.0508	9.9000e-004	0.0518		187.6486	187.6486	4.6900e-003	4.5800e-003	189.1296
Total	**0.0930**	**0.3699**	**0.8466**	**3.0400e-003**	**0.2284**	**4.4400e-003**	**0.2328**	**0.0614**	**4.2100e-003**	**0.0656**		**312.4402**	**312.4402**	**5.4000e-003**	**0.0228**	**319.3667**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6469	5.9174	7.0348	0.0113		0.2961	0.2961		0.2758	0.2758		1,035.8246	1,035.8246	0.3017		1,043.3677
Paving	0.4192					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0661**	**5.9174**	**7.0348**	**0.0113**		**0.2961**	**0.2961**		**0.2758**	**0.2758**		**1,035.8246**	**1,035.8246**	**0.3017**		**1,043.3677**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0953	0.0589	0.8931	2.2300e-003	0.2299	1.2900e-003	0.2312	0.0610	1.1900e-003	0.0622		225.1784	225.1784	5.6300e-003	5.4900e-003	226.9555
Total	**0.0953**	**0.0589**	**0.8931**	**2.2300e-003**	**0.2299**	**1.2900e-003**	**0.2312**	**0.0610**	**1.1900e-003**	**0.0622**		**225.1784**	**225.1784**	**5.6300e-003**	**5.4900e-003**	**226.9555**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6469	5.9174	7.0348	0.0113		0.2961	0.2961		0.2758	0.2758	0.0000	1,035.8246	1,035.8246	0.3017		1,043.3677
Paving	0.4192					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0661**	**5.9174**	**7.0348**	**0.0113**		**0.2961**	**0.2961**		**0.2758**	**0.2758**	**0.0000**	**1,035.8246**	**1,035.8246**	**0.3017**		**1,043.3677**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0953	0.0589	0.8931	2.2300e-003	0.2299	1.2900e-003	0.2312	0.0610	1.1900e-003	0.0622		225.1784	225.1784	5.6300e-003	5.4900e-003	226.9555
Total	**0.0953**	**0.0589**	**0.8931**	**2.2300e-003**	**0.2299**	**1.2900e-003**	**0.2312**	**0.0610**	**1.1900e-003**	**0.0622**		**225.1784**	**225.1784**	**5.6300e-003**	**5.4900e-003**	**226.9555**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.474819	0.052596	0.188673	0.149467	0.048039	0.009684	0.009203	0.022112	0.000659	0.000153	0.036435	0.001453	0.006708

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0157	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.8000e-004	1.8000e-004	0.0000		1.9000e-004
Unmitigated	0.0157	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.8000e-004	1.8000e-004	0.0000		1.9000e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.3200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0123					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.8000e-004	1.8000e-004	0.0000		1.9000e-004
Total	**0.0157**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.8000e-004**	**1.8000e-004**	**0.0000**		**1.9000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.3200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0123					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.8000e-004	1.8000e-004	0.0000		1.9000e-004
Total	**0.0157**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.8000e-004**	**1.8000e-004**	**0.0000**		**1.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Spring Creek Road Bridge Replacement

Shasta County AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.80	Acre	0.80	34,848.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	82
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase -

Grading -

Demolition -

Area Coating -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialImported	0.00	840.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0466	0.4427	0.4619	8.7000e-004	0.0197	0.0220	0.0417	6.2900e-003	0.0203	0.0266	0.0000	77.0901	77.0901	0.0187	1.6000e-003	78.0340
Maximum	**0.0466**	**0.4427**	**0.4619**	**8.7000e-004**	**0.0197**	**0.0220**	**0.0417**	**6.2900e-003**	**0.0203**	**0.0266**	**0.0000**	**77.0901**	**77.0901**	**0.0187**	**1.6000e-003**	**78.0340**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0466	0.4427	0.4619	8.7000e-004	0.0161	0.0220	0.0381	4.7800e-003	0.0203	0.0251	0.0000	77.0901	77.0901	0.0187	1.6000e-003	78.0339
Maximum	**0.0466**	**0.4427**	**0.4619**	**8.7000e-004**	**0.0161**	**0.0220**	**0.0381**	**4.7800e-003**	**0.0203**	**0.0251**	**0.0000**	**77.0901**	**77.0901**	**0.0187**	**1.6000e-003**	**78.0339**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**18.35**	**0.00**	**8.67**	**24.01**	**0.00**	**5.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-1-2022**	**7-31-2022**	0.2736	0.2736
2	**8-1-2022**	**9-30-2022**	0.1781	0.1781
		Highest	0.2736	0.2736

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.8600e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8600e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.8600e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8600e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2022	5/13/2022	5	10	
2	Site Preparation	Site Preparation	5/14/2022	5/16/2022	5	1	
3	Grading	Grading	5/17/2022	5/18/2022	5	2	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Building Construction	Building Construction	5/19/2022	10/5/2022	5	100	
5	Paving	Paving	10/6/2022	10/12/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.8

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	8.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	105.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	15.00	6.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.2000e-004	0.0000	9.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0321	0.0374	6.0000e-005		1.6900e-003	1.6900e-003		1.6100e-003	1.6100e-003	0.0000	5.2068	5.2068	9.6000e-004	0.0000	5.2308
Total	**3.5500e-003**	**0.0321**	**0.0374**	**6.0000e-005**	**9.2000e-004**	**1.6900e-003**	**2.6100e-003**	**1.4000e-004**	**1.6100e-003**	**1.7500e-003**	**0.0000**	**5.2068**	**5.2068**	**9.6000e-004**	**0.0000**	**5.2308**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.5000e-004	1.2000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2373	0.2373	0.0000	4.0000e-005	0.2485
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.8000e-004	2.0100e-003	1.0000e-005	6.1000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.7000e-004	0.0000	0.5131	0.5131	1.0000e-005	1.0000e-005	0.5178
Total	**2.4000e-004**	**8.3000e-004**	**2.1300e-003**	**1.0000e-005**	**6.8000e-004**	**1.0000e-005**	**6.8000e-004**	**1.8000e-004**	**1.0000e-005**	**1.9000e-004**	**0.0000**	**0.7504**	**0.7504**	**1.0000e-005**	**5.0000e-005**	**0.7662**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.2000e-004	0.0000	4.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5500e-003	0.0321	0.0374	6.0000e-005		1.6900e-003	1.6900e-003		1.6100e-003	1.6100e-003	0.0000	5.2068	5.2068	9.6000e-004	0.0000	5.2308
Total	**3.5500e-003**	**0.0321**	**0.0374**	**6.0000e-005**	**4.2000e-004**	**1.6900e-003**	**2.1100e-003**	**6.0000e-005**	**1.6100e-003**	**1.6700e-003**	**0.0000**	**5.2068**	**5.2068**	**9.6000e-004**	**0.0000**	**5.2308**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.5000e-004	1.2000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2373	0.2373	0.0000	4.0000e-005	0.2485
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.8000e-004	2.0100e-003	1.0000e-005	6.1000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.7000e-004	0.0000	0.5131	0.5131	1.0000e-005	1.0000e-005	0.5178
Total	**2.4000e-004**	**8.3000e-004**	**2.1300e-003**	**1.0000e-005**	**6.8000e-004**	**1.0000e-005**	**6.8000e-004**	**1.8000e-004**	**1.0000e-005**	**1.9000e-004**	**0.0000**	**0.7504**	**0.7504**	**1.0000e-005**	**5.0000e-005**	**0.7662**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9000e-004	3.4700e-003	1.9800e-003	0.0000		1.3000e-004	1.3000e-004		1.2000e-004	1.2000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4310
Total	**2.9000e-004**	**3.4700e-003**	**1.9800e-003**	**0.0000**	**2.7000e-004**	**1.3000e-004**	**4.0000e-004**	**3.0000e-005**	**1.2000e-004**	**1.5000e-004**	**0.0000**	**0.4275**	**0.4275**	**1.4000e-004**	**0.0000**	**0.4310**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	1.0000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0257	0.0257	0.0000	0.0000	0.0259
Total	**1.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0257**	**0.0257**	**0.0000**	**0.0000**	**0.0259**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9000e-004	3.4700e-003	1.9800e-003	0.0000		1.3000e-004	1.3000e-004		1.2000e-004	1.2000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4310
Total	**2.9000e-004**	**3.4700e-003**	**1.9800e-003**	**0.0000**	**1.2000e-004**	**1.3000e-004**	**2.5000e-004**	**1.0000e-005**	**1.2000e-004**	**1.3000e-004**	**0.0000**	**0.4275**	**0.4275**	**1.4000e-004**	**0.0000**	**0.4310**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	1.0000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0257	0.0257	0.0000	0.0000	0.0259
Total	**1.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0257**	**0.0257**	**0.0000**	**0.0000**	**0.0259**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3700e-003	0.0000	5.3700e-003	2.5800e-003	0.0000	2.5800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0800e-003	0.0120	5.9400e-003	1.0000e-005		5.2000e-004	5.2000e-004		4.8000e-004	4.8000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2482
Total	**1.0800e-003**	**0.0120**	**5.9400e-003**	**1.0000e-005**	**5.3700e-003**	**5.2000e-004**	**5.8900e-003**	**2.5800e-003**	**4.8000e-004**	**3.0600e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2482**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	8.5900e-003	1.6000e-003	3.0000e-005	8.8000e-004	8.0000e-005	9.6000e-004	2.4000e-004	8.0000e-005	3.2000e-004	0.0000	3.1151	3.1151	1.0000e-005	4.9000e-004	3.2612
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0821	0.0821	0.0000	0.0000	0.0828
Total	**2.4000e-004**	**8.6200e-003**	**1.9200e-003**	**3.0000e-005**	**9.8000e-004**	**8.0000e-005**	**1.0600e-003**	**2.7000e-004**	**8.0000e-005**	**3.5000e-004**	**0.0000**	**3.1972**	**3.1972**	**1.0000e-005**	**4.9000e-004**	**3.3440**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.4200e-003	0.0000	2.4200e-003	1.1600e-003	0.0000	1.1600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0800e-003	0.0120	5.9400e-003	1.0000e-005		5.2000e-004	5.2000e-004		4.8000e-004	4.8000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2482
Total	**1.0800e-003**	**0.0120**	**5.9400e-003**	**1.0000e-005**	**2.4200e-003**	**5.2000e-004**	**2.9400e-003**	**1.1600e-003**	**4.8000e-004**	**1.6400e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2482**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	8.5900e-003	1.6000e-003	3.0000e-005	8.8000e-004	8.0000e-005	9.6000e-004	2.4000e-004	8.0000e-005	3.2000e-004	0.0000	3.1151	3.1151	1.0000e-005	4.9000e-004	3.2612
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0821	0.0821	0.0000	0.0000	0.0828
Total	**2.4000e-004**	**8.6200e-003**	**1.9200e-003**	**3.0000e-005**	**9.8000e-004**	**8.0000e-005**	**1.0600e-003**	**2.7000e-004**	**8.0000e-005**	**3.5000e-004**	**0.0000**	**3.1972**	**3.1972**	**1.0000e-005**	**4.9000e-004**	**3.3440**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.3513	0.3576	5.7000e-004		0.0186	0.0186		0.0171	0.0171	0.0000	50.0739	50.0739	0.0162	0.0000	50.4787
Total	**0.0343**	**0.3513**	**0.3576**	**5.7000e-004**		**0.0186**	**0.0186**		**0.0171**	**0.0171**	**0.0000**	**50.0739**	**50.0739**	**0.0162**	**0.0000**	**50.4787**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7000e-004	0.0168	5.2100e-003	6.0000e-005	1.7700e-003	1.7000e-004	1.9300e-003	5.1000e-004	1.6000e-004	6.7000e-004	0.0000	5.6631	5.6631	3.0000e-005	8.3000e-004	5.9105
Worker	3.3400e-003	2.6300e-003	0.0302	8.0000e-005	9.1100e-003	5.0000e-005	9.1700e-003	2.4300e-003	5.0000e-005	2.4800e-003	0.0000	7.6965	7.6965	2.1000e-004	2.2000e-004	7.7664
Total	**4.0100e-003**	**0.0195**	**0.0354**	**1.4000e-004**	**0.0109**	**2.2000e-004**	**0.0111**	**2.9400e-003**	**2.1000e-004**	**3.1500e-003**	**0.0000**	**13.3596**	**13.3596**	**2.4000e-004**	**1.0500e-003**	**13.6769**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.3513	0.3576	5.7000e-004		0.0186	0.0186		0.0171	0.0171	0.0000	50.0738	50.0738	0.0162	0.0000	50.4787
Total	**0.0343**	**0.3513**	**0.3576**	**5.7000e-004**		**0.0186**	**0.0186**		**0.0171**	**0.0171**	**0.0000**	**50.0738**	**50.0738**	**0.0162**	**0.0000**	**50.4787**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7000e-004	0.0168	5.2100e-003	6.0000e-005	1.7700e-003	1.7000e-004	1.9300e-003	5.1000e-004	1.6000e-004	6.7000e-004	0.0000	5.6631	5.6631	3.0000e-005	8.3000e-004	5.9105
Worker	3.3400e-003	2.6300e-003	0.0302	8.0000e-005	9.1100e-003	5.0000e-005	9.1700e-003	2.4300e-003	5.0000e-005	2.4800e-003	0.0000	7.6965	7.6965	2.1000e-004	2.2000e-004	7.7664
Total	**4.0100e-003**	**0.0195**	**0.0354**	**1.4000e-004**	**0.0109**	**2.2000e-004**	**0.0111**	**2.9400e-003**	**2.1000e-004**	**3.1500e-003**	**0.0000**	**13.3596**	**13.3596**	**2.4000e-004**	**1.0500e-003**	**13.6769**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6200e-003	0.0148	0.0176	3.0000e-005		7.4000e-004	7.4000e-004		6.9000e-004	6.9000e-004	0.0000	2.3492	2.3492	6.8000e-004	0.0000	2.3663
Paving	1.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6700e-003**	**0.0148**	**0.0176**	**3.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**2.3492**	**2.3492**	**6.8000e-004**	**0.0000**	**2.3663**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.6000e-004	1.8100e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4618	0.4618	1.0000e-005	1.0000e-005	0.4660
Total	**2.0000e-004**	**1.6000e-004**	**1.8100e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4618**	**0.4618**	**1.0000e-005**	**1.0000e-005**	**0.4660**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6200e-003	0.0148	0.0176	3.0000e-005		7.4000e-004	7.4000e-004		6.9000e-004	6.9000e-004	0.0000	2.3492	2.3492	6.8000e-004	0.0000	2.3663
Paving	1.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6700e-003**	**0.0148**	**0.0176**	**3.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**2.3492**	**2.3492**	**6.8000e-004**	**0.0000**	**2.3663**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.6000e-004	1.8100e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4618	0.4618	1.0000e-005	1.0000e-005	0.4660
Total	**2.0000e-004**	**1.6000e-004**	**1.8100e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4618**	**0.4618**	**1.0000e-005**	**1.0000e-005**	**0.4660**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.474819	0.052596	0.188673	0.149467	0.048039	0.009684	0.009203	0.022112	0.000659	0.000153	0.036435	0.001453	0.006708

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.8600e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	2.8600e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	2.0000e-005
Total	**2.8600e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	2.0000e-005
Total	**2.8600e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

Biological Documentation

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
PLANTS						
Bellinger's meadowfoam *Limnanthes floccosa* var. *bellingeriana*	1B.2	Bellinger's meadowfoam occurs around meadows, seeps, and damp stony flats below 3,300 feet in elevation in Shasta County. The flowering period is April through June.	Yes	No	No	Marginally suitable habitat for Bellinger's meadowfoam occurs in the BSA. However, Bellinger's meadowfoam was not observed during the botanical surveys and is not expected to be present.
Bristly sedge *Carex comosa*	2B.1	Bristly sedge is a perennial grass-like herb that occurs on lake and wetland edges in wetland-riparian communities. The species is present up to 1,312 feet in elevation. The flowering period is between July and September.	Yes	No	No	Marginally suitable habitat for bristly sedge occurs in the BSA. However, bristly sedge was not observed during the botanical surveys and is not expected to be present.
Eel-grass pondweed *Potamogeton zosteriformis*	2B.2	Eel-grass pondweed is an annual herb that occurs in ponds, lakes, and streams. It is present up to 4,265 feet in elevation. The blooming period is between June and July.	Yes	No	No	The BSA contains habitat for eel-grass pondweed in Spring Creek. However, this species was not observed during the botanical surveys and is not expected to be present.
Great Basin nemophila *Nemophila breviflora*	2B.2	Great Basin nemophila is an annual herb that occurs along streambank and in meadows. The elevational range of this species is between approximately 4,921 and 7,218 feet. The blooming period is May through June.	Yes	No	No	Spring Creek within the BSA contains suitable habitat for Great Basin nemophila. However, this species was not observed during the botanical surveys and is not expected to be present.
Hairy marsh hedge-nettle *Stachys palustris* ssp. *pilosa*	2B.3	Hairy marsh hedge-nettle occurs in meadows and seeps within Great Basin scrub habitats, generally between 3,900 and 5,000 feet in elevation. The flowering period is June through August.	Yes	No	No	Marginally suitable habitat for hairy marsh hedge-nettle occurs in the BSA. However, hairy marsh hedge-nettle was not observed during the botanical surveys and is not expected to be present.
Lemmon's milk-vetch *Astragalus lemmonii*	1B.2	Lemmon's milk-vetch is a perennial herb that occurs in moist, alkaline meadows and like shores. It is present between 4,265 and 9,514 feet in elevation. The flowering period is May through July.	No	No	No	The BSA does not contain suitable habitat for Lemmon's milk-vetch. Further, this species was not observed during botanical surveys and is not expected to be present.
Long-leaved starwort *Stellaria longifolia*	2B.2	Long-leaved starwort occurs in meadows and seeps as well as riparian woodlands. The species is reported between 3,000 and 6,000 feet in elevation. The flowering period is May through August.	Yes	No	No	Marginally suitable habitat for the long-leaved starwort is present along the Fall River within the project area. However, long-leaved starwort was not observed during the botanical surveys and is not expected to be present.

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Marsh skullcap *Scutellaria galericulata*	2B.2	Marsh skullcap is a perennial member of the mint family. It occurs in meadows, along streambanks and in other wet places at elevations of 3,000 to 7,000 feet. The flowering period is June through September.	Yes	No	No	Suitable habitat for marsh skullcap occurs along the Fall River within the project area. However, marsh skullcap was not observed during the botanical surveys and is not expected to be present.
Northern slender pondweed *Stuckenia filiformis* ssp. *alpine*	2B.2	Northern slender pondweed is a perennial herb that occurs in shallow, clear water of freshwater lakes, or drainage channels. The species is found between 984 and 7054 feet in elevation. The flowering period is between May and July.	Yes	No	No	Although habitat is present in the project area for northern slender pondweed, the species was not observed during botanical surveys and is not expected to be present.
Slender Orcutt grass *Orcuttia tenuis*	FT, SE, 1B.1	Slender Orcutt occurs in vernal pools and similar habitats, occasionally on reservoir edges or stream floodplains, on clay soils with seasonal inundation in valley grassland to coniferous forest or sagebrush scrub. The species is found up to 5,800 feet in elevation. The flowering period is May through September.	No	No	No	No vernal pools or other potentially suitable habitats for slender Orcutt grass are present in the BSA. Slender Orcutt grass was not observed during the botanical surveys and is not expected to be present.
Tufted loosestrife *Lysimachia thyrsiflora*	2B.3	Tufted loosestrife occurs in meadows and along lakes and streams, between 3,200 and 5,500 feet in elevation in Plumas and eastern Shasta counties. The flowering period is May through August.	Yes	No	No	Potentially suitable habitat for tufted loosestrife is present along the Fall River within the project area. However, tufted loosestrife was not observed during the botanical surveys, and is not expected to be present.
Water star-grass *Heteranthera dubia*	2B.2	Water star-grass occurs in marshes and swamps and requires a water PH ≥7. The species occurs below 5,000 feet in elevation and blooms between July and October.	No	No	No	Water star-grass is not known to occur in the Fall River. The species was not observed during the botanical surveys and is not expected to be present.
Watershield *Brasenia schreberi*	2B.3	Watershield, a perennial rhizomatous herb, occurs in ponds, marshes and swamps. The species occurs between sea level and 7,300 feet in elevation and blooms between June and September.	No	No	No	No ponds, marshes or swamps are present in the BSA. Watershield was not observed during the botanical surveys and is not expected to be present.
INVERTEBRATES						

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Conservancy fairy shrimp *Branchinecta conservatio*	FE	Conservancy fairy shrimp inhabit large, cool-water vernal pools with moderately turbid water.	No	No	No	No vernal pools or other potentially suitable habitats for Conservancy fairy shrimp are present in the BSA. Conservancy fairy shrimp would thus not be present.
Monarch – California overwintering population *Danaus plexippus* pop. 1	FC	Monarch butterflies are reliant on milkweed species of development and survival. Adults migrate from their overwintering sites on the California Coast, Baja California, and to some extent the central Mexico mountains in February and March and reach the northern limit of their North America range in California, Oregon, Washington, Idaho, and Nevada, in early to mid-June. Eggs are laid singly on milkweed plants within their breeding range. Once hatched, larva reach the adult stage in 20 to 35 days; adults live 2 to 5 weeks. Several generations can be produced within one season, with the last generation beginning migration to their overwintering range in August and September where they live between 6 and 9 months before migrating north.	Yes	No	Yes	Showy milkweed (*Asclepias speciosa*) was observed during botanical surveys. The milkweed plant provides habitat for the monarch butterfly to lay eggs, and for the larvae to grow and pupate to their adult stage. Therefore, it is possible for the monarch butterfly to be present within the project site.

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Shasta crayfish *Pacifastacus fortis*	FE, SE	According to the *Recovery Plan for the Shasta Crayfish*[1] the species is found primarily in the Fall River and Hat Creek drainages of the Pit River, with several populations in the Pit River. Shasta crayfish occur in cool lakes, rivers, and streams near spring inflow sources, where waters have little fluctuation in temperature. Lava cobble and boulders are an important component of Shasta crayfish habitat. Although Shasta crayfish are not known to move great distances, they are known to colonize new areas of suitable habitat created by the placement of lava rock around nearby bridge abutments or levees. In some cases, Shasta crayfish may disperse through areas of unsuitable habitat to reach suitable habitat.	No	No.	No	CNDDB records show no previously reported occurrences of the Shasta crayfish in the BSA. The nearest known occurrences are in the Fall River, ±2 miles north of the bridge site, and in Fall River Pond, ±18 miles downstream of the bridge site. The largest known population, estimated at 4,000 individuals, occurs in the headwaters of Spring Creek. The project site does not have suitable habitat for Shasta crayfish because no springs are present and the invasive signal crayfish is abundant. Further, no Shasta crayfish were observed during underwater surveys conducted at the bridge site in 1990. Shasta crayfish are not expected to occur in the study area or be affected by project implementation.
BIRDS						
Bald Eagle *Haliaeetus leucocephalus*	FD, SE, SFP	Bald eagles nest in large, old-growth trees or snags in mixed stands near open bodies of water. Adults tend to use the same breeding areas year after year and often use the same nest, though a breeding area may include one or more alternate nests. Bald eagles do not usually begin nesting if human disturbance is evident. In California, the bald eagle nesting season is from February through July.	Yes	No	Pot.	According to CNDDB records, a bald eagle nested approximately 0.2 miles from the BSA in 2015. Although trees along the Fall River in the general project vicinity provide suitable nesting habitat for bald eagles, no bald eagles or nests were observed during the wildlife surveys. Nonetheless, the bald eagle could nest in or near the project area in future years.
Bank swallow *Riparia riparia*	ST	Bank swallows require vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, or the ocean for nesting.	No	No	No	No vertical banks or cliffs are present in the BSA. Bank swallows were not observed during the field surveys and are not expected to nest in the project area.

[1] U.S. Fish and Wildlife Service. 1998. *Recovery Plan for the Shasta Crayfish (Pacifastacus fortis)*. U.S. Fish and Wildlife Service, Portland, Oregon. 153 pp.

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Greater sandhill crane *Antigone canadensis tabida*	ST, SFP	Greater sandhill cranes overwinter in the Central Valley and nest in wetland habitats in northeastern California. Nests generally consist of large mounds of vegetation in shallow water. Shallow islands bordered by tules and cattails are ideal nesting sites; natural hummocks or muskrat houses may also be used as nest sites.	Yes	No	Pot.	According to CNDDB records, the greater sandhill crane was reported approximately 1.0 mile from the BSA in 1988. No sandhill crane breeding activity was observed during the wildlife surveys, but sandhill crane vocalizations were heard on several occasions during the field studies. No potentially suitable sandhill crane nesting habitat is present in the immediate project area, but the cranes could potentially nest in the vicinity.
Northern spotted owl *Strix occidentalis caurina*	FT, SC, SSSC	Northern spotted owls inhabit dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir forests from sea level to approximately 7,600 feet in elevation. Northern spotted owls typically nest in tree cavities, the broken tops of trees, or in snags.	No	No	No	No old-growth forest or potentially suitable nesting trees/snags are present in the BSA or vicinity. The spotted owl is thus not expected to nest in the BSA.
Osprey *Pandion haliaetus*	WL	Ospreys nest on large decadent trees or structures such as powerline towers, buildings, and bridges near large fish-bearing water bodies. Ospreys are primarily associated with pine and mixed-conifer habitats, although urban or suburban nests are not unusual.	No	No	No	No potentially suitable nesting habitat is present in the BSA for the osprey, and no ospreys or osprey nests were observed during the wildlife survey. Although osprey may forage in the project area, they are not expected to nest in the BSA.
Tricolored blackbird *Agelaius tricolor*	ST, SSSC	Tricolored blackbirds are colonial nesters and generally nest near open water in dense stands of cattails or tules, although they can also nest in thickets of willow, blackberry, wild rose, or tall herbs. Nesting areas must be large enough to support a minimum colony of about 50 pairs. The species forages in open habitats, such as farm fields, pastures, rangelands, cattle pens, and large lawns.	No	No	No	No large expanses of cattails, tules, or thickets of willows/ blackberry/rose occur in the project area. No tricolored blackbirds or tricolored blackbird nests were observed during the wildlife survey. Although the species may forage in fields and pastures in the vicinity of the bridge site, the species would not nest in or adjacent to the BSA.

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
REPTILES						
Western pond turtle *Emys marmorata*	SSSC	The western pond turtle associates with permanent or nearly permanent water in a variety of habitats. This turtle is typically found in quiet water environments. Pond turtles require basking sites such as partially submerged logs, rocks, or open mud banks, and suitable (sandy banks or grassy open fields) upland habitat for egg-laying. Nesting and courtship occur during spring. Nests are generally constructed within 500 feet of a waterbody. Pond turtles leave aquatic sites in the fall and overwinter in nearby uplands. Pond turtles return to aquatic sites in spring.	Yes	No	Pot.	Although no western pond turtles were observed during the wildlife surveys, the Fall River in the BSA provides potentially suitable habitat for the turtle.
AMPHIBIANS						
Oregon spotted frog *Rana pretiosa*	FT, SSSC	Oregon spotted frogs are typically found in or near a perennial body of water that includes zones of shallow water and abundant emergent or floating aquatic plants, which the frogs use as basking sites and for escape cover. The frog prefers large, warm marshes (approximate minimum size of 9 acres).	No	No	No	CNDDB records show that the Oregon spotted frog has been reported in four locations in California. The species was reported once near Fall River Mills in 1898 and the occurrence is broadly mapped to include the County's Corporation Yard. The most recent reported California occurrence was in Cedarville, Modoc County, in 1989. The species is presumed to be extirpated from all other locations in the State. Oregon spotted frogs would not be present in the BSA.
FISH						
Bigeye marbled sculpin *Cottus klamathensis macrops*	SSSC	Bigeye marbled sculpins generally inhabit large, clear, cold, spring-fed streams in the Pit River and Fall River basins, and are occasionally found in reservoirs. Bigeye marbled sculpins are often found in areas with aquatic vegetation and coarse substrates.	Yes	No	Yes	The Fall River in the BSA provides suitable habitat for the bigeye marbled sculpin. This species was observed at the bridge site during a 1990 underwater survey, and there is a high potential for the species to be present in the BSA.

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Delta smelt *Hypomesus transpacificus*	FT	Delta smelt primarily inhabit the brackish waters of Sacramento-San Joaquin River Delta. Most spawning occurs in backwater sloughs and channel edgewaters.	No	No	No	The BSA is well outside the range of the Delta smelt. Delta smelt would thus not be present.
Green sturgeon *Acipenser medirostris*	FT	The green sturgeon is an anadromous fish that spawns in large rivers. In California, green sturgeon spawn primarily in the Klamath and Trinity rivers, but a small number is known to spawn in the Sacramento River. Most spawning in the Sacramento River occurs above Hamilton City, and may range as far north as Keswick Dam. Spawning in the Sacramento River occurs between March and July, when water temperatures are 8° to 14°C. Spawning occurs in deep (greater than three meters) water with a swift current. Preferred spawning substrate is large cobble, but may include clean sand to bedrock.	No	No	No	The BSA is well outside the range of the Green sturgeon. Green sturgeon would thus not be present.
Hardhead *Mylopharodon conocephalus*	SSSC	Hardhead inhabit low to mid-elevation streams and spawn in clear, deep pools, with rock substrate and low water flow. Their range extends from the Pit River (south of the Goose Lake drainage) in Modoc County south through the Sacramento and San Joaquin drainage basins to the Kern River in Kern County. They are widely, if spottily, distributed in the Pit River drainage, occurring in canyon reaches of the main stem and in its hydroelectric reservoirs.	No	No	No	CNDDB records indicate that hardhead were reported in the Pit 1 Forebay (Fall River Lake) in 1992. Hardhead have not been reported elsewhere in the Fall River and are not expected to be present in the BSA.
Pit-Klamath brook lamprey *Entosphenus lethophagus*	SSSC	Pit-Klamath brook lampreys are found only in the Pit River system in California. Pit-Klamath brook lampreys inhabit low-gradient reaches of clear, cool rivers and streams with sand-mud bottoms or edges.	Yes	No	Pot.	According to CNDDB records, Pit-Klamath brook lamprey have been reported near the confluence of Spring Creek and the Fall River and are broadly mapped as occurring within the bridge site; thus, there is a potential for the Pit-Klamath brook lamprey to be present in the BSA.

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Rough sculpin *Cottus asperrimus*	ST, SFP	Rough sculpins are restricted to the Hat Creek and Fall River drainages, as well as the Pit River, from Lake Britton to just downstream of the Pit 1 Powerhouse. Rough sculpins are generally found in large spring-fed streams where water is cool, deep, rapidly flowing, and clear. This sculpin is often found in areas with gravel or sand bottoms and beds of aquatic vegetation. Nests are constructed in a variety of habitats, including riffles, pools, and in the vicinity of springs.	Yes	No	Yes	The Fall River in the BSA provides suitable habitat for the rough sculpin. This species was observed at the bridge site during a 1990 underwater survey, and there is a high potential for the species to be present in the BSA.
MAMMALS						
American badger *Taxidea taxus*	SSSC	Badgers are most commonly found in dry, open areas in shrub, forest, and herbaceous habitats, with friable soils and uncultivated ground. Badgers dig burrows in dry, sandy soil, usually in areas with sparse overstory.	No	No	No	No uncultivated ground with friable soils occurs in the BSA. Neither badgers nor their burrows were observed during the field surveys and badgers are not expected to be present in the project area.
California wolverine *Gulo gulo*	SSSC	Wolverines are dependent on areas in high mountains, near the tree-line, where conditions are cold year-round and snow cover persists well into the month of May. Female wolverines use birthing dens that are excavated in snow. Persistent, stable snow greater than 1.5 meters deep appears to be a requirement for birthing dens. Birthing dens consist of tunnels that contain well-used runways and bed sites and may naturally incorporate shrubs, rocks, and downed logs as part of their structure. Birthing dens may occur on rocky sites, such as north-facing boulder talus or subalpine cirques. Wolverines are very sensitive to human activities and often abandon den sites in response to human disturbance.	No	No	No	The BSA has no suitable habitat for the wolverine and is subject to periodic human disturbance. No wolverines or wolverine dens were observed in the project area during the wildlife survey, and the species is not expected to den in the project area.

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Fisher - West Coast DPS *Pekania pennanti*	SSSC	Fishers inhabit mixed conifer forests dominated by Douglas-fir, although they also are encountered frequently in higher elevation fir and pine forests, and mixed evergreen/broadleaf forests. Suitable habitat for fishers consists of large areas of mature, dense forest stands with snags and greater than 50 percent canopy closure. Fishers den in cavities in large trees, snags, logs, rocky areas, or shelters provided by slash or brush piles. Fishers are very sensitive to human activities. Den sites are most often found in areas with no human disturbance.	No	No	No	Review of CNDDB records found that the Pacific fisher has been broadly mapped as occurring within the project area. However, the project area has few trees, which provide little canopy cover, and is subject to periodic human disturbance. No Pacific fishers or fisher dens were observed in the project area during the wildlife survey. The species is not expected to den in the project area.
Oregon snowshoe hare *Lepus americanus klamathensis*	SSSC	Oregon snowshoe hares inhabit alder and willow thickets and young conifer stands in upper montane coniferous forests and subalpine coniferous forests.	No	No	No	No suitable habitat occurs in the BSA for the Oregon snowshoe hare. The Oregon snowshoe hare would thus not be present.
Sierra Nevada red fox *Vulpes vulpes necator*	FE, ST	The Sierra Nevada red fox inhabits remote mountainous areas where encounters with humans are rare. Preferred habitat appears to be red fir and lodgepole pine forests in the subalpine and alpine zones of the Sierra Nevada. This species may hunt in forest openings, meadows, and barren rocky areas associated with its high elevation habitats.	No	No	No	Review of CNDDB records found that the Sierra Nevada red fox has been broadly mapped as occurring within the project area. However, the project area does not support lodgepole pine or red fir forests, and is subject to periodic human disturbance. No Sierra Nevada red foxes or fox dens were observed in the project area during the wildlife survey. The species is not expected to den in the project area.

Potential for Special-Status Species to Occur in the Biological Study Area (BSA)
August 2022

COMMON NAME SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Townsend's big-eared bat *Corynorhinus townsendii*	SSSC	Townsend's big-eared bat is found throughout California except in subalpine and alpine habitats, and may be found at any season throughout its range. The species is most abundant in mesic habitats. The bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting. This bat is especially sensitive to disturbance of roosting sites, and a single disturbance event may result in abandonment of the roost site.	No	No	No	There are no caves, mines, tunnels, buildings, or other suitable habitat in the BSA for the Townsend's big-eared bat. The Townsend's big-eared bat would thus not roost in the BSA.

[1] Status Codes

Federal:

FE	Federally Listed – Endangered
FT	Federally Listed – Threatened
FC	Federal Candidate Species
FP	Federal Proposed Species
FD	Federal Delisted

State:

SFP	State Fully Protected	WL	Watch List
SR	State Rare		
SE	State Listed - Endangered		
ST	State Listed - Threatened		
SC	State Candidate Species		
SSSC	State Species of Special Concern		

Rare Plant Rank

1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened or Endangered in California and Elsewhere
2A	Presumed extirpated in California, but more common elsewhere
2B	Rare or Endangered in California, but more common elsewhere

Rare Plant Threat Rank

0.1	Seriously Threatened in California
0.2	Fairly Threatened in California
0.3	Not Very Threatened in California

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: August 11, 2022
Project Code: 2022-0074002
Project Name: Spring Creek Road Bridge

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

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

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Project Code: 2022-0074002
Project Name: Spring Creek Road Bridge
Project Type: Bridge - Replacement
Project Description: 020-43 - Bridge Site
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.10121315,-121.51500536023383,14z

Counties: Shasta County, California

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Shasta Crayfish *Pacifastacus fortis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8284	Endangered

Flowering Plants

NAME	STATUS
Slender Orcutt Grass *Orcuttia tenuis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

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

IPaC User Contact Information

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
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Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: August 11, 2022
Project Code: 2022-0074004
Project Name: Spring Creek Road Bridge - Staging Area

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

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

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Project Code: 2022-0074004
Project Name: Spring Creek Road Bridge - Staging Area
Project Type: Bridge - Replacement
Project Description: 020-43
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.0053876,-121.45085054860061,14z

Counties: Shasta County, California

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Shasta Crayfish *Pacifastacus fortis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8284	Endangered

Critical habitats

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

IPaC User Contact Information

Agency: ENPLAN
Name: Sabrina Rouse
Address: 3179 Bechelli Ln Suite 100
City: Redding
State: CA
Zip: 96002
Email srouse@enplan.com
Phone: 5302210440

Rarefind (CNDDB) Report Summary

Spring Creek Road Bridge Replacement Project; Five-Mile Radius of Project Area
Includes Staging Areas

August 2022

Listed Element	Quadrangle [1]								Status [2]
	DN	BB	CS	EP	FRM	HBR	TC		
ANIMALS									
American badger*					●				SSSC
Archimedes pyrg	●				●				None
Bald eagle	●		●	●	●	●	●		FD, SE, SFP
Bank swallow					●				ST
Bigeye marbled sculpin*					●				SSSC
California wolverine					●		●		ST, SFP
Canary duskysnail					●				None
Fisher-west coast DPS*	●								SSSC
Great Basin rams-horn*	●				●				None
Great blue heron					●				None
Greater sandhill crane	●				●				ST, SFP
Green sturgeon – southern DPS			●						FT
Hardhead					●	●			SSSC
Kneecap lanx	●		●		●	●			None
Montane peaclam						●			None
North American porcupine*	●			●					None
Nugget pebblesnail					●	●			None
Oregon snowshoe hare						●			SSSC
Oregon spotted frog*					●				FT, SSSC
Osprey			●			●			WL
Pit-Klamath brook lamprey*	●								SSSC
Prairie falcon								●	None
Rough sculpin*			●		●				ST, SFP
Scalloped juga			●			●			None
Shasta crayfish	●		●		●	●			FE, SE
Sierra Nevada red fox*	●								ST
Sucker Springs pyrg			●						None
Topaz juga*	●				●				None
Townsend's big-eared bat			●						SSSC
Tricolored blackbird	●				●				ST, SSSC
Western pearlshell			●			●			None
Western pond turtle			●		●	●			SSSC
Western ridged mussel						●			None
PLANTS									
Baker's globe mallow	●								4.2
Bellinger's meadowfoam	●								1B.2
Hairy marsh hedge-nettle					●				2B.3
Long-leaved starwort					●				2B.2
Marsh skullcap					●				2B.2
Profuse-flowered pogogyne	●				●				4.2
Tufted loosestrife					●				2B.3
Water star-grass					●				2B.2
Watershield*					●				2B.3

Woolly meadowfoam	●								4.2
NATURAL COMMUNITIES									
Big Lake					●				None
Lower Pit River / Canyon River (Hardhead / Tule Perch River)		●							None
Northern Interior Cypress Forest							●		None
Pit River Drainage Rough Sculpin / Shasta Crayfish Spring Stream*					●				None

Highlighting denotes the quadrangle in which the project site is located
*Denotes species on the project site and/or staging area

[1]QUADRANGLE CODE

DN	Dana	FRM	Fall River Mills
BB	Big Bend	HBR	Hogback Ridge
CS	Cassel	TC	Timbered Crater
EP	East of Pondosa		

[2]STATUS CODES

Federal

FE	Federally Listed – Endangered
FT	Federally Listed – Threatened
FC	Federal Candidate Species
FP	Federal Proposed Species
FD	Federally Delisted
FSC	Federal Species of Concern

State

SFP	State Fully Protected
SR	State Rare
SE	State Listed – Endangered
ST	State Listed – Threatened
SC	State Candidate Species
SD	State Delisted
SSSC	State Species of Special Concern

WL Watch List

Rare Plant Rank

1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened or Endangered in California and Elsewhere
2	Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3	Plants About Which We Need More Information *(A Review List)* (generally not considered special-status, unless unusual circumstances warrant)
4	Plants of Limited Distribution *(A Watch List)* (generally not considered special-status, unless unusual circumstances warrant)

Rare Plant Threat Ranks

0.1 Seriously Threatened in California
0.2 Fairly Threatened in California
0.3 Not Very Threatened in California

Natural Community Rank

Global Ranking

G1 Critically Imperiled	Critically imperiled in the state because of extreme rarity (often five or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation.
G2 Imperiled	Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation.
G3 Vulnerable	Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
G4 Apparently Secure	Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5 Secure	Common, widespread, and abundant in the state.

State Ranking

S1 Critically Imperiled	Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.
S2 Imperiled	Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.
S3 Vulnerable	Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.
S4 Apparently Secure	Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors.
S5 Secure	Common, widespread, and abundant in the state.

California Native Plant Society
Inventory of Rare and Endangered Plants
U.S. Geological Survey's Dana 7.5-minute Quadrangle

Common Name	Scientific Name	CA Rare Plant Rank	Blooming Period	State Listing Status	Federal Listing Status
Baker cypress	*Hesperocyparis bakeri*	4.2		None	None
Baker's globe mallow	*Iliamna bakeri*	4.2	Jun-Sep	None	None
Bellinger's meadowfoam	*Limnanthes floccosa* ssp. *bellingeriana*	1B.2	Apr-Jun	None	None
Castlegar hawthorne	*Crataegus castlegarensis*	3	May-Jun (Jul)	None	None
Eel-grass pondweed	*Potamogeton zosteriformis*	2B.2	Jun-Jul	None	None
Great Basin nemophila	*Nemophila breviflora*	2B.3	May-Jul	None	None
Mountain lady's-slipper	*Cypripedium montanum*	4.2	Mar-Aug	None	None
Profuse-flowered pogogyne	*Pogogyne floribunda*	4.2	May-Sep (Oct)	None	None
Slender Orcutt grass	*Orcuttia tenuis*	1B.1	May-Sep (Oct)	CE	FT
Susanville milk-vetch	*Astragalus inversus*	4.3	May-Sep	None	None
Tracy's eriastrum	*Eriastrum tracyi*	3.2	May-Jul	CR	None
Woolly meadowfoam	*Limnanthes floccosa* ssp. *floccosa*	4.2	Mar-May (Jun)	None	None

Rare Plant Rank	
1A	Plants presumed extinct in California and either rare or extinct elsewhere
1B	Plants rare, threatened or endangered in California and elsewhere
2A	Plants presumed extinct in California but common elsewhere
2B	Plants rare, threatened, or endangered in California but common elsewhere
3	Review List: Plants about which more information is needed (generally not considered special-status, unless unusual circumstances warrant)
4	Watch List: Plants of limited distribution (generally not considered special-status, unless unusual circumstances warrant)
Rare Plant Threat Rank	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

Source: *California Native Plant Society, Rare Plant Program. 2022. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.5). http://www.rareplants.cnps.org. Accessed August 2022.*

California Native Plant Society
Inventory of Rare and Endangered Plants
U.S. Geological Survey's Fall River Mills 7.5-minute Quadrangle

Common Name	Scientific Name	CA Rare Plant Rank	Blooming Period	State Listing Status	Federal Listing Status
Baker cypress	*Hesperocyparis bakeri*	4.2	–	None	None
Bristly sedge	*Carex comosa*	2B.1	May-Sep	None	None
Castlegar hawthorne	*Crataegus castlegarensis*	3	May-Jun (Jul)	None	None
Hairy marsh hedge-nettle	*Stachys pilosa*	2B.3	Jun-Aug	None	None
Lemmon's milk-vetch	*Astragalus lemmonii*	1B.2	May-Aug (Sep)	None	None
Long-leaved starwort	*Stellaria longifolia*	2B.2	May-Aug	None	None
Marsh skullcap	*Scutellaria galericulata*	2B.2	Jun-Sep	None	None
Northern slender pondweed	*Stuckenia filiformis* ssp. *alpina*	2B.2	May-Jul	None	None
Profuse-flowered pogogyne	*Pogogyne floribunda*	4.2	May-Sep (Oct)	None	None
Tehama navarretia	*Navarretia heterandra*	4.3	Apr-Jun	None	None
Tufted loosestrife	*Lysimachia thyrsiflora*	2B.3	May-Aug	None	None
Water star-grass	*Heteranthera dubia*	2B.2	Jul-Oct	None	None
Watershield	*Brasenia schreberi*	2B.3	Jun-Sep	None	None

Rare Plant Rank	
1A	Plants presumed extinct in California and either rare or extinct elsewhere
1B	Plants rare, threatened or endangered in California and elsewhere
2A	Plants presumed extinct in California but common elsewhere
2B	Plants rare, threatened, or endangered in California but common elsewhere
3	Review List: Plants about which more information is needed (generally not considered special-status, unless unusual circumstances warrant)
4	Watch List: Plants of limited distribution (generally not considered special-status, unless unusual circumstances warrant)
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0.1	Seriously threatened in California
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0.3	Not very threatened in California

Source: *California Native Plant Society, Rare Plant Program. 2022. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.5). http://www.rareplants.cnps.org. Accessed August 2022.*

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Spring Creek Road Bridge Replacement Project

May 25 and July 20, 2008; June 9 and August 10, 2010; May 3 and September 10, 2018

Amaranthaceae	**Amaranth Family**
Amaranthus powellii	Green amaranth
Apiaceae	**Carrot Family**
Anthriscus caucalis	Bur-chervil
Apocynaceae	**Dogbane Family**
Asclepias speciosa	Showy milkweed
Araceae	**Arum Family**
Lemna sp.	Duckweed
Asteraceae	**Sunflower Family**
Anthemis cotula	Mayweed
Centaurea solstitialis	Yellow star thistle
Cirsium sp.	Thistle
Lactuca sp.	Prickly lettuce
Madia elegans	Madia
Matricaria discoidea	Pineapple weed
Taraxacum officinale	Dandelion
Tragopogon sp.	Goat’s beard
Betulaceae	**Birch Family**
Alnus rhombifolia	White alder
Boraginaceae	**Borage Family**
Amsinckia lycopsoides	Tarweed fiddleneck
Amsinckia menziesii	Menzie's fiddleneck
Myosotis scorpioides	Forget-me-not
Brassicaceae	**Mustard Family**
Barbarea verna	Early wintercress
Capsella bursa-pastoris	Shepherd's purse
Descurainia sophia	Flixweed
Draba verna	Whitlow grass
Lepidium chalepense	Lens-podded hoary cress
Lepidium campestre	English peppergrass
Rorippa curvisiliqua	Western yellow cress
Caryophyllaceae	**Pink Family**
Cerastium glomeratum	Mouse-eared chickweed
Holosteum umbellatum subsp. *umbellatum*	Jagged chickweed
Chenopodiaceae	**Goosefoot Family**
Chenopodium sp.	Goosefoot
Convolvulaceae	**Morning Glory Family**
Calystegia occidentalis	Western morning-glory

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Spring Creek Road Bridge Replacement Project

May 25 and July 20, 2008; June 9 and August 10, 2010; May 3 and September 10, 2018

Cyperaceae	**Sedge Family**
Carex pellita	Woolly sedge
Carex praegracilis	Clustered field sedge
Carex utriculata	Beaked sedge
Scirpus microcarpus	Small-fruited bulrush
Dipsacaceae	**Teasel Family**
Dipsacus fullonum	Wild teasel
Equisetaceae	**Horsetail Family**
Equisetum arvense	Common horsetail
Equisetum laevigatum	Smooth scouring rush
Fabaceae	**Legume Family**
Medicago sativa	Alfalfa
Melilotus albus	White sweetclover
Trifolium dubium	Little hop clover
Trifolium fragiferum	Strawberry clover
Trifolium pratense	Red clover
Trifolium repens	White clover
Vicia americana subsp. *americana*	American vetch
Vicia sativa subsp. *nigra*	Garden vetch
Geraniaceae	**Geranium Family**
Erodium cicutarium	Red-stemmed filaree
Haloragaceae	**Water-Milfoil Family**
Myriophyllum sp.	Water-milfoil
Hydrocharitaceae	**Najadaceae Family**
Elodea canadensis	Canadian waterweed
Juglandaceae	**Walnut Family**
Juglans hindsii	Northern California black walnut
Juncaceae	**Rush Family**
Juncus bufonius	Toad rush
Juncus mexicanus	Mexican rush
Lamiaceae	**Mint Family**
Lamium amplexicaule	Giraffe heads
Marrubium vulgare	Horehound
Stachys ajugoides	Bugle hedge nettle
Malvaceae	**Mallow Family**
Malva neglecta	Common mallow
Sidalcea oregana subsp. *spicata*	Spiked checkerbloom
Montiaceae	**Miner's Lettuce Family**
Claytonia rubra	Miner's lettuce

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Spring Creek Road Bridge Replacement Project

May 25 and July 20, 2008; June 9 and August 10, 2010; May 3 and September 10, 2018

Oleaceae	**Olive Family**
Fraxinus latifolia	Oregon ash
Onagraceae	**Evening-Primrose Family**
Epilobium sp.	Willowherb
Epilobium ciliatum subsp. *ciliatum*	Fringed willowherb
Phrymaceae	**Lopseed Family**
Mimulus guttatus	Common monkey-flower
Plantaginaceae	**Plantain Family**
Callitriche fassettii	Fassett's water-starwort
Plantago lanceolata	English plantain
Plantago major	Broadleaf plantain
Poaceae	**Grass Family**
Agrostis stolonifera	Creeping bentgrass
Alopecurus pratensis	Meadow foxtail
Apera interrupta	Apera
Arrhenatherum elatius	Tall oatgrass
Bromus diandrus	Ripgut grass
Bromus hordeaceus	Soft chess
Bromus tectorum	Downy brome
Dactylis glomerata	Orchard grass
Deschampsia elongata (?)	Slender hairgrass
Elymus glaucus	Blue wild rye
Elymus triticoides	Alkali ryegrass
Elytrigia sp.	Wheatgrass
Festuca arundinacea	Tall fescue
Festuca myuros	Foxtail fescue
Glyceria borealis	Northern mannagrass
Holcus lanatus	Common velvet grass
Hordeum murinum subsp. *leporinum*	Hare wall barley
Hordeum murinum subsp. *murinum*	Wall barley
Phalaris aquatica	Harding grass
Phleum pratense	Cultivated timothy
Poa bulbosa	Bulbous bluegrass
Poa palustris	Fowl bluegrass
Poa pratensis	Kentucky bluegrass
Polypogon monspeliensis	Annual beardgrass
Polygonaceae	**Buckwheat Family**
Persicaria lapathifolia	Willow weed
Polygonum aviculare subsp. *depressum*	Common knotweed
Rumex crispus	Curly dock
Rumex maritimus var. *fueginus* (?)	Dock
Rumex occidentalis	Dock
Rumex salicifolius	Willow dock
Portulacaceae	**Purslane Family**
Portulaca oleracea	Common purslane

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Spring Creek Road Bridge Replacement Project

May 25 and July 20, 2008; June 9 and August 10, 2010; May 3 and September 10, 2018

Ranunculaceae	**Buttercup Family**
Ranunculus aquatilis var. *diffusus*	Whitewater crowfoot
Rosaceae	**Rose Family**
Malus pumila	Apple
Potentilla (*gracilis* ?)	Cinquefoil
Prunus virginiana var. *demissa*	Western choke-cherry
Rosa woodsii subsp. *ultramontana*	Interior rose
Rubus armeniacus	Himalayan blackberry
Rubiaceae	**Madder Family**
Galium aparine	Cleavers
Galium trifidum subsp. *columbianum*	Pacific bedstraw
Salicaceae	**Willow Family**
Salix exigua	Sandbar willow
Salix lasiandra var. *lasiandra*	Pacific willow
Scrophulariaceae	**Snapdragon Family**
Verbascum blattaria	Moth mullein
Verbascum thapsus	Woolly mullein
Solanaceae	**Nightshade Family**
Solanum dulcamara	Climbing nightshade
Solanum physalifolium var. *nitidibaccatum*	Hairy nightshade
Typhaceae	**Cattail Family**
Typha sp.	Cattail
Zannichelliaceae	**Horned Pondweed Family**
Zannichellia palustris	Horned pondweed

Checklist of Wildlife Species Observed
Spring Creek Road Bridge Replacement Project
May 12, 2008

Common Name	Scientific Name	Status
BIRDS		
American crow	*Corvus brachyrhynchos*	None
American goldfinch	*Carduelis tristis*	None
American robin	*Turdus migratorius*	None
Cliff swallow	*Hirundo pyrrhonota*	None
Common raven	*Corvus corax*	None
Turkey vulture	*Cathartes aura*	None
White-crowned sparrow	*Zonotrichia atricapella*	None
MAMMALS		
California ground squirrel	*Otospermophilus beecheyi*	None
INVERTEBRATES		
Signal crayfish	*Pacifasticus leniusculus*	None
FISH		
Rainbow trout	*Onchorhynchus mykiss*	None

APPENDIX C

Letter of Concurrence

Completion of Tribal Consultation (AB 52, 2014)

Shasta County

DEPARTMENT OF PUBLIC WORKS

1855 PLACER STREET
REDDING, CA 96001-1759
530.225.5661 530.225.5667 FAX
800.479.8022 California Relay Service at 700 or 800.735.2922

PATRICK J. MINTURN, DIRECTOR
C. TROY BARTOLOMEI, DEPUTY
KEN D. CRISTOBAL, DEPUTY
ALFRED V. CATHEY, DEPUTY

No. 705920

October 4, 2019

Ajumawi Band of the Pit River Tribe
36970 Park Avenue
Burney, CA 96013

Subject: Spring Creek Road Bridge Replacement Project, Shasta County, California
Tribal Cultural Resources Consultation (AB 52)

Shasta County, as lead agency, has prepared an Administrative Draft Initial Study/Mitigated Negative Declaration (IS/MND) for the proposed Spring Creek Road Bridge Replacement Project (Project) in accordance with the California Environmental Quality Act (CEQA - California Public Resources Code, Division 13).

Pursuant to CEQA §21084.2 (AB 52, 2014), the County notified the Pit River Tribe of the Project. The Tribe requested formal consultation with the County. In October 2013, the NAHC designated the Pit River Tribe as the Most Likely Descendant (MLD). The Pit River Tribal Council then designated the Ajumawi Band as the Tribal representative for conducting AB 52 consultation.

Band representatives have met with County staff and consultants on various occasions to discuss the proposed project, project alternatives, and mitigation measures. During the consultation process, changes have been incorporated into the project at the request of the Ajumawi Band.

CEQA §21084.2 requires that any mitigation measures agreed upon in the consultation process must be recommended for inclusion in the IS/MND and in an adopted mitigation monitoring and reporting program (MMRP), and must be fully enforceable. County staff is recommending that the mitigation measures listed below be included in the IS/MND and MMRP, which are public documents that will be distributed for review by regulatory agencies and the general public.

Because of the need for federal funding and federal permits, similar but separate consultation has concurrently been ongoing pursuant to Section 106 of the National Historic Preservation Act. The Federal Highway Administration (FHWA) is the federal funding agency. Pursuant to 23 U.S. Code §326, the Secretary of Transportation has assigned, and the State of California has accepted, federal Lead Agency responsibility for environmental review, consultation, and coordination. Therefore, cultural resource studies for the proposed Project were completed in coordination with the Caltrans Office of Local Assistance as the designated federal Lead Agency representative.

Section 106 consultation extends through the project construction phase, while AB 52 consultation must be completed prior to adoption of the CEQA document (Initial Study and Mitigated Negative Declaration) by Shasta County. Mitigation measure MM 4.5.1 reflects the County's commitment to on-going consultation in accordance with Section 106. Mitigation measures 4.5.2 and 4.5.3 address the inadvertent discovery of cultural resources and human remains.

MM 4.5.1 Shasta County shall continue to coordinate with Caltrans (the designated federal Lead Agency for the project) throughout the duration of project construction to ensure that the County fulfills its responsibilities with respect to Section 106 of the National Historic Preservation Act.

MM 4.5.2 If any previously unevaluated cultural resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, etc.) are encountered, all earth-disturbing work shall stop within 25 feet (7.6 meters) of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary.

MM 4.5.3 In the event that human remains are encountered during construction activities, all construction activities (ground-disturbing or not) shall stop within 50 feet (15 meters) of the find, and the County-Designated (CD) Archaeologist shall be immediately contacted. The CD-Archaeologist, in coordination with Shasta County, shall ensure that the requirements of §15064.5 (e) (1) of the CEQA Guidelines and §7050.5 of the Health and Safety Code are met. These requirements provide that (1) the Shasta County coroner shall be contacted to determine whether investigation of the cause of death is required; and (2), if the remains are determined to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of the find. Together with representatives of the people of most likely descent, as identified by the NAHC, the CD-Archaeologist shall make an assessment of the discovery and recommend/implement mitigation measures as necessary.

Please provide your concurrence that consultation on the Project is concluded by signing below and returning this letter to my attention. If you have any questions, please feel free to contact me at 530.246.6810.

Sincerely,

Patrick J. Minturn, Director

By _____
Shawn Ankeny, Supervising Engineer
Bridge Design and Administration

SRA/ldr
Hand Delivered

c: Ignacio Venegas
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Mary Mike
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Ajumawi Band Concurrence:

Pursuant to CEQA §21080.3.2(b), the Ajumawi Band agrees that the proposed project as described in the Administrative Draft IS/MND dated August 2019, with adoption of the mitigation measures identified above, will adequately avoid and/or mitigate potentially significant effects on tribal cultural resources. Provided that the Project proposal and mitigation measures identified in the Administrative Draft IS/MND are not substantially altered, the Ajumawi Band concurs with Shasta County that AB 52 consultation is now concluded.

Ignacio Venegas, Ajumawi Council Representative — 10/4/19 Date

Mary Mike, Ajumawi Cultural Representative — 10-4-19 Date

Virginia (Ginger) Amoroso, Ajumawi Cultural Representative — 10-4-19 Date