

SOUTH AVENUE SAFETY PROJECT

TEHAMA COUNTY, CALIFORNIA
DISTRICT 2 – TEH – 99 (PM 4.2/4.8)
EA 02-0J010 / EFIS 0219000044

INITIAL STUDY WITH MITIGATED NEGATIVE DECLARATION/ ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT IMPACT



PREPARED BY THE
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION

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



APRIL 12, 2022

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General Information About This Document

What's in this document:

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study with Mitigated Negative Declaration/Environmental Assessment for the proposed project located in Tehama County, California. The Department is the lead agency under the National Environmental Policy Act (NEPA). The Department is the lead agency under the California Environmental Quality Act (CEQA).

The document tells you why the project is being proposed, what alternatives have been considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures. The Initial Study/Draft Environmental Assessment circulated to the public for 30 days between February 23, 2022 and March 25, 2022. Comments received during this period are included in Appendix H. Elsewhere throughout this document, a vertical line in the margin indicates a change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated.

Additional copies of this document and the related technical studies are available for review at the Caltrans District 2 Office at 1657 Riverside Drive in Redding. This document may be downloaded at the State Clearinghouse website <https://ceqanet.opr.ca.gov/> and at the following website: <https://dot.ca.gov/caltrans-near-me/district-3/d3-programs/d3-environmental/d3-environmental-docs>

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Alternative Formats:

For individuals with sensory disabilities, this document can be made available in Braille, in large print, or in digital format. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Carolyn Sullivan, Environmental Planning, 1657 Riverside Drive (MS-30), Redding, CA 96001; (530) 218-8940 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY to Voice), 1 (800) 735-2922 (Voice to TTY), 1 (800) 855-3000 (Spanish TTY to Voice and Voice to TTY), 1-800-854-7784 (Spanish and English Speech-to-Speech) or 711.

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SOUTH AVENUE SAFETY PROJECT

Installation of a roundabout on State Route 99 in Tehama County, from postmile 4.2 to postmile 4.8, at the intersection with South Avenue

INITIAL STUDY with Proposed Mitigated Negative Declaration/ Environmental Assessment

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

THE STATE OF CALIFORNIA
Department of Transportation

2/1/22

Date

Wesley Stroud

Wesley Stroud, Office Chief
North Region Environmental – District 2
California Department of Transportation
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2/1/22

Date

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**CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

FOR

South Avenue Safety Project

The California Department of Transportation (Caltrans) has determined that alternative 1—Build Alternative (roundabout) will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA.

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

Wesley Stroud

4/27/22

Wesley Stroud, Office Chief

Date

North Region Environmental – District 2

California Department of
Transportation

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MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Department) proposes to reconfigure the existing intersection of SR 99 and South Avenue in Tehama County by replacing the existing minor leg stop-controlled only intersection with a roundabout.

Determination

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

- The proposed project would have no effect on cultural resources, tribal cultural resources, hazards and hazardous materials, mineral resources, population and housing, recreation, and wildfire.
- In addition, the proposed project would have less than significant effects to aesthetics, agriculture and forest, air quality, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, noise, public services, transportation, and utilities and service systems.
- With the following mitigation measure incorporated, the proposed project would have less than significant effects to biological resources:
 - To offset direct effects to approximately 0.44 acre of wetlands assumed to be occupied by Threatened/Endangered vernal pool branchiopods (e.g., tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp), suitable habitat will be preserved at a ratio of 2:1 and will be created at a ratio of 1:1. A total of 1.3 acres of vernal pool branchiopod species credits will be purchased at a Service-approved conservation bank with a service area that covers the proposed project.

Wesley Stroud

Wesley Stroud, Office Chief
North Region Environmental – District 2
California Department of Transportation

4/27/22

Date

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Chapter 1 Proposed Project

1.1 Purpose and Need

The purpose of the project is to reduce the frequency and severity of collisions. The project is needed because between January 1, 2012 and December 31, 2017, there were a total of 17 collisions: 11 involved injuries, and 6 were property damage only. The total collision rate is 4.7 times the statewide average for similar facility types, and the fatal plus injury rate is 7.0 times the statewide average.

1.2 Introduction

NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016, for a term of five years, which was granted an extension on December 8, 2021 until April 29, 2022. In summary, the Department continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and the Department assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study with Mitigated Negative Declaration/Environmental Assessment for the proposed project located in Tehama County, California. The Department is the lead agency under the National Environmental Policy Act (NEPA). The Department is the lead agency under the California Environmental Quality Act (CEQA).

Organization of the Initial Study/Environmental Assessment

The Initial Study/Environmental is organized into several chapters. Chapter 1 includes a description of the two project alternatives that were considered as viable options during preparation of this Initial Study/Environmental Assessment, as well as two additional alternatives that were considered but eliminated from further discussion prior to the draft Initial Study/Environmental Assessment. Chapter 2 evaluates various resources considered relevant under NEPA. For each relevant resource, the following is provided: a discussion of the regulatory setting, a description of the affected environment, a discussion of environmental consequences (construction impacts and cumulative impacts are identified for each alternative), and a discussion of avoidance, minimization, and/or mitigation measures that may be warranted. Chapter 3 includes significance determinations for impacts to resources under CEQA. Various documents are appended to this Initial Study/Environmental Assessment. A copy of the Title VI Policy Statement is included in Appendix A. A list of technical studies completed is included in Appendix B. A list of acronyms and abbreviations used in this document is provided in Appendix C. Plant and animal species lists obtained from resource agencies to facilitate preparation of the Biological Assessment and Natural Environment Study are included in Appendix D. A regional species evaluation table, which was included in the Natural Environment Study, is provided in Appendix E. Communications with staff from resource agencies are provided in Appendix F. A summary of avoidance, minimization, and/or mitigation measures to be implemented is provided in the Environmental Commitments Record (ECR), which is included in Appendix G. Public comments received and responses to comments are provided in Appendix H.

Background

The intersection of State Route (SR) 99 and South Avenue in a rural part of Tehama County is an important junction for local and regional traffic. South Avenue is an important County road that allows traffic to move between SR 99 and Interstate 5, approximately 6.4 miles to the west. Eastbound traffic on South Avenue turning right onto southbound SR 99 at the intersection use a turn lane with no traffic controls, whereas traffic turning left onto northbound SR 99 must first stop at a stop sign before proceeding through the intersection. Northbound and southbound traffic on SR 99 turning onto South Avenue use turn lanes with no traffic controls. Between January 1, 2013, and December 31, 2017, 17 vehicle collisions were documented at the intersection. Eleven of the vehicle collisions resulted in injuries (none were fatal). Twelve of the vehicle collisions were associated with the northbound left turn lane onto South Avenue. Compared to similar facility types throughout the state, the intersection has a vehicle collision rate 4.7 times higher than the state average and the fatal plus injury rate is 7.0 times higher than the state average.

The California Department of Transportation, using state and federal funding, proposes to reconfigure the existing intersection of SR 99 and South Avenue in Tehama County by replacing the existing minor leg stop-controlled only intersection with a roundabout; the limits of work on SR 99 are from post mile 4.2 to 4.8. A project vicinity map is shown in Figure 1, a project location map is shown in Figure 2, and an environmental study limits map is shown in Figure 3.

This project is included in multiple years (2019/2020, 2020/2021, and 2021/2022) of the Rural Non-MPO Federal Transportation Improvement Program (FTIP) and would be funded at the federal level by the Highway Safety Improvement Program and at the state-level by the State Highway Operation and Protection Program.

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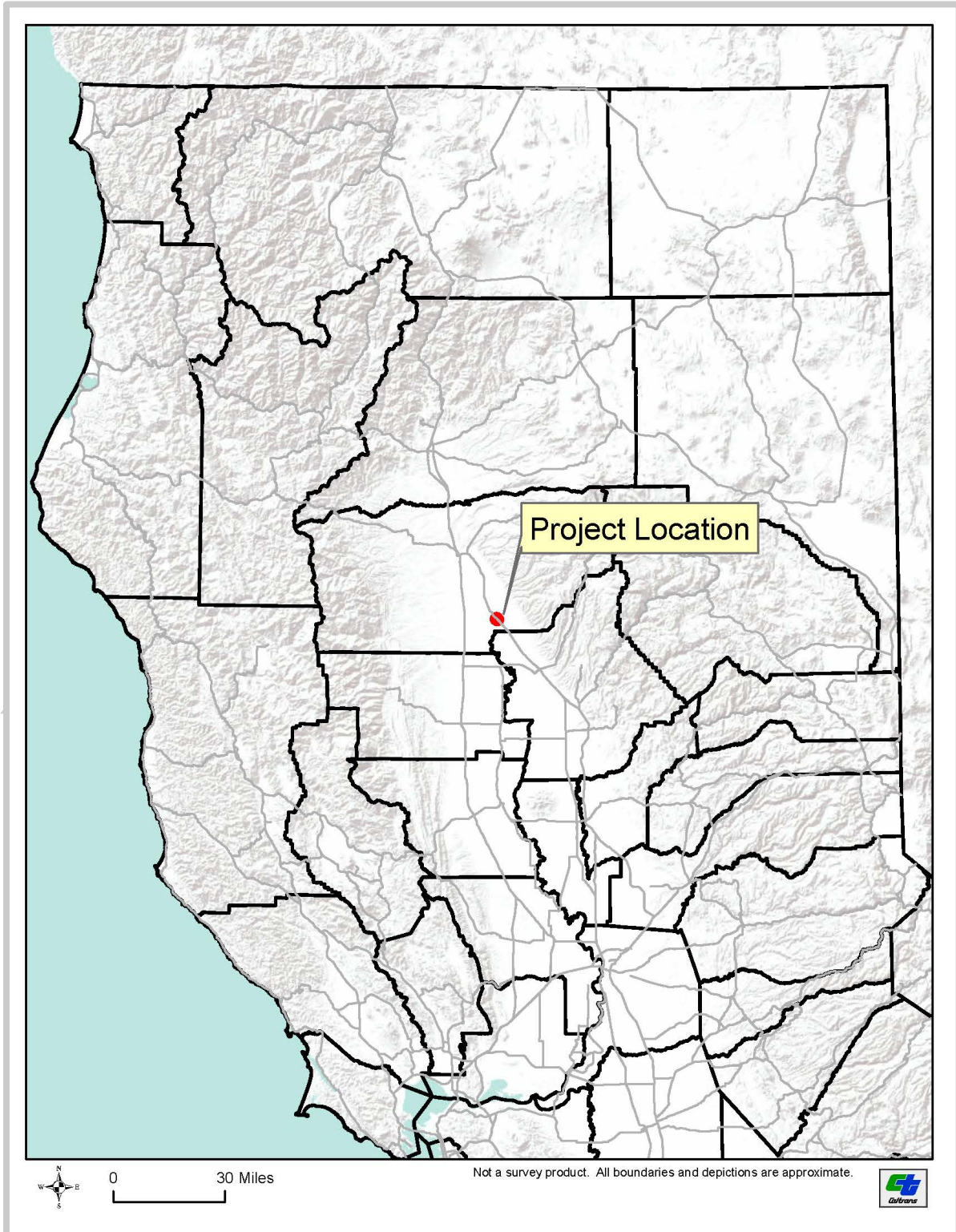


Figure 1. Project Vicinity Map

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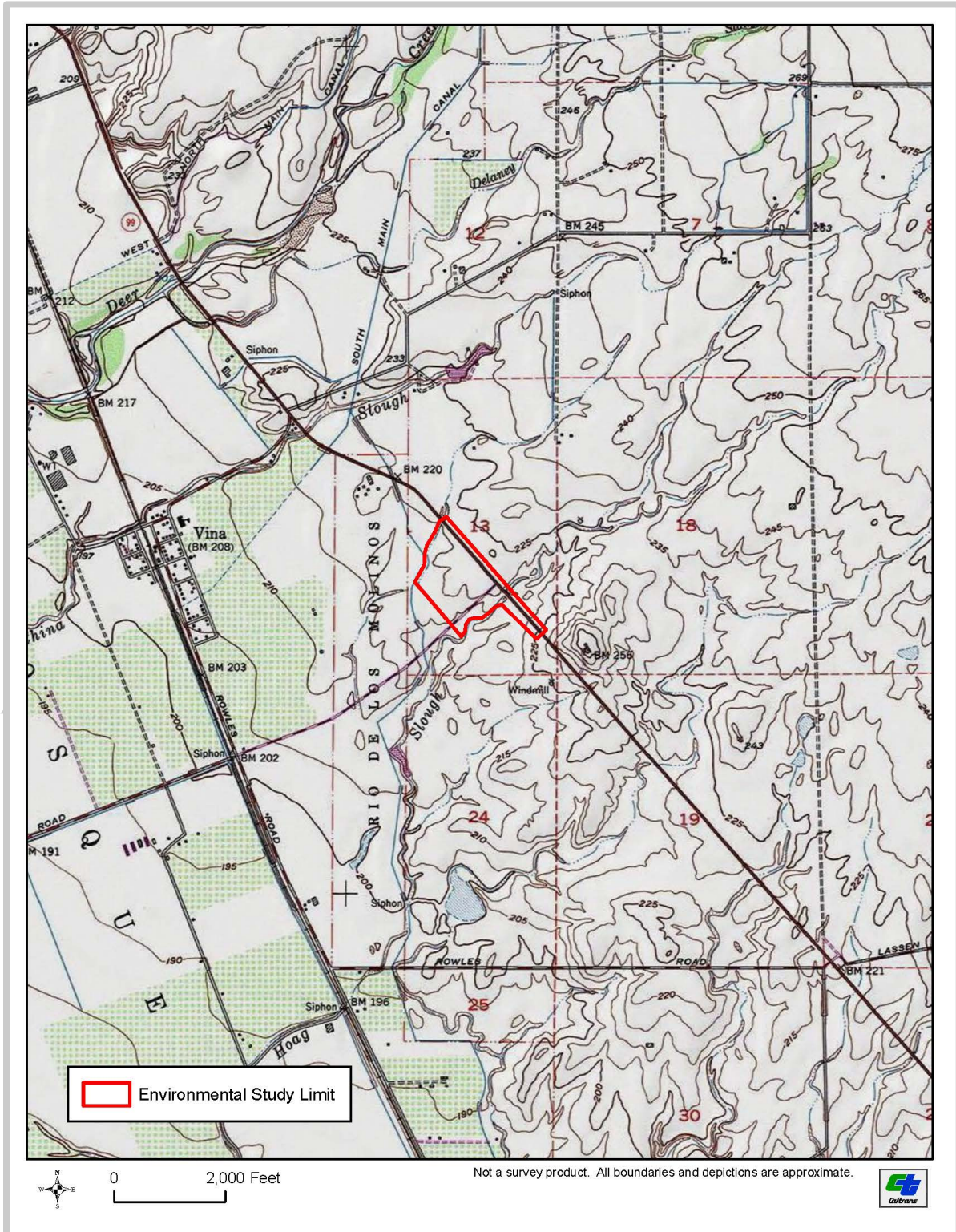


Figure 2. Project Location Map

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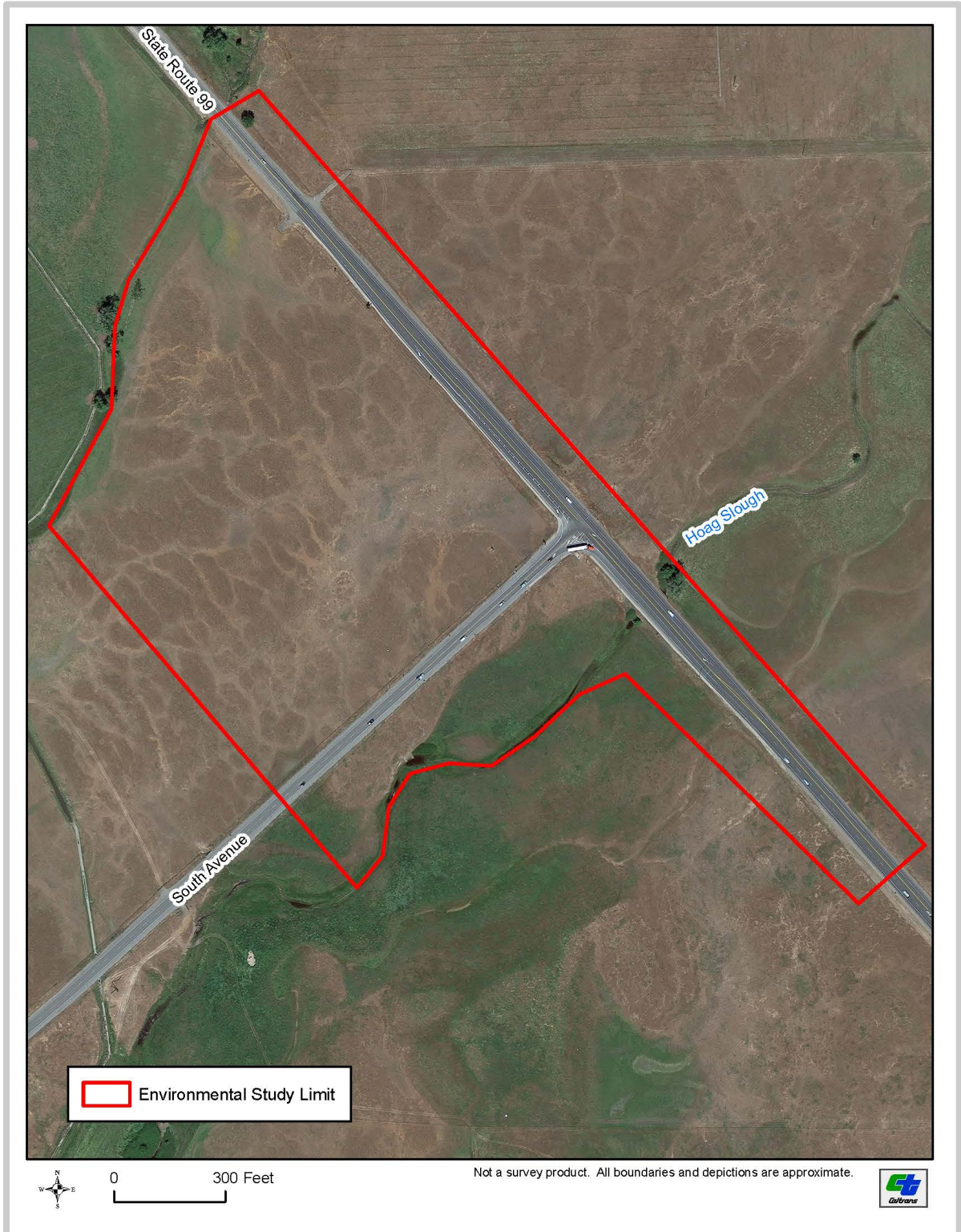


Figure 3. Environmental Study Limits Map

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1.3 Project Description

1.3.1 Project Alternatives

Two project alternatives, a build alternative and a no-build/no-action alternative, were considered as viable options during preparation of this Initial Study/Environmental Assessment. Details of each alternative are provided below.

Alternative 1—Build Alternative (Roundabout)

The build alternative would include:

- Constructing a roundabout with three legs at the intersection of SR 99 and South Avenue and relocating the intersection of SR 99 and South Avenue to the northwest. The roundabout would consist of a center island with mountable curb, textured median paving, and interior curb. The roundabout would have an inscribed diameter that is 165 feet. This diameter, along with a circling single lane and truck apron width of up to 45 feet, would accommodate all vehicle sizes from bicycles to Surface Transportation Assistance Act (STAA) trucks. Traffic speed in the roundabout would be 25 miles per hour (MPH). The roundabout would receive architectural treatment appropriate to the project setting.
- Realigning the approaches to the roundabout, including installing splitter islands to separate traffic lanes and a bypass that is approximately 0.15 mile in length for traffic eastbound on South Avenue to merge onto southbound SR 99. The roundabout would be designed so that the speed of traffic slows to 25 MPH within the roundabout.
- Installing advance flashing beacons north and south of the roundabout along SR 99.
- Installing 13 electroliers (poles with lights that provide intersection lighting). Each pole would be approximately 30 to 35 feet tall.
- Installing a new steel truss tower that is approximately 45 feet tall and 4 feet wide to the southeast of the proposed roundabout, relocating the

existing closed-circuit television from the existing pole to the new tower, and removing the existing pole. Maintenance access and parking will be provided at the base of the tower, along with new electrical control cabinets.

- Installing new road signs.
- Extending a 4-barrel (each barrel is approximately 5.5 feet tall and 4.5 feet wide) concrete box culvert that conveys Hoag Slough under SR 99 approximately 45 feet to the west of SR 99.
- Installing six culverts (~17 feet of 24-inch diameter culvert, ~140 feet of 24-inch diameter culvert, ~153 feet of 24-inch diameter culvert, ~124 feet of 24-inch diameter culvert, ~57 feet of 24-inch diameter culvert, and ~65 feet of 24-inch diameter culvert) under the roadway to convey stormwater runoff.
- Installing six new drainage inlets on the roadway to collect stormwater runoff and direct it into new culverts.
- Removing an existing culvert under SR 99 that is approximately 125 feet long and 18 inches in diameter.
- Installing approximately 15-foot-wide biofiltration strips along the edge of pavement throughout the project limits.
- Installing biofiltration swales at the outlets of new culverts and constructing a drainage ditch south of South Avenue that would collect runoff from the biofiltration swales and discharge flow to Hoag Slough. The ditch, which would be protected with a permanent drainage easement, would be approximately 300 feet in length, 6 feet wide, and lined with Class 1 rock slope protection (RSP).
- Rehabilitating abandoned sections of roadway and applying erosion controls as needed.

Disposal/Borrow Sites

Construction of the project would disturb approximately 10.18 acres of ground surface and require the excavation of approximately 14,000 cubic yards of soil. Maximum excavation depths are estimated at approximately 2.5 feet deep for the structural section work and approximately 5 feet deep for the culvert work. Earthwork would be balanced onsite and would not require disposal or borrow sites. Construction of the project would generate approximately 4,000 cubic yards of asphalt grindings, which would become property of the contractor. Asphalt grindings may be reused onsite (excluding a minimal amount of grindings associated with yellow and white road striping).

Impervious Surface

This project will increase impervious area by 0.58 acres and replace (perpetuate) 2.41 acres of existing impervious area.

Staging

A staging area approximately 100 feet wide and 300 feet long would be located south of South Avenue and west of the intersection of South Avenue and SR 99.

Utilities

Existing communication utilities within the project limits may need to be relocated.

Right-of-Way

Caltrans would permanently acquire approximately 2.75 acres of right-of-way from a private landowner to accommodate the new roundabout and reconfigured intersection. In addition, Caltrans would obtain a temporary construction easement to utilize approximately 0.73 acre of the same landowner's property south of South Avenue for project staging and constructing a drainage ditch. Caltrans would also establish an approximately 0.086-acre permanent easement around the drainage ditch for future maintenance operations on the landowner's property.

Traffic Management

Construction of the project would be staged and would utilize one-way reversing traffic control as needed.

Schedule

The work would be completed in one construction season and would require approximately 120 working days.

A site plan is shown in Figure 4. Project design details are preliminary and are subject to change during the project design phase.

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Standard Measures Incorporated into the Project

This project contains a number of standardized project measures which are employed on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2 and are listed below.

Traffic and Transportation/Pedestrian and Bicycle Facilities

Public Outreach

Prior to construction, the following public outreach efforts shall be made:

- Inform the public about the project.
- Notify adjacent property owners about the project.
- Notify the Los Molinos Unified School District about the project.
- Implement a public information campaign (e.g., news releases and worker safety media campaign).

Traffic Control

- Construction will be conducted under Staged Construction Plans and Revised Standard Plan T13 and T13B lane closure (reversing, one-way traffic control) with the Revised Standard Plan T22 for speed reduction. Most operations can be conducted during typical 12-hour work shifts. Twenty-four-hour traffic control is required if traffic is on an un-paved surface or when shown on stage construction sheets. Based on traffic volumes, lane closures with less than one lane for each direction of traffic would normally be allowed only during nighttime hours, but because of the nature of the work and limited space available, 24-hour reversing may be necessary if management approves.

Trucks

- State Route 99 is designated as a Terminal Access route for STAA trucks. It has not yet been determined if traffic control for this project will alter the requirement for STAA truck routes; therefore, truck impacts are not known. Annual permits are issued for trucks 8.5 feet to 12 feet in width. Occasionally under special approval, single trip permits are issued for trucks over 12 feet in width. This project does include the use of Type K temporary railing and a 16-foot horizontal clearance must be provided to traffic at all locations.

Bicyclists and Pedestrians

- Bicycles and pedestrians are allowed within the project limits. During operations, bicyclists may travel past the work zone using the open lane (the same as vehicle traffic). When pedestrians are present, they may need to be transported through the work zone.

Lane Closures

- Lane closures on two-lane conventional highways are not allowed during times when the traffic volumes are high enough to create queues too large to clear in a standard traffic control cycle, which would eliminate the use of 24-hour reversing lane closures during daytime hours. The intersection with South Avenue will further complicate traffic control. Lane closure charts will be provided. Mitigation measures such as incentive/disincentive for work requiring 24-hour reversing lane closures and the use of end of queue monitoring and warning will be considered.

Portable Changeable Message Signs (PCMSs)

- PCMSs are typically used for safety reasons on roadways where high approach speeds are present, sight distance is limited, night work is anticipated, or there is a history of work zone accidents related to high approach speeds. At least three PCMSs are required for this project. One PCMS must be placed before the first traffic control sign for each approach. Additional PCMSs may be needed for speed reduction.

Utilities/Emergency Services

Public Outreach

- Coordinate with local emergency service providers to ensure that they are aware of the project and that safe passage is maintained for emergency vehicles at all times.
- Prior to construction, the Transportation Management Plan prepared for the project will be subject to review/approval from the California Highway Patrol and CAL FIRE.

Cultural Resources

- If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.
- If human remains are discovered, California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the Caltrans District 2 Native American Coordinator so that he/she may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Water Quality and Storm Water Runoff

- Prior to construction, the contractor shall prepare a Storm Water Pollution Prevention Plan in accordance with the *2018 Caltrans Standard Specifications* that identifies measures to be implemented for erosion control, spill prevention, and construction waste containment. All construction site Best Management Practices shall follow the most

current edition of the Construction Site Best Management Practices (BMPs) Manual.

The following construction site BMPs are anticipated to be incorporated into the Storm Water Pollution Prevention Plan:

- Existing vegetation shall be removed to the minimum extent necessary to facilitate the proposed work (SS-2).
- Temporary access road entrances and exits shall be stabilized and maintained to prevent sediment erosion and transport from the work area (TC-1).
- Temporary drainage inlet protection methods such as gravel bags shall be deployed to prevent sediment and other pollutants from entering drainage systems (SC-10)
- Perimeter control devices such as fiber rolls, compost socks, and silt fences shall be utilized to prevent sediment transport from the project site (SC-6, SC-09).
- Disturbed slopes shall be stabilized with a combination of seed, biodegradable rolled erosion control products (RECP) such as fiber rolls, coir blankets, and geotextile fabrics (SS-7).
- Concrete washout facilities, re-fueling areas, as well as equipment and storage areas shall be covered and located away from drainage inlets and waterways to prevent both stormwater and non-stormwater discharges (WM-3, WM-8, NS-9).
- Dewatering operations shall be implemented to manage the discharge of pollutants from the accumulation of groundwater associated with excavations, temporary stream crossings and clear water diversions (NS-2, NS-4, NS-5).
- Paving and sealing operations shall be conducted to avoid and minimize the discharge of pollutants to receiving waters (NS-3).

- Spill prevention and control practices (WM-4).

Hazardous Wastes/Materials

- A site investigation for aerially deposited lead (ADL) shall be conducted prior to RTL to determine whether ADL is present and what actions, if any, would be required. If encountered, soil with elevated concentrations of lead as a result of ADL on the State Highway System right-of-way within the limits of the project will be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the project limits as long as all requirements of the ADL Agreement are met.
- Asphalt grindings associated with the removal of yellow and white road striping shall be removed and disposed of by the contractor in accordance with Caltrans Standard Special Provision 36-4, which requires the contractor to prepare a Lead Compliance Plan.
- Treated wood waste shall be disposed of by the contractor in accordance with Caltrans Standard Specification 14-11.14.

Noise

- The contractor shall comply with Caltrans Standard Specification 14-8.02 "Noise Control", which includes provisions for minimizing construction-related noise and vibration. These include controlling and monitoring noise resulting from work activities and ensuring that construction-related noise levels do not exceed 86 dBA Lmax at 50 feet from the job site from 9 p.m. to 6 a.m.

Geology/Soils/Seismic/Topography

- The roundabout shall be designed in accordance with current seismic safety standards.
- Prior to construction, the contractor shall prepare a Storm Water Pollution Prevention Plan in accordance with the 2018 Caltrans

Standard Specifications that identifies measures to be implemented for erosion control, spill prevention, and construction waste containment. All construction site Best Management Practices shall follow the most current edition of the *Construction Site Best Management Practices (BMPs) Manual*.

Air Quality

- The contractor shall comply with Section 10-5 “Dust Control”, Section 14-9 “Air Quality”, and Section 18 “Dust Palliatives” in the *2018 Caltrans Standard Specifications*. Compliance with these Standard Specifications would include implementing the following dust and pollutant reduction/control measures to minimize any air quality impacts resulting from construction activities:
 - Water or a dust palliative shall be applied to the site and equipment as often as necessary to control fugitive dust emissions.
 - Construction equipment and vehicles shall be properly tuned and maintained. All construction equipment shall use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114.
 - Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, shall be used.
 - All transported loads of soils and wet materials shall be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) shall be provided to minimize emission of dust during transportation.
 - Dust and mud that are deposited on paved, public roads due to construction activity and traffic shall be promptly and regularly removed to reduce PM emissions.

Climate Change

- The contractor shall comply with Section 14-9 in the *2018 Caltrans Standard Specifications*. Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including the Tehama County Air Pollution Control District regulations and local ordinances.
- Compliance with Title 13 of the California Code of Regulations, which includes idling restrictions on construction vehicles and equipment to no more than 5 minutes.
- Compliance with Caltrans Standard Specifications 7-1.02A and 7-1.02C “Emissions Reduction.”
- Utilize a transportation management plan to minimize vehicle delays.
- To the extent feasible, construction traffic shall be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.

Biological Environment

Animals

- To avoid disturbing nesting birds, tree and shrub removal shall be restricted to the period between October 1 and January 31. If this is not practicable, a contractor-supplied biologist shall conduct a pre-construction survey for nesting birds within 7 days prior to removing trees and shrubs. If an active nest is discovered, the project engineer shall be notified immediately and all work within 100 feet of the nest shall cease. Work within the buffer zone may proceed only after a contractor-supplied biologist has determined that the nest is no longer active.

Invasive Species

- In accordance with Caltrans Non-Standard Specification 14-6.05, prior to beginning work, the contractor shall prepare an invasive species control plan that identifies measures to be implemented to prevent the

- introduction and/or spread of invasive species (e.g., noxious weeds). The invasive species control plan shall be subject to approval by Caltrans and implemented prior to beginning work.
- Caltrans will require its contractor to avoid and minimize the introduction of new invasive plants and the spread of invasive plants previously documented in the project area. Two or more of the BMPs listed below will be written into the construction specifications and implemented during project construction.
 - Retaining all fill material onsite to prevent the spread of invasive plants to uninfected areas.
 - Using a weed-free source for project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1 percent weed seed).
 - Preventing invasive plant contamination of project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin).
 - Using sterile wheatgrass seed and native plant stock during revegetation. Revegetating or mulching disturbed soils within 30 days of completion of ground-disturbing activities to reduce the likelihood of invasive plant establishment.
 - The proposed re-vegetation measures for all disturbed soils, including the use of native species, soil amendments, and “weed free” mulch, reduces the risk of introducing noxious weeds. The contract specifications for permanent erosion control would require the use of California native forbs and grass species. All areas disturbed by construction would be treated with a seed mix comprised of local native grasses and forbs. Soils would be amended with compost containing long-term soil nutrients and slow-release organic fertilizers to provide nutrients over the first year. Mulches used on the project would be from source materials that would not introduce exotic species. No

- wheat or barley straw would be used on the project because of the potential to introduce weeds.
- All off-road construction equipment will be cleaned of potential noxious weed sources (mud, vegetation) before entering the project area, and after entering a potentially infested area before moving on to another area, to help ensure noxious weeds are not introduced into the project area. The contractor shall employ whatever cleaning methods (typically with the use of a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required. Equipment washing stations shall be placed in areas that afford easy containment and monitoring and that do not drain into sensitive (riparian, streams, wetlands, etc.) areas.
 - Staging and storage of equipment should only be done in weed-free areas. Hand, mechanical, or chemical eradication treatments may be needed for these areas. Additionally, areas may need to be designated as excluded from contractor's use.
 - To further minimize the risk of introducing additional non-native species into the area, only locally adapted plant species appropriate for the project area will be used in any erosion control or revegetation seed mix or stock. No dry-farmed straw will be used, and certified weed-free straw shall be required where erosion control straw is to be used. In addition, any hydro-seed mulch used for revegetation activities must also be certified weed-free.

Alternative 2—No-Build/No-Action Alternative

The no-build/no-action alternative would make no improvements to the intersection of SR 99 and South Avenue and it would be expected that the vehicle collision rate and fatal plus injury rate at this intersection would continue at their present rates into the future.

1.3.2 Comparison of Alternatives

The no-build/no-action alternative would incur no financial cost, require no permanent acquisition of right-of-way, and result in no environmental, community, or Section 4(f) impacts. However, this alternative would not reduce the frequency and severity of collisions and therefore would not meet the project purpose. In contrast, the build alternative would cost approximately \$7,631,000 to construct, require the permanent acquisition of right-of-way, and result in a moderate amount of environmental impacts. These impacts would include permanent impacts to wetlands assumed to be occupied by federally listed vernal pool branchiopods (e.g., vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp) and permanent impacts to a seasonal stream. Unlike the no-build/no-action alternative, the build alternative would meet the project purpose. Unavoidable impacts on wetlands would require a Wetlands Only Practicable Alternative Finding, which is discussed in Chapter 2—Wetlands and Other Waters. A comparison of the two alternatives is provided in Table 1.

Table 1. Comparison of the Build Alternative and the No-Build/No-Action Alternative

<i>Alternative</i>	<i>Cost</i>	<i>Environmental Impacts</i>	<i>Community Impacts</i>	<i>Section 4(f) Impacts</i>	<i>Permanent Acquisition of Right-of-Way</i>	<i>Meets Project Purpose</i>
Alternative 1—Build Alternative (Roundabout)	~\$7,631,000	Yes (Moderate)	No	No	Yes	Yes
Alternative 2—No-Build/No-Action Alternative	\$0	No	No	No	No	No

After comparing and weighing the benefits and impacts of all feasible alternatives, the Project Development Team has identified the build alternative as the preferred alternative, subject to public review. Final identification of a preferred alternative would occur after the public review and comment period. The no-build/no-action alternative is not preferred because it would not reduce the severity and frequency of collisions and would not meet the project purpose. The build alternative is preferred because it would meet the project purpose.

After the public circulation period, all comments would be considered, and the Department would select a preferred alternative and make the final determination of the project's effect on the environment. Under the California Environmental Quality Act (CEQA), if no unmitigable significant adverse impacts are identified, the Department will prepare a Negative Declaration (ND) or Mitigated ND.

Similarly, if the Department, as assigned by the Federal Highway Administration (FHWA), determines the National Environmental Policy Act (NEPA) action does not significantly impact the environment, the Department will issue a Finding of No Significant Impact (FONSI).

1.3.3 Alternatives Considered but Eliminated from Further Discussion

Assembly Bill 2542 amended California Streets and Highways code to require, effective January 1, 2017, that Caltrans or a regional transportation planning agency demonstrate that reversible lanes were considered when submitting a capacity-increasing project or a major street or highway lane realignment project to the California Transportation Commission for approval (California Streets and Highways Code, Section 100.015). Because the build alternative is not a capacity-increasing project and would not result in a major street or highway lane realignment, this alternative did not consider the use of reversible lanes.

During early project scoping, two additional alternatives were considered, but were eliminated from further discussion prior to the draft Initial Study/Environmental Assessment because they did not meet the project

purpose. These alternatives consisted of (1) installation of a new signal control and (2) installation of a new flyover. Details of the signal control and flyover alternatives are provided below.

Alternative 3—Signal Control

This alternative would include installation of a new traffic signal and a controller cabinet at the intersection of SR 99 and South Avenue. Other improvements would include installation of advance flashing beacons on SR 99, installation of a new closed-circuit television, installation of a 0.1-foot asphalt concrete overlay to within 100 feet of the intersection, installation of ADA ramps, and installation of concrete curb, gutter, and sidewalks.

Alternative 4—Flyover

This alternative would construct a flyover to replace the northbound left turn to South Avenue. The flyover would begin approximately 0.35 miles south of the intersection of SR 99 and South Avenue and follow an arc that extends west of northbound SR 99 (a new bridge would be required to cross Hoag Slough), crosses over SR 99 and South Avenue using an overpass, then merges onto westbound South Avenue approximately 0.2 miles west of the intersection. The flyover would consist of a single lane that is 12 feet wide with shoulders that are 4 feet wide to the inside and 8 feet wide to the outside. The posted speed limit of the flyover would be 45 miles per hour.

Comparison of Alternatives

Installation of a new signal control would cost approximately \$1,000,000 and would not require the permanent acquisition of right-of-way or result in environmental, community, or Section 4(f) impacts. However, this alternative would not reduce the frequency and severity of collisions and therefore would not meet the project purpose. For this reason, the signal control was eliminated from further discussion prior to the draft Initial Study/Environmental Assessment.

Construction of a new flyover would cost approximately \$24,176,000 to construct and would require the permanent acquisition of a moderate amount of right-of-way and result in a substantial amount of environmental impacts based on Caltrans environmental staff review of the site plan for this alternative and review of aerial photographs to document the extent of wetland in the project vicinity. The flyover meets the purpose and need of the project, but the construction cost greatly exceeds the programmable range. For this reason, the flyover was eliminated from further discussion prior to the draft Initial Study/Environmental Assessment. A comparison of the signal control and flyover alternatives is provided in Table 2.

Table 2. Comparison of Alternatives Considered but Eliminated from Further Consideration

<i>Alternative</i>	<i>Cost</i>	<i>Environmental Impacts</i>	<i>Community Impacts</i>	<i>Section 4(f) Impacts</i>	<i>Permanent Acquisition of Right-of-Way</i>	<i>Meets Project Purpose</i>
Alternative 3— Signal Control	~\$1,000,000	No	No	No	No	No
Alternative 4— Flyover	~\$24,176,000	Yes (Substantial)	No	No	Yes (Moderate)	No

1.4 Permits and Approvals Needed

Wetlands, other waters, and riparian habitat within the project area are protected by state laws and regulations and Sections 401 and 404 of the federal Clean Water Act. Work within Hoag Slough and wetlands would require a permit from the United State Army Corps of Engineers, Water Quality Certification from the Central Valley Regional Water Quality Control Board, and a Streambed Alteration Agreement from the California Department of Fish and Wildlife. Impacts to riparian habitat would be addressed in the Streambed Alteration Agreement. In addition, a Notice of Intent would be filed with the State Water Resources Control Board to obtain coverage under the NPDES General Construction Permit. The project would not require a permit from the Central Valley Flood Protection Board.

Conservation measures to be implemented to offset impacts to Threatened and Endangered species of vernal pool branchiopods and a provision for incidental take would be identified in the Biological Opinion issued by the U.S. Fish and Wildlife Service (USFWS or Service). The permanent acquisition of land assumed to be enrolled in a Williamson Act contract would require approval from the California Department of Conservation. Following approval of the final Project Report, the California Transportation Commission would be required to vote to approve funding for the project. Permits, licenses, agreements, and certifications (PLACs) required for the project are listed in Table 3.

Table 3. Permits, Licenses, Agreements, and Certifications (PLACs) Required

<i>Agency</i>	<i>PLAC</i>	<i>Status</i>
United States Army Corps of Engineers	Section 404 Permit	Application to be submitted after approval of the final project report.
California Department of Fish and Wildlife	Streambed Alteration Agreement	Application to be submitted after approval of the final project report.
Central Valley Regional Water Quality Control Board	Water Quality Certification	Application to be submitted after approval of the final project report.
State Water Resources Control Board	NPDES General Construction Permit	A Notice of Intent would need to be filed to obtain coverage under the NPDES General Construction Permit after approval of the final project report.
United States Fish and Wildlife Service	Formal Section 7 consultation for Threatened and Endangered vernal pool branchiopods	Biological Assessment submitted on February 8, 2021. Biological Opinion issued on August 21, 2021.
California Department of Conservation	Approval to acquire Williamson Act land	Notification to be submitted after approval of the final project report.
California Transportation Commission (CTC)	CTC vote to approve funds	Following the approval of the final project report, the CTC would be required to vote to approve funding for the project.

Temporary work occurring outside of Caltrans' right-of-way would require a temporary construction easement. Construction of a drainage ditch on a private landowner's property would require a permanent easement for future maintenance activities.

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

2.1 Topics Considered but Determined Not to Be Relevant

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

- **Coastal Zone**—There would be no effects to coastal resources because the project is not located within the coastal zone.
- **Growth**—As documented in the Community Impact Assessment Memorandum (California Department of Transportation 2021a), the project does not involve construction of new housing, commercial development, or other infrastructure that would influence population growth.
- **Community Character and Cohesion**—As documented in the Community Impact Assessment Memorandum, no communities are present within the project area and the nearby community of Vina would not be affected. Therefore, the project would not affect community character and cohesion.
- **Parks and Recreational Facilities**—As documented in the Community Impact Assessment Memorandum, there are no parks and recreational resources or wildlife or waterfowl refuges within or adjacent to the project area which meet the definition of a Section 4(f) resource. In addition, as documented in the Historic Property Survey Report/Archaeological Survey Report (California Department of Transportation 2021b), there are no historic sites within or adjacent to the project area which meet the definition of a Section 4(f) resource.

Therefore, this project is not subject to the provisions of Section 4(f) of the Department of Transportation Act of 1966.

- **Environmental Justice**—As documented in the Community Impact Assessment Memorandum, the project is located in a rural area that does not include any buildings (e.g., homes, businesses, or farm structures). No minority or low-income populations are present within or adjacent to the project area. No minority or low-income populations that would be adversely affected by the proposed project have been identified as determined above. Therefore, this project is not subject to the provisions of Executive Order 12898.
- **Timberlands**—There would be no effects to any timberlands because no timberlands are present within the project area.
- **Wild and Scenic Rivers**—There would be no effects to any wild and scenic rivers because no wild and scenic rivers are present within the project area.
- **Wildfire**—There would be no effects related to exacerbating wildfire risk to the traveling public because the project is not located within or near a very high fire hazard severity zone.
- **Paleontology**—There would be no effects to paleontological resources because no rock units known to support paleontological resources are present within the project area and no paleontological resources were observed during field surveys. Further, no paleontological resources been discovered by previous environmental studies in the vicinity.

2.2 Human Environment

2.2.1 Existing and Future Land Use

Regulatory Setting

Not applicable.

Affected Environment

The project is located in a rural part of Tehama County and is within the *Tehama County General Plan Update 2009–2029*'s South I-5 Corridor Planning Area (PMC 2009). No communities are present within the project area. The communities nearest to the project area are Vina (unincorporated), approximately 1 mile to the northwest, and Corning (incorporated), approximately 7 miles to the west.

According to the *Tehama County General Plan Update 2009–2029*, zoning within and adjacent to the project is designated as “Valley Floor Agriculture.” Existing land use within the project area is primarily livestock grazing. Land use within the project area is expected to be used for livestock grazing well into the future.

One parcel within the project area that is identified as Tehama County Assessor's Parcel Number 079-260-008 is assumed to be enrolled under a Williamson Act contract that was established in 1975. This ~114.16-acre parcel is located west of SR 99 and is bisected by South Avenue. The parcel is currently undeveloped and used for livestock grazing. Land adjacent to the project area east of SR 99 and outside Caltrans' right-of-way is protected under a conservation easement held by The Nature Conservancy.

Environmental Consequences

Build Alternative

Construction Impacts

Caltrans would permanently acquire approximately 2.75 acres of right-of-way from a ~114.16-acre parcel (a conversion of approximately 2.4% of the parcel) identified as Tehama County Assessor's Parcel Number 079-260-008 to accommodate the new roundabout and reconfigured intersection. This acquisition of land and conversion of use would have a minimal impact on existing and future land use on the remainder of the parcel.

Cumulative Impacts

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

The California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations (CFR) Section 1508.7.

The cumulative impacts discussion considers impacts of the project along with impacts resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable. SR 99 in Tehama County spans a distance of approximately 25 miles. As documented in Table 4 below, nine Caltrans projects have been constructed on SR 99 in Tehama County in the last 20 years and three other projects (excluding this project) are proposed to be constructed on SR 99 in Tehama County.

Table 4. Caltrans Projects on State Route 99 in Tehama County Constructed in the Last 20 years or that are Reasonably Foreseeable

<i>Projects</i>	<i>Post Mile</i>	<i>Key Features</i>	<i>Key Impacts</i>	<i>Environmental Document</i>	<i>Year of Construction</i>
Constructed in Last 20 Years					
Los Molinos ADA (EA 02-1H320)	12.0–12.6	Install curbs, ramps, and sidewalks	Acquire right-of-way, utilities	CEQA CE, NEPA CE	2017
Vina Plains (EA 02-2H930)	0.0–8.9	Repair roadway structural section	None	CEQA CE	2016
Lassen View School Flashing Beacons (EA 02-4E940)	17.6–18.0	Install flashing beacons	—	—	2014
Los Molinos Phase 2 (EA 02-4C58U)	11.6–12.6	—	—	—	2013
North Fork Mill Creek Bridge Scour (EA 02-2C112)	13.9–14.3	Bridge maintenance	—	—	2013
Tehama-99 CAPM (EA 02-0E530)	12.5–24.9	Rehabilitate pavement	None	CEQA CE, NEPA CE	2012
Toomes Creek Bridge Replacement (EA 02-25147)	7.9–9.0	Bridge replacement	None	CEQA IS/ND	2007

<i>Projects</i>	<i>Post Mile</i>	<i>Key Features</i>	<i>Key Impacts</i>	<i>Environmental Document</i>	<i>Year of Construction</i>
Dye Creek Bridge Replacement (EA 02-29592)	16.4–16.8	Bridge replacement	Remove 0.5 acre of riparian, transplant 14 elderberries, and acquire 0.13 acre of right-of-way	CEQA IS/ND, NEPA CE	2004
Toomes Creek Mitigation (EA 02-38810)	8.4–8.4	Acquire parcel for mitigation	—	—	2003
Reasonably Foreseeable					
Champlin Slough Bridge Replacement (EA 02-1H510)	9.0–9.3	Bridge replacement	Traffic circulation	CEQA IS/ND, NEPA CE	2021
Vina Rehab (VP2) (EA 02-3H770)	0.0–12.5	Rehabilitate pavement	—	—	—
Los Molinos Phase 3 (EA 02-4F370)	11.9–12.6	—	—	—	—

The project's impact on existing and future land use would be minimal and when these impacts are considered along with impacts on existing and future land use resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on existing and future land use would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on land use and would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are warranted.

2.2.2 Consistency with State, Regional, and Local Plans and Programs

Regulatory Setting

Not applicable.

Affected Environment

Depending on geographic location, a proposed project may be subject to a variety of state, regional, and local plans and programs. These plans and programs could include:

- Transportation plans
- Regional growth plans
- General plans (city and county)
- Local coastal programs

- Water quality control plans (basin plans)
- Air quality attainment plans
- Habitat conservation plans
- Natural community conservation plans
- Recovery plans

The following discussion addresses the plans above and their applicability to the project.

Transportation Plans

The Tehama County Transportation Commission (TCTC) is the state-designated Regional Transportation Planning Agency for Tehama County. The TCTC, along with Caltrans District 2, fulfills the transportation planning responsibilities for Tehama County. One of the main responsibilities of the TCTC is the preparation and approval of the Regional Transportation Plan (RTP). The RTP serves as the planning blueprint to guide transportation investments in Tehama County involving local, state, and federal funding over the next 20 years. The most recent update to the plan is the *2019 Tehama County Regional Transportation Plan (Green Dot Transportation Solutions 2019)*, which the project is subject to.

Regional Growth Plans

Regional growth plans provide a planning framework that parallels the framework used by cities and counties in preparing their general plans, and thereby strengthens the relationship between local and regional plans and programs. In addition, it provides a policy framework that focuses on connecting local and regional transportation and land use plans, and creation of incentives that promote “smart growth” planning and implementation throughout the region. No regional growth plan has been prepared to address population growth in Tehama County. Therefore, the project is not subject to a regional growth plan.

General Plans

The general plan is a city or county blueprint for future development. It describes development goals and policies. It also is the foundation for land use decisions made by the Planning Commission and Board of Supervisors. The project is located in Tehama County and therefore is subject to the *Tehama County General Plan Update 2009–2029*. This plan addresses the following elements: Land Use, Transportation and Circulation, Public Services, Economic Development, Open Space and Conservation, Agriculture and Timber, Safety, Noise, and Housing.

Local Coastal Programs

Local coastal programs are basic planning tools used by local governments to guide development in the coastal zone, in partnership with the Coastal Commission. Local coastal programs contain the ground rules for future development and protection of coastal resources in the 76 coastal cities and counties. The project is located outside of the coastal zone and therefore is not subject to a local coastal program.

Water Quality Control Plans (Basin Plans)

According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. Since beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the state and federal requirements for water quality control (40 CFR 131.20). The project is subject to the *Water Quality Control Plan (Basin Plan) for the Central Valley Region* (Water Quality Control Board 2018).

Air Quality Attainment Plans

The California Clean Air Act (CCAA) requires air districts which have been designated as a non-attainment area for California Ambient Air Quality

Standards (CAAQS) for criteria pollutants (e.g., ozone, PM_{2.5}, PM₁₀, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, sulfates, hydrogen sulfide, visibility reducing particles, and vinyl chloride) to prepare and submit a plan for attaining and maintaining the standards. The Air Pollution Control Districts and Air Quality Management Districts for Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba counties together established the Northern Sacramento Valley Planning Area (NSVPA). The NSVPA Districts were designated as non-attainment for ozone and agreed to jointly prepare the *1991 Air Quality Attainment Plan* (NSVPA 1991). Triennial updates to the Plan were adopted in 1994, 1997, 2000, 2004, 2006, 2009, 2012, and 2015. The most recent update to the plan, the *Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan* (Sacramento Valley Air Quality Engineering and Enforcement Professionals 2018), assessed the progress made in implementing the previous triennial update completed in 2015 and proposed modifications to the strategies necessary to attain the CAAQS by the earliest practicable date. Because the project is located in Tehama County, which is in non-attainment for ozone (and also for PM₁₀), the project would be subject to the *Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan*.

Habitat Conservation Plans

Habitat conservation plans (HCPs) are planning documents required by the United States Fish and Wildlife Service as part of an application for an incidental take permit. They describe the anticipated effects of the proposed taking, how those impacts would be minimized or mitigated, and how the HCP is to be funded. HCPs can apply to both listed and non-listed species, including those that are candidates or have been proposed for listing. The United States Fish and Wildlife Service has not approved any HCPs in Tehama County (United States Fish and Wildlife Service 2020). Therefore, the project is not subject to an HCP.

Natural Community Conservation Plans

The California Department of Fish and Wildlife's Natural Community Conservation Planning (NCCP) program is an unprecedented effort by the

state of California, and numerous private and public partners, that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. A NCCP identifies and provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. No NCCPs have been designated by California Department of Fish and Wildlife in Tehama County (California Department of Fish and Wildlife 2020). Therefore, the project is not subject to a NCCP.

Recovery Plans

The United States Fish and Wildlife Service is committed to applying an ecosystem approach to conservation to allow for efficient and effective conservation of our Nation's biological diversity. In terms of recovery plans, ecosystem considerations are incorporated through the development and implementation of recovery plans for communities or ecosystems where multiple listed species and species of concern occur, in a manner that restores, reconstructs, or rehabilitates the structure, distribution, connectivity, and function upon which those listed species depend. The *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005) addresses 33 plant and animal species associated with vernal pools, 20 of which are federally listed as Endangered or Threatened. The recovery plan identifies recovery goals for delisting 20 federally listed vernal pool species and long-term protection measures for 13 other vernal pool species in vernal pool ecosystems in California and southern Oregon. The project is within the geographic boundaries of the recovery plan (it is located within the Northeastern Sacramento Valley Vernal Pool Region) and is therefore subject to the recovery plan.

Environmental Consequences

Build Alternative

Construction Impacts

The project is consistent with the *2019 Tehama County Regional Transportation Plan* and with the Transportation and Circulation, Safety, Noise, Housing, Public Services, and Economic Development elements in the *Tehama County General Plan Update 2009–2029*. The project is also consistent with the *Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan* and with the air quality goals in the Open Space and Conservation Element in the *Tehama County General Plan Update 2009–2029*. In addition, the project is consistent with the water quality objectives in the *Water Quality Control Plan (Basin Plan) for the Central Valley Region*.

Caltrans would permanently acquire approximately 2.75 acres of right-of-way from a ~114.16-acre parcel (a conversion of approximately 2.4% of the parcel) identified as Tehama County Assessor's Parcel Number 079-260-008, to accommodate the new roundabout and reconfigured intersection. The parcel is currently used for livestock grazing and is assumed to be enrolled under a Williamson Act contract that was established in 1975. This acquisition of land and conversion of use would not conflict substantially with the Agriculture and Timber Element in the *Tehama County General Plan Update 2009–2029*, which encourages the preservation of agricultural land through enrollment in Williamson Act contracts, or the plan's Land Use Element.

The Open Space and Conservation Element in the *Tehama County General Plan Update 2009–2029* includes various policies related to the protection of biological resources (e.g., streams, rivers, oak woodlands, wetlands, and native plants and animals) within the county. Construction of the project would permanently impact a small amount of stream and wetland habitat. Because the affected wetlands are known to support Endangered/Threatened species, the project would conflict substantially with the goals for protection of natural resources in the Open Space and Conservation Element in the *Tehama County General Plan Update 2009–2029* and the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*.

Cumulative Impacts

The project would conflict with the Agriculture and Timber, Land Use, and Open Space and Conservation elements in the *Tehama County General Plan Update 2009–2029* and with the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*, and when these conflicts are considered along with similar conflicts resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's conflicts with state, regional, and local plans/programs would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would not conflict with any state, regional, and local plans/programs but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures related to conflicts with the Agriculture and Timber Element and the Land Use Element in the *Tehama County General Plan Update 2009–2029* are warranted for the conversion of Williamson Act lands to a different use.

Implementation of avoidance, minimization, and mitigation measures for habitat protection (e.g., wetland preservation/creation), species protection (including nesting migratory birds), and invasive species control, as described in Section 2.4 Biological Environment, would ensure consistency with the Open Space and Conservation Element in the *Tehama County General Plan Update 2009–2029* and the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*.

2.2.3 Relocations and Real Property Acquisition

Regulatory Setting

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Please see Appendix A for a copy of the Department's Title VI Policy Statement.

Affected Environment

The affected environment includes state-owned land (Caltrans' right-of-way) and adjacent land that is privately owned. Privately owned land within the project area consists of one parcel identified as Tehama County Assessor's Parcel Number 079-260-008. This ~114.16-acre parcel is located west of SR 99 and is bisected by South Avenue. The parcel is currently undeveloped and used for livestock grazing.

Environmental Consequences

Build Alternative

Construction Impacts

As documented in the Community Impact Assessment Memorandum, construction of the project would not require the relocation of any homes, businesses, or farms. However, construction of the project would require the permanent and temporary acquisition of right-of-way from Tehama County Assessor's Parcel Number 079-260-008 (Figure 5). It is estimated that

approximately 2.75 acres of right-of-way would be permanently acquired to accommodate the new roundabout and reconfigured intersection and approximately 0.73 acre of right-of-way would be temporarily acquired for project staging during construction and to establish an approximately 0.086-acre permanent drainage easement (Table 5). The permanent acquisition of approximately 2.75 acres of right-of-way from the ~114.16-acre parcel (a conversion of approximately 2.4% of the parcel) is not a substantial acquisition of real property.

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Table 5. Temporary and Permanent Acquisition of Right-of-Way

<i>Tehama County Assessor's Parcel Number</i> 079-260-008 (~114.16 acres)	<i>Right-of-Way Acquired (acres)</i>
Temporarily Acquired	~0.73
Permanently Acquired	~2.75

Cumulative Impacts

The project's impact on real property acquisition would not be substantial and when these impacts are considered along with impacts on real property acquisition resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on real property acquisition would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would result in no acquisition of real property but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are warranted.

2.2.4 Farmlands

Regulatory Setting

The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act (FPPA, 7 United States Code [USC] 4201-4209; and its regulations, 7 Code of Federal Regulations [CFR] Part 658) require federal agencies, such as the Federal Highway Administration (FHWA), to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may

irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

The California Environmental Quality Act (CEQA) requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses.

Affected Environment

No farmland (e.g., prime farmland, farmland of statewide importance, or farmland of local importance) is present within the project area. This finding was confirmed by the NRCS and their concurrence is provided in Appendix F. However, the entirety of the project area is identified as "Grazing Land" (California Department of Conservation 2020a). One parcel within the project area that is identified as Tehama County Assessor's Parcel Number 079-260-008 is assumed to be enrolled under a Williamson Act contract that was established in 1975. This ~114.16-acre parcel is located west of SR 99 and is bisected by South Avenue. The parcel is currently undeveloped and used for livestock grazing.

Environmental Consequences

Build Alternative

Construction Impacts

No farmlands would be impacted by the project. However, Caltrans would permanently acquire approximately 2.75 acres of right-of-way from a ~114.16-acre parcel (a conversion of approximately 2.4% of the parcel) identified as Tehama County Assessor's Parcel Number 079-260-008 to accommodate the new roundabout and reconfigured intersection. As stated previously, this parcel is currently undeveloped, used for livestock

grazing, and is assumed to be enrolled under a Williamson Act contract. The proposed permanent acquisition of land enrolled in a Williamson Act contract is shown in Figure 6.

According to the CEQA Guidelines Section 15206, cancellation of Williamson Act contracts for parcels exceeding 100 acres is considered to be “of statewide, regional, or area wide significance,” and subject to additional noticing and review requirements under CEQA. The Williamson Act of 1965 is the state’s primary law for the preservation of agricultural and open space land. The program encourages landowners to work with local governments to protect important farmland and open space. Landowners can enroll parcels for a minimum of 10 years. This program helps local governments restrict land to agricultural and compatible open space use. In doing so, land is assessed for property taxes at a rate consistent with its actual use, rather than the potential value of the land. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth.

The project would conflict with a Williamson Act contract. However, because the amount of land that would be converted for use is small in relation to the size of the parcel that would be affected and is well below the 100-acre threshold under CEQA, the conversion of Williamson Act land is not substantial.

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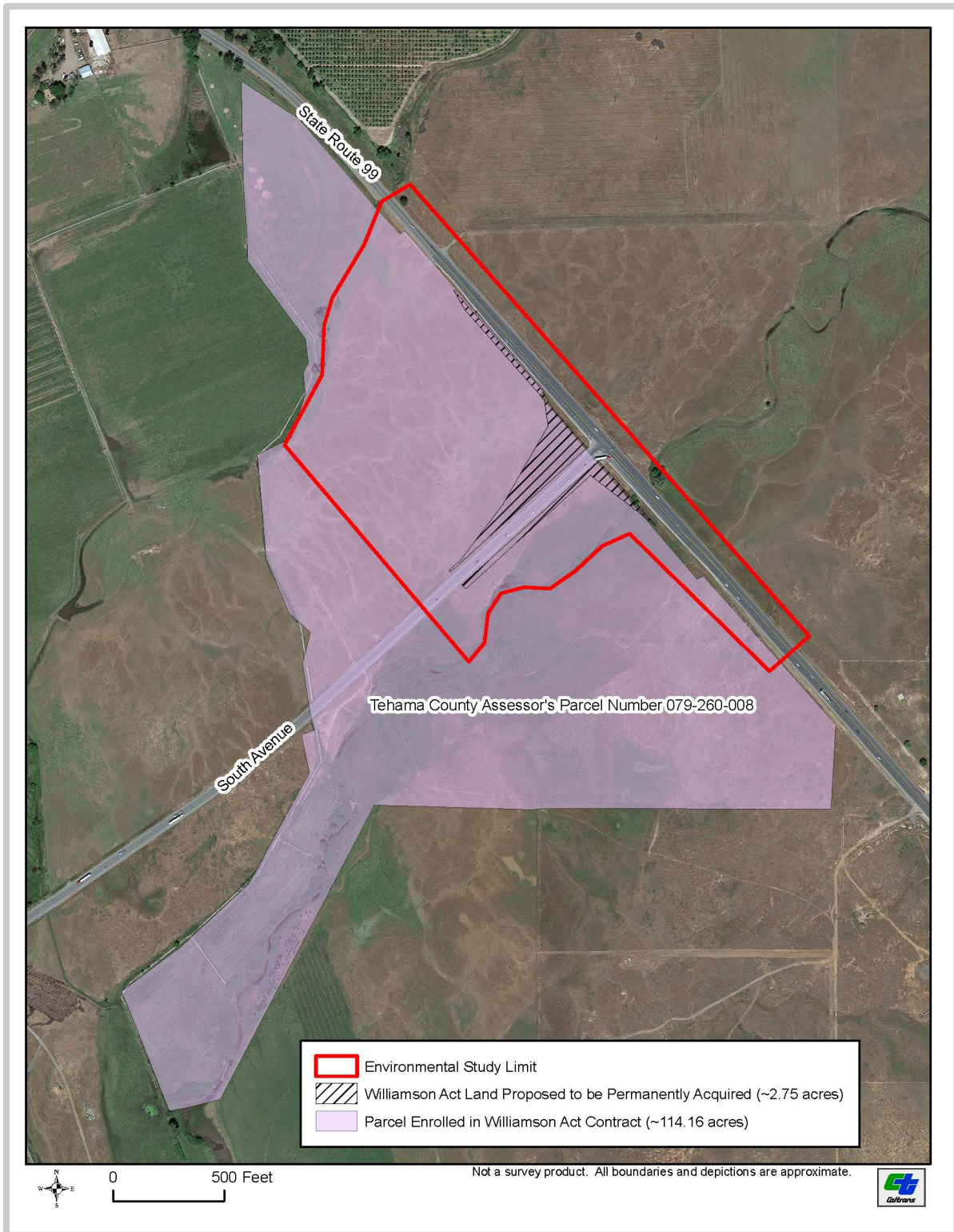


Figure 6. Proposed Permanent Acquisition of Land Enrolled in a Williamson Act Contract

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Cumulative Impacts

The project's impact on Williamson Act lands would be minimal and when these impacts are considered along with impacts on Williamson Act lands resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on Williamson Act Lands would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on farmlands (including Williamson Act lands) but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are warranted.

2.2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

The Department, as assigned by the Federal Highway Administration (FHWA), directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of Federal-aid highway projects (see 23 Code of Federal Regulations [CFR] 652). It further directs that the special needs of the elderly and the disabled must be considered in all Federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal

transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). The FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

Affected Environment

State Route 99 is a public highway on the State Highway System and is maintained by the California Department of Transportation. SR 99 in Tehama County spans a distance of approximately 25 miles and passes through numerous orchards, areas of undeveloped land, and the unincorporated communities of Los Molinos and Dairyville. South Avenue, a public roadway maintained by Tehama County Public Works, is an important connector road between SR 99 and Interstate 5 approximately 6.4 miles to the west. SR 99 and South Avenue are important roadways used by local and regional traffic.

Within the project area, SR 99 consists of a 12-foot-wide paved lane with an 8-foot-wide paved shoulder in each direction of travel, has a posted speed limit of 65 miles per hour, and in 2019, had an annual average daily traffic (AADT) of 16,400 vehicles (California Department of Transportation 2021c). The Surface Transportation Assistance Act (STAA) of 1982 allows large trucks (called STAA trucks) to operate on the Interstate and certain primary routes. The STAA trucks are longer than California legal trucks and have a larger turning radius than most local roads can accommodate. The section of SR 99 within the project area is designated as a Terminal Access Route for STAA trucks. This section of SR 99 is also designated as a Class III bike route and may be utilized by pedestrians. Within the project area, South Avenue consists of a 12-foot-wide paved lane with an 8-foot-wide paved shoulder in each direction of travel and has a posted speed limit of 55 miles per hour. In 2019, the AADT on South Avenue was 9,700 vehicles.

Eastbound traffic on South Avenue turning right onto southbound SR 99 at the intersection use a turn lane with no traffic controls whereas traffic turning left onto northbound SR 99 must first stop at a stop sign before proceeding through the intersection. Northbound and southbound traffic on SR 99 turning onto South Avenue use turn lanes with no traffic controls. Between January 1, 2013, and December 31, 2017, 17 vehicle collisions were documented at the intersection. Eleven of the vehicle collisions resulted in injuries (none were fatal). Twelve of the vehicle collisions were associated with the northbound left turn lane onto South Avenue. Compared to similar facility types throughout the state, the intersection has a vehicle collision rate 4.7 times higher than the state average and the fatal plus injury rate is 7.0 times higher than the state average.

The project is consistent with state, regional, and local transportation plans and programs. Operational improvements to enhance safety for motorized travel on SR 99 is consistent with transportation goals in the Transportation and Circulation Element in the *Tehama County General Plan Update 2009–2029* and is consistent with the *2019 Tehama County Regional Transportation Plan*.

Public transportation service providers that operate within the project area are limited to the Los Molinos Unified School District, which provides buses to transport students to and from schools. The Tehama Rural Area Express, which is the primary public transportation service provider in Tehama County, does not have routes that transport passengers through the project area.

Environmental Consequences

Build Alternative

Construction Impacts

Construction of the project would not increase capacity of the State Highway System or induce an increase in vehicle miles traveled (VMT). Therefore, an induced travel analysis for VMT is not required under CEQA. Once built, the project would result in no adverse operational impacts on the traveling public. Installation of the roundabout would allow eastbound traffic

on South Avenue to merge onto northbound SR 99 and would improve the efficiency of traffic flow at the intersection (this is a beneficial impact). The project would perpetuate existing pedestrian access and a Class III bike route. The project work scope includes the use of one-way reversing traffic control when partial closure of the roadway is required during construction. When partial closure of the roadway is required and one-way reversing traffic control is utilized, travel time through the project area is expected to be delayed by a few minutes for all modes of travel. As such, impacts to the traveling public (e.g., motorists, school buses transporting students to schools, STAA trucks, bicyclists, and pedestrians) would not be substantial.

A Transportation Management Plan was prepared for the project during the design phase (California Department of Transportation 2021c) and an updated Transportation Management Plan will be prepared for the contractor at the time of construction. Compliance with the following Caltrans Standard Specifications would ensure that any impacts on traffic and transportation/pedestrian and bicycle facilities would not be substantial:

Public Outreach

Prior to construction, the following public outreach efforts shall be made:

- Inform the public about the project.
- Notify adjacent property owners about the project.
- Notify the Los Molinos Unified School District about the project.
- Implement a public information campaign (e.g., news releases and worker safety media campaign).

Traffic Control

- Construction will be conducted under Staged Construction Plans and Revised Standard Plan T13 and T13B lane closure (reversing, one-way traffic control) with the Revised Standard Plan T22 for speed reduction. Most operations can be conducted during typical 12-hour work shifts.

Twenty-four-hour traffic control is required if traffic is on an un-paved surface or when shown on stage construction sheets. Based on traffic volumes, lane closures with less than one lane for each direction of traffic would normally be allowed only during nighttime hours, but because of the nature of the work and limited space available, 24-hour reversing may be necessary, if management approves.

Trucks

- State Route 99 is designated as a Terminal Access route for STAA trucks. It has not yet been determined if traffic control for this project will alter the requirement for STAA truck routes; therefore, truck impacts are not known. Annual permits are issued for trucks 8.5 feet to 12 feet in width. Occasionally under special approval, single trip permits are issued for trucks over 12 feet in width. This project does include the use of Type K temporary railing and a 16-foot horizontal clearance must be provided to traffic at all locations.

Bicyclists and Pedestrians

- Bicycles and pedestrians are allowed within the project limits. During operations, bicyclists may travel past the work zone using the open lane (the same as vehicle traffic). When pedestrians are present, they may need to be transported through the work zone.

Lane Closures

- Lane closures on two-lane conventional highways are not allowed during times when the traffic volumes are high enough to create queues too large to clear in a standard traffic control cycle, which would eliminate the use of 24-hour reversing lane closures during daytime hours. The intersection with South Avenue will further complicate traffic control. Lane closure charts will be provided. Mitigation measures such as incentive/disincentive for work requiring 24-hour reversing lane closures and the use of end of queue monitoring and warning will be considered.

Portable Changeable Message Signs (PCMSs)

- PCMSs are typically used for safety reasons on roadways where high approach speeds are present, sight distance is limited, night work is anticipated, or there is a history of work zone accidents related to high approach speeds. At least three PCMSs are required for this project. One PCMS must be placed before the first traffic control sign for each approach. Additional PCMSs may be needed for speed reduction.

The measures listed above are subject to modification as Caltrans will prepare an updated transportation management plan at the time of construction.

Cumulative Impacts

The project's impact on traffic and transportation/pedestrian and bicycle facilities would be minimal and when these impacts are considered along with impacts on traffic and transportation/pedestrian and bicycle facilities resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on traffic and transportation/pedestrian and bicycle facilities would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on traffic and transportation/pedestrian and bicycle facilities but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.2.6 Utilities/Emergency Services

Regulatory Setting

Not applicable.

Affected Environment

The project area includes existing flashing beacons and safety lighting mounted to a pole along the northbound lane of SR 99 at the intersection with South Avenue. In addition, a pole with safety lighting and a pole with a closed-circuit television are present along the southbound lane of SR 99 at the southwest corner of the intersection. A pole with safety lighting is also present along the southbound lane of SR 99 approximately 0.1 mile south of the intersection. The flashing beacons, safety lighting, and closed-circuit television are powered by electricity provided by underground electrical utilities maintained by Caltrans. Other utilities present within the project area include an underground fiberoptic cable maintained by AT&T at the intersection of SR 99 and South Avenue. No gas pipelines, water pipelines, or sewer pipelines are present within the project area.

Emergency service providers that operate within the project area include CAL FIRE, Tehama County Fire Department, California Highway Patrol, Tehama County Sheriff Department, and ambulances that transport patients to local hospitals. These emergency service providers are vital to the safety of local communities and residents living in unincorporated areas; their effectiveness is often measured in the time required to respond to an emergency.

In the project vicinity, CAL FIRE operates the Vina Helitack Base, which is located approximately ¼-mile south of the project area on the east side of SR 99. The base was built in the 1950s and was renovated/expanded in 2019. Fire crews at the base respond to fires, medical calls, and other emergencies over a large geographic area using helicopters and other emergency vehicles. The base has a driveway that connects to SR 99.

Environmental Consequences

Build Alternative

Construction Impacts

The operation of flashing beacons, a closed-circuit television, and electroliers would utilize electrical power by connecting to existing underground electrical utilities that are maintained by Caltrans. The project would not involve any planned loss of utilities during construction. In the event that unforeseen utility conflicts arise or existing utilities are impacted during construction, utilities may be relocated or turned off for short periods. Any impacts to residents, businesses, or farms in the project vicinity would be minimal.

The project work scope includes the use of one-way reversing traffic control when partial closure of the roadway is required during construction. When partial closure of the roadway is required and one-way reversing traffic control is utilized, travel time through the project area is expected to be delayed by only a few minutes. However, emergency service providers would not be subject to traffic controls and any potential delays would have negligible impact on response time.

Compliance with the following Caltrans Standard Specifications would ensure that any impacts on emergency services would be minimal:

Public Outreach

- Coordinate with local emergency service providers to ensure that they are aware of the project and that safe passage is maintained for emergency vehicles at all times.
- Prior to construction, the Transportation Management Plan prepared for the project will be subject to review/approval from the California Highway Patrol and CAL FIRE.

Cumulative Impacts

The project's impact on utilities/emergency services would be minimal, and when these impacts are considered along with impacts on utilities/emergency services resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on utilities/emergency services would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on utilities/emergency services but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.2.7 Visual/Aesthetics

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331 [b][2]). To further emphasize this point, the Federal Highway Administration (FHWA), in its implementation of NEPA (23 USC 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the

state “with...enjoyment of *aesthetic*, natural, scenic and historic environmental qualities” (CA Public Resources Code [PRC] Section 21001 [b]).

California Streets and Highways Code Section 92.3 directs Caltrans to use drought resistant landscaping and recycled water when feasible and incorporate native wildflowers and native and climate-appropriate vegetation into the planting design when appropriate.

Affected Environment

The project is located on the valley floor in a rural part of Tehama County. Within the project area, the terrain is relatively flat and supports an annual grassland outside of the roadway and shoulders. State Route 99 is not an officially designated scenic highway (California Department of Transportation 2020a) and no scenic resources are present within the project area. However, travelers within the project area have expansive views of the Coast Range to the west and views of the Sierra Nevada foothills to the east (California Department of Transportation 2021 d).

The aesthetics of the project area have been affected by previous Caltrans projects, including construction of the highway. The project area has existing flashing beacons and safety lighting mounted to a pole along the northbound lane of SR 99 at the intersection with South Avenue. In addition, a pole with safety lighting and a pole with a closed-circuit television are present along the southbound lane of SR 99 at the southwest corner of the intersection. A pole with safety lighting is also present along the southbound lane of SR 99 approximately 0.1 mile south of the intersection.

Environmental Consequences

Build Alternative

Construction Impacts

Project features that would impact the aesthetics of the project area include the construction of a new roundabout, the installation of new flashing beacons, a new ~45-foot-tall steel truss tower with a closed-circuit television,

and 13 new electroliers (each approximately 30 to 35 feet tall with downward-directed lighting) to provide intersection lighting. These features would be visible to the traveling public during day and night given the relative flat topography and near absence of trees in the project area. The new electroliers and steel truss tower have metal surfaces which would be a source of new glare and the new electroliers and flashing beacons would be a source of new light. Glare from newly galvanized elements such as the electroliers and the steel truss tower is anticipated to be present until natural oxidation occurs, which could take anywhere from 6 months to several years.

The project includes design features that would minimize impacts on the aesthetics of the project area. For example, the roundabout would receive architectural treatment that is appropriate to the project setting. However, even with incorporation of these design features, implementation of minimization measures would be required to ensure that the project would not have a substantial impact on the aesthetics of the project area.

Cumulative Impacts

The project's impact on aesthetics would be not be substantial and when these impacts are considered along with impacts on aesthetics resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on aesthetics would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on the aesthetics of the project area but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

The following minimization measure shall be implemented to further minimize impacts on the aesthetics of the project area:

- Incorporate treatments to reduce glare from new galvanized elements such as the light pole standards, mast arms and 45' steel truss tower. The substantial number of vertical elements introduced to an otherwise featureless landscape is out of character and in stark contrast with the existing visual environment. Treating these elements to reduce the shine and glare will aid in blending with the existing landscape resulting in a softened and reduced visual impact.

2.2.8 Cultural Resources

Regulatory Setting

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

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

have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

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

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires the Department to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with PRC Section 5024 are outlined in a Memorandum of Understanding (MOU)¹ between the Department and SHPO, effective January 1, 2015. For most Federal-aid projects on the State Highway System,

¹ The MOU is located on the SER at <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/5024mou-15-a11y.pdf>

compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

Affected Environment

The cultural resources study included a literature and records review of the project area, an archaeological field survey of the project area, and visits to and/or contacts with repositories, agencies, organizations, and Native American representatives. The purpose of these efforts was to identify and evaluate any cultural resources that may exist within the project area and to assess any effects that the project might have related to the cultural resources.

As documented in the Historic Property Survey Report/Archaeological Survey Report (California Department of Transportation 2021b), the project is within the ancestral territory of the Nomlaki. Caltrans has consulted with applicable California Native American tribes and none of the tribes consulted provided notification of the presence or potential presence of tribal cultural resources, defined in Public Resource Code section 2107, within the project area. No cultural resources were observed within the project area during the field surveys.

Environmental Consequences

Build Alternative

Construction Impacts

Construction of the project would not impact any cultural resources. It is Caltrans' policy to avoid cultural resources whenever possible. Compliance with the following Caltrans Standard Specifications to protect buried cultural materials, including human remains, that may be encountered during construction would ensure that the project would have no adverse effect on historic/archaeological resources pursuant to § 15064.5 or on buried human remains:

- If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.
- If human remains are discovered, California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the Caltrans District 2 Native American Coordinator so that he/she may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Cumulative Impacts

Construction of the project would not impact any cultural resources and therefore would not have a cumulative impact on cultural resources.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on cultural resources but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.3 Physical Environment

2.3.1 Hydrology and Floodplain

Regulatory Setting

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration (FHWA) requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A. To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

Affected Environment

The project area is located within the Sacramento Hydrologic Basin Planning Area, which is located within the Sacramento River watershed and is managed by the Central Valley Regional Water Quality Control Board. The project area receives moderate rainfall. The average annual precipitation recorded at Orland between 1903 and 2016 is 19.95 inches (Western Regional Climate Center 2020). Hoag Slough and an unnamed drainage that is tributary to Hoag Slough are seasonal drainages that flow through the

project area. Flows in Hoag Slough are tributary to the Sacramento River, approximately 5 miles downstream. No lakes are present within or adjacent to the project area. However, the project area includes a large vernal pool complex north of South Avenue and west of SR 99. The vernal pool complex consists of vernal pools (e.g., seasonal wetlands that pond water in winter and spring and are dry in summer and fall) interconnected by numerous swales. When the wetlands that comprise the vernal pool complex are filled to capacity in winter and spring, excess water drains south to Hoag Slough.

The project area does not include any Federal Emergency Management Agency (FEMA) regulatory base floodplains. As shown in Figure 7, the FEMA Flood Insurance Rate Map identifies the project area as an “Area of Minimal Flood Hazard” and designates it as Zone X. Zone X is defined as areas of “0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile” (Federal Emergency Management Agency 2020).

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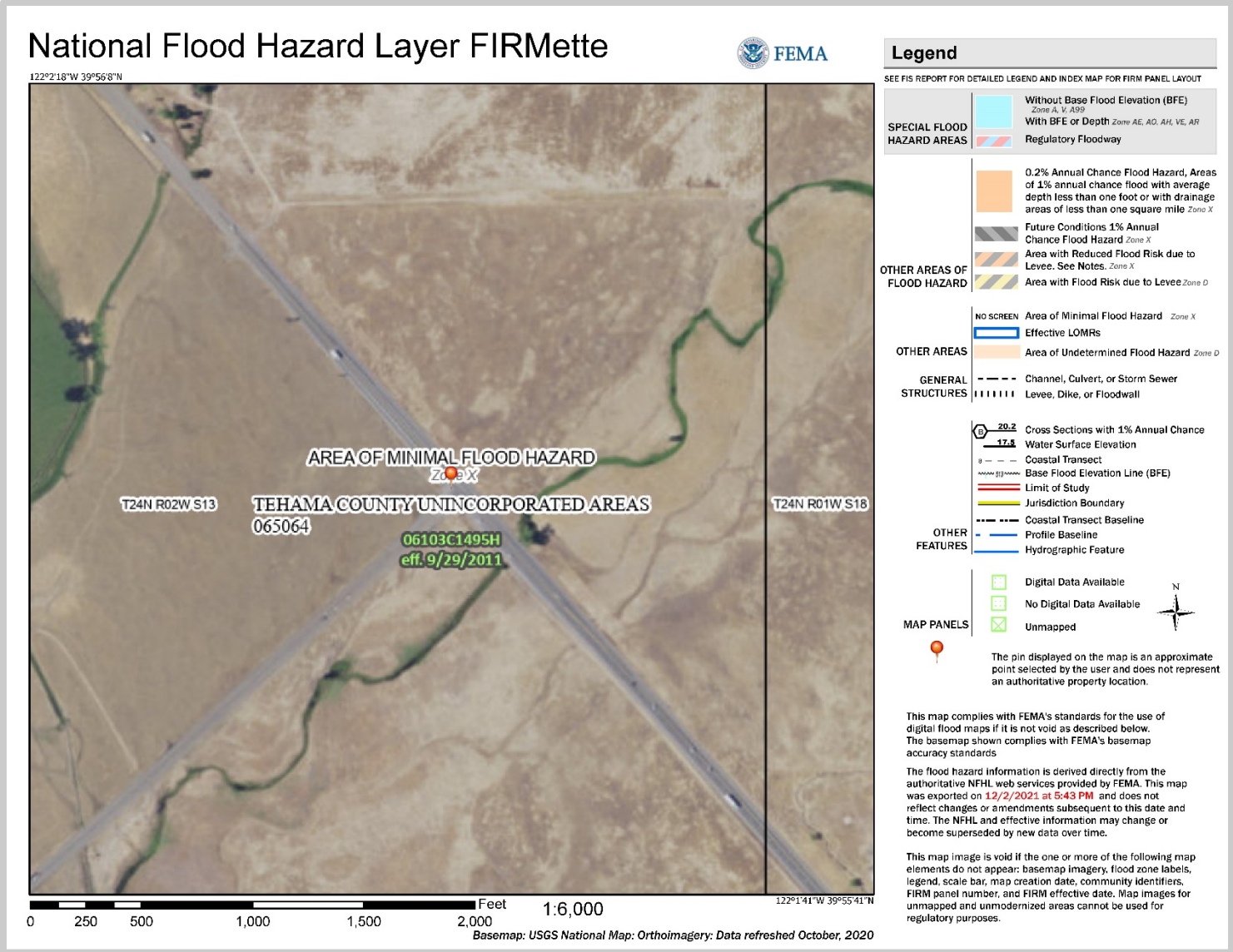


Figure 7. Federal Emergency Management Agency Flood Insurance Rate Map for The Project Area

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Environmental Consequences

Build Alternative

Construction Impacts

Construction activities that have the potential to impact hydrology include culvert work, the addition of new/redeveloped impervious surfaces, and excavation/grading activities. No FEMA regulatory base floodplains would be affected by the project.

Extension of the box culvert that conveys Hoag Slough under SR 99 would require working within the stream channel and filling a small amount of the stream's natural channel. At the location of the new roundabout, stormwater runoff from the roadway that would have drained to wetlands along both sides of SR 99 and South Avenue would be redirected into 6 new culverts that convey stormwater under the roadway and discharge flow to Hoag Slough. However, stormwater runoff from the roadway is not substantial and is not essential for ponding of wetlands in the project area. Construction-related impacts on the hydrology of Hoag Slough and wetlands would be negligible.

This project will increase impervious area by 0.58 acres and replace (perpetuate) 2.41 acres of existing impervious area. Biofiltration strips and swales are being incorporated throughout the project. These will treat a total of 2.99 acres (0.58 acres increased + 2.41 acres replaced = 2.99 acres). Post-construction stormwater flows may minimally exceed pre-construction stormwater flows.

Excavation/grading activities would minimally alter the natural topography of the project area but would not substantially alter the hydrology.

The Floodplain Evaluation Report Summary (California Department of Transportation 2020b) determined that the project is not located within a mapped FEMA regulatory floodplain and would not result in a floodplain

encroachment as defined in 23 CFR, Section 650.105(q). As such, a Floodplain Only Practicable Alternative Finding would not be required.

Cumulative Impacts

The project would not impact any FEMA regulatory base floodplains and therefore would have no cumulative impact on FEMA regulatory base floodplains. The project's impact on hydrology would be minimal and when these impacts are considered along with hydrology impacts resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on hydrology would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on hydrology and FEMA regulatory base floodplains but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are warranted.

2.3.2 Water Quality and Storm Water Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source² unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress

² A point source is any discrete conveyance such as a pipe or a man-made ditch.

has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in 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. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of

Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent³ standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-

³ The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQB's are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department’s MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance

activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012) regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3

(highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Affected Environment

The project area is located within the Sacramento Hydrologic Basin Planning Area, which is located within the Sacramento River watershed and is managed by the Central Valley Regional Water Quality Control Board. The primary receiving water body in the project area is Hoag Slough, which is tributary to the Sacramento River. According to the *Water Quality Control Plan (Basin Plan) for the Central Valley Region*, no beneficial uses of surface waters are identified for Hoag Slough. However, beneficial uses of surface

waters in the Sacramento River between Shasta Dam and the Colusa Basin (the section that Hoag Slough is tributary to) are identified as:

- **Municipal and Domestic Supply (MUN)**—Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Agricultural Supply (AGR)**—Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation (including leaching of salts), stock watering, or support of vegetation for range grazing.
- **Industrial Service Supply (IND)**—Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.
- **Hydropower Generation (POW)**—Uses of water for hydropower generation.
- **Water Contact Recreation (REC-1)**—Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.
- **Non-Contact Water Recreation (REC-2)**—Uses of water for recreational activities involving proximity to water, but where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- **Warm Freshwater Habitat (WARM)**—Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

- **Cold Freshwater Habitat (COLD)**—Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Migration of Aquatic Organisms (MIGR)**—Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.
- **Spawning, Reproduction, and/or Early Development (SPWN)**—Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.
- **Wildlife Habitat (WILD)**—Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- **Navigation (NAV)**—Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

Unless otherwise designated by the Central Valley Regional Water Quality Control Board, all ground waters in the region are considered suitable or potentially suitable, at a minimum, for municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

Environmental Consequences

Build Alternative

Construction Impacts

Construction activities that have the potential to impact water quality and stormwater runoff include excavation/grading activities, culvert work, and the addition of new/redeveloped impervious surface. Excavation/grading activities and culvert work may result in a minimal amount of erosion and

siltation on- and off-site, which could degrade water quality. This project will increase impervious area by 0.58 acres and replace (perpetuate) 2.41 acres of existing impervious area. Post-construction stormwater flows may minimally exceed pre-construction stormwater flows and may result in a negligible increase in pollutants above existing levels.

Project design features include the installation of stormwater treatment Best Management Practices (BMPs) for onsite stormwater treatment to minimize impacts on water quality. These stormwater treatment BMPs include installing 15-foot-wide biofiltration strips along roadway throughout the project limits and installing biofiltration swales at the outlets of new culverts and constructing a drainage ditch south of South Avenue that would collect runoff from the biofiltration swales and discharge flow to Hoag Slough. Because more than one acre of ground disturbance would occur, a Storm Water Pollution Prevention Plan would need to be prepared in accordance with the *2018 Caltrans Standard Specifications* (California Department of Transportation 2018). Compliance with Caltrans Standard Specifications for erosion control and spill prevention would minimize any impacts to water quality during construction.

The project would not affect the beneficial uses of surface waters downstream of the project area in the Sacramento River or affect suitable/potentially suitable uses of ground water as identified in the *Water Quality Control Plan (Basin Plan) for the Central Valley Region*.

The project was determined to be exempt from Caltrans' Water Quality Assessment (California Department of Transportation 2021e). Compliance with the following Caltrans Standard Specification and construction site Best Management Practices would ensure that any impacts to water quality during construction would be minimal:

- Prior to construction, the contractor shall prepare a Storm Water Pollution Prevention Plan in accordance with the *2018 Caltrans Standard Specifications* that identifies measures to be implemented for erosion control, spill prevention, and construction waste containment. All construction site Best Management Practices shall follow the most

current edition of the *Construction Site Best Management Practices (BMPs) Manual*.

The following construction site BMPs are anticipated to be incorporated into the Storm Water Pollution Prevention Plan:

- Existing vegetation shall be removed to the minimum extent necessary to facilitate the proposed work (SS-2).
- Temporary access road entrances and exits shall be stabilized and maintained to prevent sediment erosion and transport from the work area (TC-1).
- Temporary drainage inlet protection methods such as gravel bags shall be deployed to prevent sediment and other pollutants from entering drainage systems (SC-10)
- Perimeter control devices such as fiber rolls, compost socks, and silt fences shall be utilized to prevent sediment transport from the project site (SC-6, SC-09).
- Disturbed slopes shall be stabilized with a combination of seed, biodegradable rolled erosion control products (RECP) such as fiber rolls, coir blankets, and geotextile fabrics (SS-7).
- Concrete washout facilities, re-fueling areas, as well as equipment and storage areas, shall be covered and located away from drainage inlets and waterways to prevent both stormwater and non-stormwater discharges (WM-3, WM-8, NS-9).
- Dewatering operations shall be implemented to manage the discharge of pollutants from the accumulation of groundwater associated with excavations, temporary stream crossings and clear water diversions (NS-2, NS-4, NS-5).
- Paving and sealing operations shall be conducted to avoid and minimize the discharge of pollutants to receiving waters (NS-3).

- Spill prevention and control practices (WM-4).

Additional construction site BMPs will likely be incorporated in the approved project SWPPP during the construction phase of the project to address BMPs for specific items of work.

Cumulative Impacts

The project's impact on water quality and storm water runoff would be minimal and when these impacts are considered along with water quality and storm water runoff impacts resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on water quality and storm water runoff would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on water quality and storm water runoff but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.3.3 Hazardous Wastes/Materials

Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA, often referred to as “Superfund,” is to identify and cleanup abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations

that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

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

Affected Environment

An Initial Site Assessment (ISA) was prepared by Caltrans North Region Environmental Engineering staff (California Department of Transportation 2020c). The purpose of the ISA was to identify any hazardous wastes/materials within and adjacent to the project area that could affect the design, constructability, feasibility, and/or the cost of the project. The records review included a review of federal, state, and local databases and maps. A field review was also conducted. As documented in the ISA, lead-contaminated soils may exist throughout the project limits due to the historical use of leaded gasoline on the roadway, pollutants may be present in treated wood, and lead/chromium may be present in yellow and white road striping. No naturally occurring asbestos or other man-made materials containing asbestos is expected to be present. No “Cortese” sites are present within or adjacent to the project area.

Environmental Consequences

Build Alternative

Construction Impacts

Construction of the project would not impact any Cortese sites. Construction of the project would require excavation of a relatively small amount soil along the roadway, culvert work, relocating several existing treated wood posts, and removal of a small amount of yellow and white road striping from the roadway surface. These activities have the potential to release a

minimal amount of hazardous wastes/materials into the environment. Compliance with Caltrans Standard Specifications related to the proper handling of soils containing aurally deposited lead (ADL), treated wood, and asphalt grindings associated with road striping would ensure that these activities do not release hazardous wastes/materials into the environment.

Once built, the project would not generate solid waste material. During construction, the use of balanced earthwork would avoid impacting local landfills. Construction of the project would generate approximately 4,000 cubic yards of asphalt grindings, which would become property of the contractor. Asphalt grindings may be reused onsite (excluding a minimal amount of grindings associated with yellow and white road striping).

Compliance with the following Caltrans Standard Specifications would ensure that the project would have no impact related to hazardous wastes/materials:

- A site investigation for aurally deposited lead (ADL) shall be conducted prior to RTL to determine whether ADL is present and what actions, if any, would be required. If encountered, soil with elevated concentrations of lead as a result of ADL on the State Highway System right-of-way within the limits of the project will be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the project limits as long as all requirements of the ADL Agreement are met.
- Asphalt grindings associated with the removal of yellow and white road striping shall be removed and disposed of by the contractor in accordance with Caltrans Standard Special Provision 36-4, which requires the contractor to prepare a Lead Compliance Plan.
- Treated wood waste shall be disposed of by the contractor in accordance with Caltrans Standard Specification 14-11.14.

Cumulative Impacts

Compliance with Caltrans Standard Specifications related to the proper handling of soils containing ADL, treated wood, and asphalt grindings associated with road striping would ensure that the project would have no impact related to hazardous wastes/materials. Therefore, the project would have no cumulative impact related to hazardous wastes/materials.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impacts related to hazardous wastes/materials but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.3.4 Noise

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA/Title 23 Part 772 of the Code of Federal Regulations (23 CFR 772)

noise analysis; please see Chapter 3 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with Federal Highway Administration (FHWA) involvement (and the Department, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). The following table lists the noise abatement criteria for use in the NEPA/23 CFR 772 analysis.

Table 6. Noise Abatement Criteria

<i>Activity Category</i>	<i>NAC, Hourly A-Weighted Noise Level, Leq(h)</i>	<i>Description of Activity Category</i>
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ¹	67 (Exterior)	Residential.
C ¹	67 (Exterior)	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

¹ Includes undeveloped lands permitted for this activity category.

Figure 8 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft) Commercial Area	70	Vacuum Cleaner at 3 m (10 ft) Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background)
	10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Figure 8. Noise Levels of Common Activities

According to the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more) or when the future noise level with the project approaches or exceeds the NAC. A noise level is considered to approach the NAC if it is within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Department's *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. Noise abatement must be predicted to reduce noise by at least 5 dB at an impacted receptor to be considered feasible from an acoustical perspective. It must also be possible to design and construct the noise abatement measure for it to be considered feasible. Factors that affect the design and constructability of noise abatement include, but are not limited to, safety, barrier height, topography, drainage, access requirements for driveways, presence of local cross streets, underground utilities, other noise sources in the area, and maintenance of the abatement measure. The overall reasonableness of noise abatement is determined by the following three factors: 1) the noise reduction design goal of 7 dB at one or more impacted receptors; 2) the cost of noise abatement; and 3) the viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

Affected Environment

SR 99 within the project area is subject to a moderate level of noise disturbance on a daily basis due to vehicle traffic traveling at high speed on SR 99 and occasionally from the operation of helicopters at CAL FIRE's Vina

Helitack Base located approximately ¼-mile south of the project area. In noise/vibration studies, sensitive receptors are hospitals, schools, homes, daycare facilities, elderly housing, and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to noise and vibration. No sensitive receptors are present within or adjacent to the project area.

Environmental Consequences

Build Alternative

Construction Impacts

The project is not a Type I project and would not involve the introduction of permanent noise-producing activities (2020j). During construction, temporary noise impacts would occur from the use of stationary and mobile construction equipment and vehicles during construction. Construction vehicles and equipment could include excavators, compressors, generators, haul trucks, pavers, and material loaders. Project construction noise levels would fluctuate depending on the construction phase, equipment type, and quantity and duration of use. Peak noise levels during construction would likely result from the use of excavators to break up concrete/asphalt and place these materials into haul trucks. Noise levels associated with these activities could be up to 90 decibels. Once built, noise levels would not increase above existing baseline noise levels. Under NEPA, noise abatement measures do not need to be considered because the project is not a Type I project and would not permanently increase noise levels by at least 12 dBA. Once built, the project would not be a source of permanent ground-borne vibrations. Although ground-borne vibrations may be noticeable during construction, they would be temporary in duration and minimal in magnitude.

Compliance with the following Caltrans Standard Specification for noise/vibration control would ensure that any noise/vibration impacts during construction would be minimal:

- The contractor shall comply with Caltrans Standard Specification 14-8.02 “Noise Control”, which includes provisions for minimizing construction-related noise and vibration. These include controlling and monitoring noise resulting from work activities and ensuring that construction-related noise levels do not exceed 86 dBA Lmax at 50 feet from the job site from 9 p.m. to 6 a.m.

Cumulative Impacts

The project's noise impacts would be temporary and when these impacts are considered along with noise impacts resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's noise impacts would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on existing noise levels and would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.3.5 Geology/Soils/Seismic/Topography

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.”

Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Structures are designed using the Department's Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the [Department's Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria](#).

Affected Environment

The project is located in the northern Sacramento Valley, which is generally characterized by relatively flat topography and deep alluvial deposits. Landslides are uncommon on the valley floor. Review of aerial photographs found no evidence of landslides within or adjacent to the project limits. Given that the topography within the project area is relatively level and there is no history of highway repairs due to landslides or subsidence within the project area, the soils are presumed to be relatively stable. The underlying geology in the project area consists of sedimentary rocks (California Department of Conservation 2020b). The project is not located in an area that has a known active earthquake fault, as delineated on the most recent Alquist-Priolo earthquake fault zoning map (California Department of Conservation 2020c). The project location is subject to moderate seismic ground shaking from earthquakes (California Department of Conservation 2020d). The project area is not in an area characterized by seismic-related ground failure and/or liquefaction (California Department of Conservation 2020e).

Three soils type are present within the project area: Anita clay, Molinos complex channeled, and Tuscan clay loam (Natural Resources Conservation Service 2020). These soils types have a slight potential for erosion.

Expansive soils present hazards for development because they expand and shrink depending on water content. A hydrologic soil group is a group of soils

having similar runoff potential under similar storm and cover conditions. The Natural Resource Conservation Service recognizes four hydrologic soil groups (A through D). Group D soils have a high shrink-swell potential due to their high clay content and are considered expansive soils. Two soil types within the project limits contain a soil component that is classified as a Group D soil: Anita clay and Tuscan clay loam (Natural Resources Conservation Service 2020).

Environmental Consequences

Build Alternative

Construction Impacts

Although the roundabout could be subjected to moderate ground shaking in the event of a strong earthquake and some soils within the project area have the potential for expansion/contraction, any such limitations can be overcome through proper planning, design, and/or construction. The work includes grading and excavation, which would disturb approximately 10.18 acres of topsoil and would require the excavation of approximately 14,000 cubic yards of soil. These activities have the potential to cause soil erosion and may result in the loss of a minimal amount of soil.

Compliance with the following Caltrans Standard Specifications would overcome the effects of strong seismic ground shaking, account for the presence of expansive soils, and minimize the potential for erosion and loss of topsoil:

- The roundabout shall be designed in accordance with current seismic safety standards.
- Prior to construction, the contractor shall prepare a Storm Water Pollution Prevention Plan in accordance with the *2018 Caltrans Standard Specifications* that identifies measures to be implemented for erosion control, spill prevention, and construction waste containment. All construction site Best Management Practices shall follow the most

current edition of the *Construction Site Best Management Practices (BMPs) Manual*.

Cumulative Impacts

The project's impact on geology/soils/seismicity/topography would be minimal and when these impacts are considered along with impacts on geology/soils/seismicity/topography resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on geology/soils/seismicity/topography would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on geology/soils/seismicity/topography but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.3.6 Air Quality

Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards

have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM)—which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM₁₀) and particles of 2.5 micrometers and smaller (PM_{2.5}), Lead (Pb), and sulfur dioxide (SO₂). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176I, which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in non-attainment and “maintenance” (former non-attainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and in some areas (although not in California), sulfur dioxide (SO₂). California has non-attainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO₂, and also has a non-attainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP; the project has a design concept and scope⁴ that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-

⁴ "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

spot analyses) may be required for projects located in CO and PM non-attainment or maintenance areas to examine localized air quality impacts.

Affected Environment

The project is located in a rural part of Tehama County in northern California. The climate in the project vicinity is characterized by hot summers and wet winters with occasional snowfall. The average annual precipitation recorded at Orland between 1903 and 2016 is 19.95 inches (Western Regional Climate Center 2020). Wind direction and strength varies seasonally in the project vicinity. In spring, prevailing winds are generally from the northwest. In winter, Pacific storms moving westward across northern California bring strong winds from the south to the area. Inversion layers, which are common in winter, occur when a layer of warm air overlies a layer of dense cold air and prevents atmospheric mixing. If the trapped cold air contains large quantities of pollutants, air quality can be substantially impaired.

The project is located in the Sacramento Valley Air Basin and is within the jurisdiction of the Tehama County Air Pollution Control District and ARB. The Tehama County Air Pollution Control District is the primary local agency responsible for regional air quality planning, monitoring, and stationary source and facility permitting in accordance with standards set by the California ARB.

The project is located in an attainment/unclassified area for all current NAAQS. Therefore, conformity requirements do not apply. Construction activities would not last for more than 5 years so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.1231(5)). With regard to state air quality standards, the only criterial pollutants for which the project area is in non-attainment is ozone and PM₁₀. The project area attainment status of state and federal criterial air pollutants is shown in Table 7.

Table 7. State and Federal Criteria Air Pollutant Standards and Status

Pollutant	Averaging Time	State Standard ⁱ	Federal Standard ⁱⁱ	State Project Area Attainment Status	Federal Project Area Attainment Status
O ₃ ⁱⁱⁱ	1 hour	0.09 ppm ^{iv}	N/A	Non-attainment	N/A
O ₃	8 hours	0.070 ppm	0.070 ppm (4 th highest in 3 years)	Non-attainment	Attainment/ Unclassified
CO ^v	1 hour	20 ppm	35 ppm	Unclassified	Attainment/ Unclassified
CO	8 hours	9.0 ppm	9 ppm	Unclassified	Attainment/ Unclassified
CO	8 hours (Lake Tahoe)	6 ppm	N/A	Unclassified	N/A
PM ₁₀ ^{vi}	24 hours	50 µg/m ³ ^{vii}	150 µg/m ³ (expected number of days above standard < or equal to 1)	Non-attainment	Unclassified
PM ₁₀	Annual	20 µg/m ³	N/A	Non-attainment	N/A
PM _{2.5} ^{viii}	24 hours	N/A	35 µg/m ³ ^{vi}	N/A	Attainment/ Unclassified
PM _{2.5}	Annual	12 µg/m ³	12.0 µg/m ³	Unclassified	Attainment/ Unclassified
NO ₂	1 hour	0.18 ppm	0.100 ppm ^{ix}	Attainment	Attainment/ Unclassified
NO ₂	Annual	0.030 ppm	0.053 ppm	Attainment	Attainment/ Unclassified
SO ₂ ^x	1 hour	0.25 ppm	0.075 ppm (99 th percentile over 3 years)	Attainment	Attainment/ Unclassified

Pollutant	Averaging Time	State Standardⁱ	Federal Standardⁱⁱ	State Project Area Attainment Status	Federal Project Area Attainment Status
SO₂	3 hours	N/A	0.5 ppm ^{xi}	N/A	Attainment/ Unclassified
SO₂	24 hours	0.04 ppm	0.14 ppm (for certain areas)	Attainment	Attainment/ Unclassified
SO₂	Annual	N/A	0.030 ppm (for certain areas)	N/A	Attainment/ Unclassified
Pb^{xii}	Monthly	1.5 µg/m ³	N/A	Attainment	N/A
Pb	Calendar Quarter	N/A	1.5 µg/m ³ (for certain areas)	N/A	N/A
Pb	Rolling 3-month average	N/A	0.15 µg/m ³ ^{xiii}	N/A	N/A
Sulfates	24 hours	25 µg/m ³	N/A	Attainment	N/A
H₂S	1 hour	0.03 ppm	N/A	Unclassified	N/A
Visibility Reducing Particles (VRP)^{xiv}	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70 %	N/A	Unclassified	N/A
Vinyl Chloride^{xii}	24 hours	0.01 ppm	N/A	NA	N/A

Adapted from the [California ARB Air Quality Standards chart](#).

Greenhouse Gases and Climate Change: Greenhouse gases do not have concentration standards for that purpose. Conformity requirements do not apply to greenhouse gases.

- i California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- ii Federal standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
- iii On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. Transportation conformity applies in newly designated non-attainment areas for the 2015 national 8-hour ozone primary and secondary standards on and after August 4th, 2019 (see [Transportation Conformity Guidance for 2015 Ozone NAAQS Non-attainment Areas](#)).
- iv ppm = parts per million
- v Transportation conformity requirements for CO no longer apply after June 1, 2018 for the following California Carbon Monoxide Maintenance Areas (see [U.S. EPA CO Maintenance Letter](#)).
- vi On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- vii µg/m³ = micrograms per cubic meter
- viii The 65 µg/m³ PM_{2.5} (24-hr) NAAQS was not revoked when the 35 µg/m³ NAAQS was promulgated in 2006. The 15 µg/m³ annual PM_{2.5} standard was not revoked when the 12 µg/m³ standard was promulgated in 2012. Therefore, for areas designated non-attainment or non-attainment/maintenance for the 1997 and or 2006 PM_{2.5} NAAQS, conformity requirements still apply until the NAAQS are fully revoked.

- ix Final 1-hour NO₂ NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause re-designation to non-attainment in some areas after 2016.
- x On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
- xi Secondary standard, the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.
- xii The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM₁₀ and, in larger proportion, PM_{2.5}. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and PM_{2.5} as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.
- xiii Lead NAAQS are not considered in Transportation Conformity analysis.
- xiv In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

The CCAA requires air districts which have been designated as a non-attainment area for CAAQS for criteria pollutants (e.g., ozone, PM_{2.5}, PM₁₀, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, sulfates, hydrogen sulfide, visibility reducing particles, and vinyl chloride) to prepare and submit a plan for attaining and maintaining the standards. The Air Pollution Control Districts and Air Quality Management Districts for Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba counties together established the Northern Sacramento Valley Planning Area (NSVPA). The NSVPA Districts were designated as non-attainment for ozone and agreed to jointly prepare the 1991 Air Quality Attainment Plan (NSVPA 1991). Triennial updates to the Plan were adopted in 1994, 1997, 2000, 2004, 2006, 2009, 2012, and 2015. The most recent update to the plan, the Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan, assessed the progress made in implementing the previous triennial update completed in 2015 and proposed modifications to the strategies necessary to attain the CAAQS by the earliest practicable date. As documented in the most recent update to the plan, there were two ozone monitoring sites in Tehama County between 2015 and 2017. One site was located in Red Bluff and the other site was located at the Tuscan Buttes. The long-term trend showed a decreasing number of days over the 8-hour standard.

In air quality studies, sensitive receptors are hospitals, schools, homes, daycare facilities, elderly housing, and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. No sensitive receptors are present within the project area or within a ¼-mile radius of the project area.

Environmental Consequences

Build Alternative

Construction Impacts

The Air Quality/Greenhouse Gas Analysis prepared for the project concluded that because the project is not a capacity-increasing project, no long-term

impacts on air quality resulting from operation of the project would occur (California Department of Transportation 2020d). However, during construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Emissions from construction equipment also are expected and would include carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), directly-emitted particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_x and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate enough PM₁₀, PM_{2.5}, and small amounts of CO, SO₂, NO_x, and VOCs to be of concern. Sources of fugitive dust would include disturbed soils at the construction site, and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an added source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the United States Environmental Protection Agency (U.S. EPA) to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. The Department's Standard Specifications (Section 14) on dust

minimization require use of water or dust palliative compounds and would reduce potential fugitive dust emissions during construction.

In addition to dust-related PM₁₀ emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, VOCs and some soot particulate (PM₁₀ and PM_{2.5}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 ppm sulfur), so SO₂-related issues due to diesel exhaust will be minimal.

Some phases of construction, particularly asphalt paving, may result in short-term odors in the immediate area of each paving site(s). Such odors would quickly disperse to below detectable levels as distance from the site(s) increases.

Compliance with the following Caltrans Standard Specifications would minimize air quality impacts during construction:

- The contractor shall comply with Section 10-5 "Dust Control", Section 14-9 "Air Quality", and Section 18 "Dust Palliatives" in the *2018 Caltrans Standard Specifications*. Compliance with these Standard Specifications would include implementing the following dust and pollutant reduction/control measures to minimize any air quality impacts resulting from construction activities:
 - Water or a dust palliative shall be applied to the site and equipment as often as necessary to control fugitive dust emissions.

- Construction equipment and vehicles shall be properly tuned and maintained. All construction equipment shall use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114.
- Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, shall be used.
- All transported loads of soils and wet materials shall be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) shall be provided to minimize emission of dust during transportation.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic shall be promptly and regularly removed to reduce PM emissions.

Cumulative Impacts

The project's adverse impacts on air quality would be minimal and temporary and when these impacts are considered along with adverse impacts on air quality resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's adverse impacts on air quality would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on air quality but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.3.7 Energy

Regulatory Setting

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

The California Environmental Quality Act (CEQA) Guidelines section 15126.2(b) and Appendix F, Energy Conservation, require an analysis of a project's energy use to determine if the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources.

Affected Environment

The project area has existing infrastructure within Caltrans' right-of-way that require the input of electricity to operate. This includes flashing beacons and safety lighting mounted to a pole along the northbound lane of SR 99 at the intersection with South Avenue. In addition, a pole with safety lighting and a pole with a closed-circuit television are present along the southbound lane of SR 99 at the southwest corner of the intersection. A pole with safety lighting is also present along the southbound lane of SR 99 approximately 0.1 mile south of the intersection. The flashing beacons, safety lighting, and closed-circuit television are powered by electricity provided by underground electrical utilities maintained by Caltrans.

Energy use in the project area is also affected by the amount of traffic that passes through the project area, the rate of travel, and patterns of travel. In 2019, SR 99 had an AADT of 16,400 vehicles. The AADT counts indicate a relatively low amount of daily vehicle traffic on SR 99. Many of the vehicles

are presumably traveling between Red Bluff and Chico. In 2019, the AADT on South Avenue was 9,700 vehicles.

Environmental Consequences

Build Alternative

Construction Impacts

An Energy Analysis Report was prepared for the project (California Department of Transportation 2020e). During construction, there would be a short-term increase in energy consumption due to the operation of construction vehicles and equipment, and from vehicles idling at one-way reversing traffic controls. However, the increase in energy consumption during construction would be minimal and temporary.

Construction of the project would not increase capacity of the State Highway System or induce an increase in vehicle miles traveled. Therefore, there would be no increase in energy consumption related to vehicle miles traveled. During operation of the project, sources of energy consumption include any vehicles idling while waiting to enter the roundabout and electrical power required to operate new flashing beacons, a closed-circuit television, and electroliers with LED lights (new infrastructure would utilize electrical power by connecting to existing underground electrical utilities that are maintained by Caltrans). However, the energy consumed during operation of the project would be minimal and is anticipated to be offset by the energy conserved as a result of a more efficient intersection.

Cumulative Impacts

The project's impact on energy resources would be minimal and when these impacts are considered along with impacts on energy resources resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on energy resources would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on existing energy use but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are warranted.

2.3.8 Climate Change

Regulatory Setting

Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the California Environmental Quality Act (CEQA) chapter of this document. The CEQA analysis may be used to inform the National Environmental Policy Act (NEPA) determination for the project.

2.4 Biological Environment

The biological resources evaluation included a review of relevant literature, databases such as the California Natural Diversity Data Base (CNDDDB), and species lists obtained from the USFWS and NOAA Fisheries, and completion of field surveys. Biological field surveys were conducted to document habitats present within the project area and to evaluate the potential for special-status species to be present. Based on the information obtained during the records review and field surveys, and consideration of the proposed improvements, an impact analysis was made to determine project level impacts on biological resources. Results and findings based on the above literature searches, surveys, and analyses are documented in the Natural

Environment Study (California Department of Transportation 2021f) and presented below.

2.4.1 Natural Communities

Regulatory Setting

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

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species section. Wetlands and other waters are discussed below in the Wetlands and Other Waters section.

Affected Environment

The project area supports an annual grassland with inclusions of seasonal wetlands (e.g., vernal pools interconnected by swales), two seasonal streams (Hoag Slough and an overflow channel), and riparian habitat at the box culvert that conveys Hoag Slough under SR 99. The remainder of the project area is paved roadway and shoulders. The following discussion addresses the annual grassland community and riparian community. The onsite wetlands and seasonal streams are addressed in the Wetlands and Other Waters section.

The annual grassland within the project area has been disturbed by construction of South Avenue and SR 99. The grassland is used for livestock grazing and is subjected to impacts associated with the presence of livestock (e.g., introduction of non-native weed species and trampling where livestock aggregate). The annual grassland within the project area supports only a few trees intermixed with Himalayan blackberry along Hoag Slough in the

vicinity of the box culvert that conveys Hoag Slough under SR 99. The annual grassland is not a sensitive natural community as there are large expanses of annual grassland in the project vicinity.

Riparian habitat within the project area only occurs along Hoag Slough from the roadway to the right-of-way fencing on both sides of the road. The riparian habitat consists predominantly of Himalayan blackberry (Brazilian peppertree is also present). Nearly all the plant species in the riparian habitat are non-native. Riparian habitat is generally considered a sensitive natural community.

Environmental Consequences

Build Alternative

Construction Impacts

Construction of the project would permanently impact approximately 2.75 acres of annual grassland. Approximately 2 acres of annual grassland would be temporarily impacted. The amount of annual grassland permanently and temporarily impacted would not be substantial.

Extension of the box culvert that conveys Hoag Slough under SR 99 would permanently impact approximately 0.004 acre of riparian habitat on the west side of SR 99. This riparian habitat consists predominantly of invasive plant species. No temporary impacts to riparian habitat are expected. Given the minimal amount of riparian habitat impacted and considering that the habitat is comprised predominantly of non-native plant species, impacts to riparian habitat would not be substantial.

Cumulative Impacts

The project's impact on natural communities would be minimal and when these impacts are considered along with impacts on natural communities resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact

on natural communities would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on natural communities but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation is proposed to offset permanent impacts to annual grassland and riparian habitat. The following measures shall be implemented to minimize impacts to annual grassland and riparian habitat:

Annual Grassland

- Upon project completion, Caltrans will require the contractor to restore all temporarily disturbed grassland to pre-project or better conditions. To the extent feasible, native grasses and forbs will be used to reseed disturbed areas.

Riparian Habitat

- Removal of existing [riparian] vegetation shall not exceed the minimum necessary to complete operations.

2.4.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include

navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high-water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The

Guidelines state that the USACE may not issue a permit if there is a “least environmentally damaging practicable alternative” (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as FHWA and/or the Department, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCBs) and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the

CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see the [Water Quality section](#) for more details.

Affected Environment

Approximately 1.1 acres of wetlands (consisting of 22 wetland features) and approximately 0.54 acre of other waters (consisting of Hoag Slough and an overflow channel of Hoag Slough) subject to federal and state jurisdiction are present within the project area (Figure 9).

The wetlands within the project area are part of a large vernal pool complex that encompasses most of the project area. However, most of the wetlands within the project area are highly disturbed as a result of construction of SR 99 and livestock grazing. The wetlands are assumed to be occupied by Threatened/Endangered species of vernal pool branchiopods (vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp).

Hoag Slough, a seasonal stream that flows east to west through the project area, is conveyed under SR 99 via a box culvert. Hoag Slough is tributary to the Sacramento River approximately 5 miles downstream of the project area. The channel of Hoag Slough is very shallow and with gentle-sloping banks that are overgrown with annual grasses. A smaller unnamed seasonal drainage, which is an overflow channel of Hoag Slough, is present to the south of Hoag Slough. This drainage flows east to west through the project area. Similar to Hoag Slough, the overflow channel is overgrown with annual grasses and has gentle-sloping banks. Seasonal streams within the project area are considered sensitive habitats.

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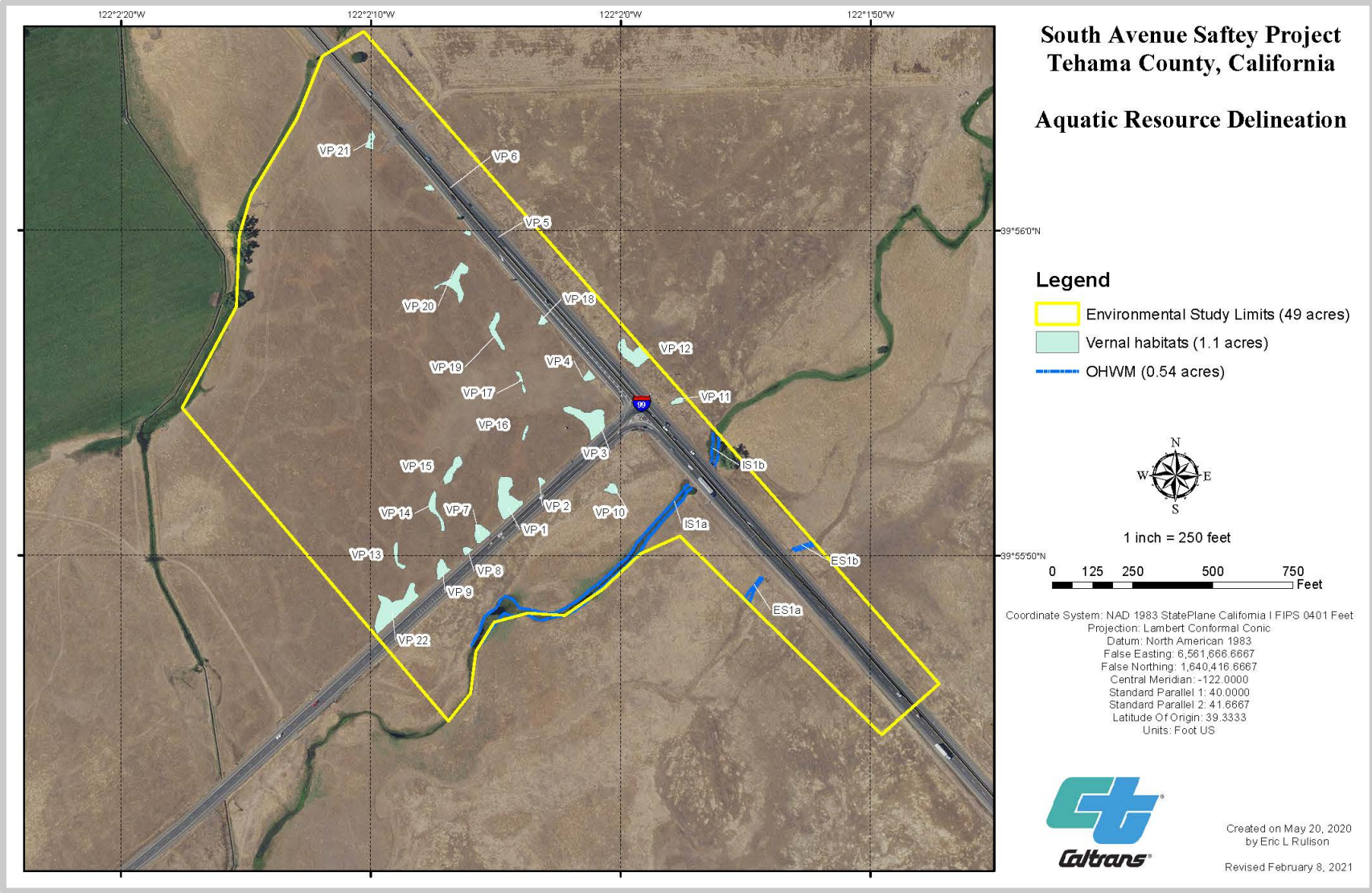


Figure 9. Delineation of Wetlands and Other Waters Within the Project Area

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Environmental Consequences

Build Alternative

Construction Impacts

Construction of the realigned intersection would permanently impact approximately 0.32 acre of wetlands and temporarily impact approximately 0.12 acre of wetlands (Figure 10). These impacted wetlands consist of 10 vernal pools. Although the wetlands are highly degraded and a relatively small amount would be impacted, they are assumed to be occupied by Threatened/Endangered species of vernal pool branchiopods. Therefore, impacts to wetlands would result in direct effects to Threatened/Endangered species of vernal pool branchiopods that would be substantial.

Extension of the box culvert that conveys Hoag Slough under SR 99 would permanently impact approximately 0.013 acre (~45 linear feet) of seasonal stream and temporarily impact approximately 0.006 acre of seasonal stream (~35 linear feet). Given the minimal amount of seasonal stream impacted, impacts to seasonal stream would not be substantial.

Wetlands Only Practicable Alternative Finding

Wetlands within the project area have groundwater recharge, biological (e.g., provide habitat for plants and animals), and water quality functions, and contribute to the overall functioning of the larger vernal pool complex that encompasses the project area. In accordance with 33 CFR 328.3(b), wetlands within the project area meet the definition of a 3-parameter wetland because they have hydrophytic vegetation, hydric soils, and wetland hydrology.

Two project alternatives, a build alternative and a no-build/no-action alternative, were considered as viable options during preparation of this Initial Study/Environmental Assessment. The no-build/no-action alternative would result in no impacts to wetlands. However, this alternative would not reduce the frequency and severity of collisions and therefore would not meet

the project purpose. In contrast, the build alternative would permanently impact approximately 0.32 acre of wetlands and temporarily impact approximately 0.12 acre of wetlands. These impacted wetlands consist of 10 vernal pools. Unlike the no-build/no-action alternative, the build alternative would meet the project purpose. After comparing and weighing the benefits and impacts of all feasible alternatives, the Project Development Team has identified the build alternative as the preferred alternative, subject to public review. Final identification of a preferred alternative would occur after the public review and comment period.

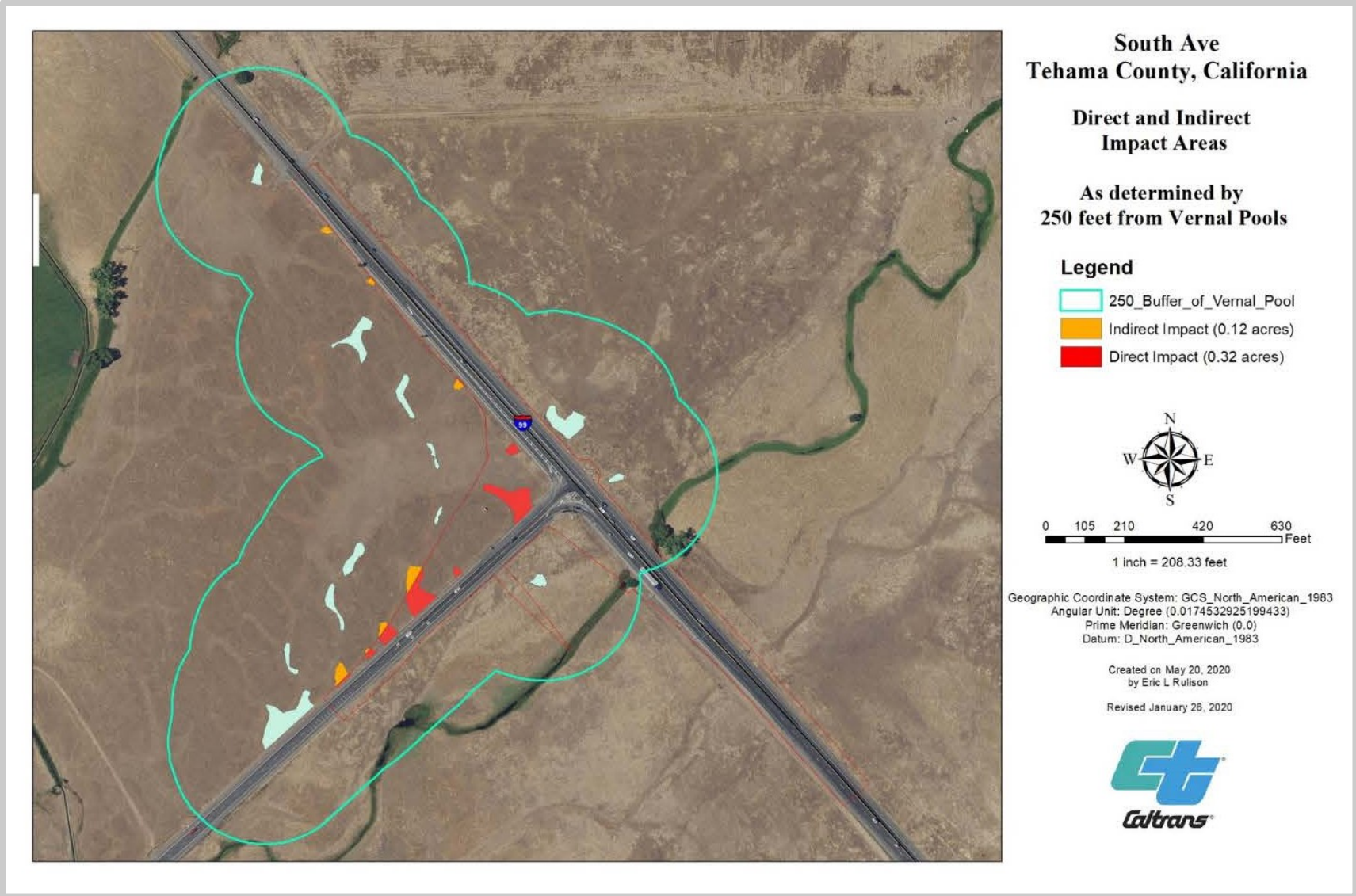


Figure 10. Wetlands Impacted

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During early project scoping, two additional alternatives were considered, but were eliminated from further discussion prior to the draft Initial Study/Environmental Assessment because they did not meet the project purpose. These alternatives consisted of (1) installation of a new signal control and (2) installation of a new flyover.

Installation of a new signal control would result in no impacts to wetlands. However, this alternative would not reduce the frequency and severity of collisions and therefore would not meet the project purpose. For this reason, the signal control was eliminated from further discussion prior to the draft Initial Study/Environmental Assessment. Construction of a new flyover would result in a moderate amount of impacts to wetlands based on Caltrans environmental staff review of the site plan for this alternative and review of aerial photographs to document the extent of wetland in the project vicinity. The flyover meets the purpose and need of the project, but the construction cost greatly exceeds the programmable range. For this reason, the flyover was eliminated from further discussion prior to the draft Initial Study/Environmental Assessment.

Based upon the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. This includes designing the project in a manner that minimizes project impacts on wetlands to the greatest extent practicable, mitigation to offset permanent impacts to wetlands, and restoring temporarily impacted wetlands upon completion of work. As such, this finding is in compliance with Executive Order 11990 requirements (23 CFR 771.125(a)(1)).

Cumulative Impacts

The project's permanent impact on wetlands would be substantial (because they are assumed to support Threatened/Endangered species of vernal pool branchiopods) whereas the impact on other waters would not be substantial. When these impacts are considered along with impacts on wetlands and

other waters resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on wetlands and other waters would be individually limited but not cumulatively considerable. As discussed under Avoidance, Minimization, and/or Mitigation, the project includes the incorporation of CEQA-driven mitigation to ensure that there would be no net loss of wetlands and permit-driven mitigation to offset permanent impacts to other waters. Therefore, the project would not contribute to the cumulative loss of wetlands and other waters.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on wetlands and other waters but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

Impacts to wetlands and other waters shall be avoided, minimized, and/or offset as follows:

Wetlands

- To offset direct effects to approximately 0.44 acre of wetlands assumed to be occupied by Threatened/Endangered vernal pool branchiopods (e.g., tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp), suitable habitat will be preserved at a ratio of 2:1 and will be created at a ratio of 1:1, as depicted in Table 8 below. A total of 1.3 acres of vernal pool branchiopod species credits will be purchased at a Service-approved conservation bank with a service area that covers the proposed project.

Table 8. Compensation for Direct Effects to Vernal Pool Branchiopods

Compensation Type	Impact Acreage	Compensation Ratio	Compensation Acreage to be Purchased
Preservation	0.44 acre	2:1	0.9 acre
Creation	0.44 acre	1:1	0.4 acre
Total Compensation	1.3 acres		

- Temporarily impacted wetlands shall be restored to pre-construction conditions by the contractor upon completion of work.

Other Waters

- As part of permit-driven mitigation to offset permanent impacts to seasonal stream, compensatory mitigation for impacts to seasonal stream will be addressed in the permitting phase in coordination with the regulatory agencies.
- No work shall be allowed in the flowing stream. If water is present in the channel, it will be cleanly diverted around the work area.
- Temporarily impacted seasonal stream shall be restored to pre-construction conditions by the contractor upon completion of work.

Permits

Prior to working within wetlands and other waters subject to federal and state jurisdiction, the following permits shall be obtained:

- A permit from the Army Corps of Engineers.
- Water Quality Certification from the Central Valley Regional Water Quality Control Board.
- Streambed Alteration Agreement from the California Department of Fish and Wildlife.

The contractor shall follow the terms and conditions of the regulatory permits to be obtained from California Department of Fish and Wildlife, Central Valley Regional Water Quality Control Board, and Army Corps of Engineers.

General

- Prior to construction, the contractor shall prepare a Storm Water Pollution Prevention Plan in accordance with the *2018 Caltrans Standard Specifications* that identifies measures to be implemented for erosion control, spill prevention, and construction waste containment. All construction site Best Management Practices shall follow the most current edition of the Construction Site Best Management Practices (BMPs) Manual.
- The plan for emergency clean-up of any spills will be available on-site and materials for spill clean-up will be maintained on-site.

2.4.3 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species section in this document for detailed information about these species.

This section of the document discusses all other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), found at California Public Resources Code, Sections 21000-21177.

Affected Environment

A regional species evaluation table, which was included in the Natural Environment Study, is provided in Appendix E. Suitable habitat is present for the following special-status plant species: Hoover's spurge (Federal Threatened, 1B.2), slender Orcutt grass (Federal Threatened, State Endangered, 1B.1), hairy Orcutt grass (Federal Endangered, State Endangered, 1B.1), and Greene's tuctoria (Federal Endangered, State Rare, 1B.1). However, no special-status plant species were observed during field surveys nor are any expected to be present.

Environmental Consequences

Build Alternative

Construction Impacts

No non-listed special-status plant species would be affected by construction and operation of the project.

Cumulative Impacts

The project would have no impact on non-listed special-status plant species. As such, the project would have no cumulative impact on non-listed special-status plant species.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on non-listed

special-status plant species but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are warranted.

2.4.4 Animal Species

Regulatory Setting

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

Federal laws and regulations relevant to wildlife include the following:

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

State laws and regulations relevant to wildlife include the following:

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

Affected Environment

A regional species evaluation table, which was included in the Natural Environment Study, is provided in Appendix E. Although no special-status animal species were observed during field surveys, the following special-status animal species are assumed to be present within the project area: vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp. No other special-status animal species are expected to be present or potentially present within the project area. Vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp are Threatened/Endangered species and are discussed in the Threatened and Endangered Species section below.

Although no active bird nests were observed during field surveys of the project area, a variety of migratory bird species could potentially nest in trees and shrubs within the project area. No active bird nests or evidence of past nesting were observed in the box culvert that conveys Hoag Slough under SR 99.

Environmental Consequences

Build Alternative

Construction Impacts

No non-listed special-status animal species would be affected by construction and operation of the project.

If present, nesting birds could be directly and indirectly affected by the proposed work. Potential direct effects on nesting birds could include mortality resulting from destruction of nests associated with vegetation removal. Potential indirect effects on nesting birds could include disruption of feeding patterns or nest abandonment due to construction-related noise.

Compliance with the following Caltrans Standard Specification would avoid impacts on nesting migratory birds:

- To avoid disturbing nesting birds, tree and shrub removal shall be restricted to the period between October 1 and January 31. If this is not practicable, a contractor-supplied biologist shall conduct a pre-construction survey for nesting birds within 7 days prior to removing trees and shrubs. If an active nest is discovered, the project engineer shall be notified immediately and all work within 100 feet of the nest shall cease. Work within the buffer zone may proceed only after a contractor-supplied biologist has determined that the nest is no longer active.

Cumulative Impacts

The project would have no impact on non-listed special-status animal species. As such, the project would have no cumulative impact on non-listed special-status animal species.

The project includes measures to avoid disturbing any nesting migratory birds that may be present. Therefore, the project would have no cumulative impact on nesting migratory birds.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no impact on non-listed special-status animal species and nesting migratory birds but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

2.4.5 Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC)

Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA) (and the Department, as assigned), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take Statement or a Letter of Concurrence. Section 3 of FESA defines take as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2080 of the California Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

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

Affected Environment

Although no Threatened/Endangered species were observed during field surveys, the following Threatened/Endangered species are assumed to be present in wetlands within the project area: vernal pool tadpole shrimp (Federal Endangered), vernal pool fairy shrimp (Federal Threatened), and Conservancy fairy shrimp (Federal Endangered). The CNDDDB has previously mapped occurrences of vernal pool tadpole shrimp and vernal pool fairy shrimp encompassing a large portion of the project area (vernal pool tadpole shrimp were detected in wetlands north of South Avenue approximately 0.1 mile west of SR 99 in 1987 and vernal pool fairy shrimp were detected in wetlands along SR 99 in 1993 and 1994). In addition, the Conservancy fairy shrimp is reported in wetlands in the project vicinity. As such, in order to expedite project delivery, the presence of these species in the onsite wetlands was assumed rather than conducting prolonged protocol-level surveys which could take approximately one year to determine their presence/absence. No other Threatened/Endangered species are expected to be present within or adjacent to the project area. No critical habitat is designated within or adjacent to the project area for any Threatened/Endangered species.

Vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp (collectively referred to as vernal pool branchiopods) are freshwater crustaceans that are found only in seasonal wetlands, primarily on the floor of

California's Central Valley. Their life cycle is relatively short and is driven by the seasonal ponding and drying of wetlands. Following the ponding of water in wetlands in late winter and early spring, eggs that have remained dormant in the topsoil since the previous summer hatch and young emerge. The hatchlings quickly grow into adults, which must reproduce before the wetlands dry. Females release eggs into the water column which settle on the soil at the bottom of the wetland. Loss of habitat is a primary threat to their existence.

Environmental Consequences

Build Alternative

Construction Impacts

Construction of the reconfigured intersection would result in the permanent fill of 10 seasonal wetlands assumed to be occupied by the following Threatened/Endangered vernal pool branchiopods: vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp. Direct effects to Threatened/Endangered vernal pool branchiopods are estimated at approximately 0.44 acre (~0.32 acre of permanently impacted wetlands and ~0.12 acre of temporarily impacted wetlands). Direct effects would consist of mortality resulting from the permanent filling of wetlands. Direct effects to Threatened/Endangered vernal pool branchiopods would be substantial. The potential for indirect effects to Threatened/Endangered vernal pool branchiopods extended 250 feet from construction areas. Indirect effects may include changes in vernal pool hydrology that affect the duration of ponding of wetlands or it may result from pollutants that enter wetlands and degrade water quality. In either case, indirect effects could affect the extent of suitable habitat and population numbers of vernal pool branchiopods. The project would result in no indirect effects to Threatened/Endangered vernal pool branchiopods because wetlands within 250 feet of construction areas are located upslope and their hydrology would not be affected.

Extension of the box culvert that conveys Hoag Slough under SR 99 would result in no direct or indirect effects to any Threatened/Endangered species because the stream reach within and adjacent to the project area does not provide suitable habitat for any Threatened/Endangered species.

Construction of the project would not impact critical habitat designated or proposed for any Threatened/Endangered species.

Cumulative Impacts

The project's impact on Threatened/Endangered vernal pool branchiopods would be substantial. When considered along with impacts on Threatened/Endangered vernal pool branchiopods resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's impact on Threatened/Endangered vernal pool branchiopods would be individually limited but not cumulatively considerable. The project includes the incorporation of CEQA-driven mitigation to offset direct effects on Threatened/Endangered vernal pool branchiopods and to ensure that there would be no net loss of habitat for Threatened/Endangered vernal pool branchiopods.

The project would have no impact on critical habitat designated for federal Threatened/Endangered species. As such, the project would have no cumulative impact on critical habitat designated for federal Threatened/Endangered species.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no effect on Threatened/Endangered species but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

Caltrans initiated formal Section 7 consultation with the USFWS regarding the project's potential effects on federally listed vernal pool branchiopods. On February 8, 2021, Caltrans provided the USFWS a Biological Assessment, which determined that (1) the project may affect, and is likely to adversely affect federally listed vernal pool branchiopods (e.g., vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp) and (2) the project would not affect critical habitat designated for any federally listed species. The USFWS reviewed the Biological Assessment and issued a Biological Opinion on August 31, 2021. In their Biological Opinion, the USFWS determined that with implementation of the measures below, the project is not likely to jeopardize the continued existence of the vernal pool branchiopods. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. The acreage of habitat that will be affected by the proposed project represents a very small portion of habitat available in the Northeastern Sacramento Valley Vernal Pool Region. In addition, the proposed compensatory mitigation will ensure that habitat for the vernal pool branchiopods will be protected and managed in perpetuity.

Biological Assessment

In addition to implementing Caltrans' standard Best Management Practices (BMPs) throughout the proposed project area for the duration of construction, including erosion and sediment control, the following measures are adapted from the 1996 programmatic biological opinion "Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California," and shall be incorporated to avoid, minimize, and to offset direct effects to Threatened/Endangered vernal pool branchiopods (vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp):

Pre-construction

- Proposed Compensation

Table 9. Proposed Compensation (Caltrans Biological Assessment)

Compensation Type	Acres of Impact	Ratio	Total Acres	Preservation Credits	Creation Credits
Preservation	0.44	2:1	0.88	0.9	0
Creation	0.44	1:1	0.44	0	0.4

- Preservation component. For every acre of habitat directly or indirectly affected, two vernal pool credits will be dedicated to Caltrans owned Cottonwood Conservation Area. Because a total of 0.44 acre of direct and indirect impacts are anticipated, 0.9 preservation credits will be purchased (Table 9).
- Creation component. For every acre of habitat directly affected, one vernal pool creation credit will be dedicated within the Meridian Ranch Mitigation Bank. The 530-acre Meridian Ranch Mitigation Bank is in Butte County with a service area that covers the proposed project area. Because a total of 0.44 acre of direct and indirect impacts are anticipated, 0.4 creation credits will be purchased.
- Caltrans will require its contractor to avoid and minimize the introduction of new invasive plants and the spread of invasive plants previously documented in the project area. Two or more of the BMPs listed below will be written into the construction specifications and implemented during project construction.
 - Retaining all fill material onsite to prevent the spread of invasive plants to uninfected areas.
 - Using a weed-free source for project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1 percent weed seed).

- Preventing invasive plant contamination of project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin).
- Using sterile wheatgrass seed and native plant stock during revegetation.
- Revegetating or mulching disturbed soils within 30 days of completion of ground-disturbing activities to reduce the likelihood of invasive plant establishment.
- Install fencing and/or flagging to avoid and protect sensitive biological resources.
 - Where habitat for vernal pool branchiopods is present, orange construction fencing or flagging and signs will be installed to ensure that all construction activities are confined. Barrier fencing will be installed as one of the first orders of work and prior to equipment staging, maintained throughout the construction period, and removed after completion of construction. Before construction begins, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the orange construction. The protected areas will be designated as environmentally sensitive areas and clearly identified on the construction plans and described in the specifications. To minimize the potential for snakes and other ground-dwelling animals from being caught in the orange construction fencing, the fencing will be placed with at least a 1-foot gap between the ground and the bottom of the orange construction fencing.
- Conduct mandatory environmental awareness training for construction personnel.
 - Before any work occurs in the project area, including grading and tree removal, the applicant will retain a qualified biologist

(familiar with the branchiopods) to conduct a mandatory contractor/worker environmental awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid effects to sensitive biological resources (including habitat for federally listed species) adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist will inform all construction personnel about the life history and habitat requirements of federally listed species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of permits. Proof of this instruction will be submitted to the Service.

- The environmental training also will cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction. General restrictions and guidelines that must be followed by construction personnel are:
 - i. Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 10-mile-per-hour speed limit on unpaved roads or access areas during travel within the project limits.
 - ii. Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.
 - iii. Vegetation clearing and construction operations will be limited to the minimum necessary in areas of temporary access work areas and staging.
 - iv. All food-related trash will be disposed of in closed containers and removed from the project site at least once a week during the construction period.

Construction personnel will not feed or otherwise attract wildlife to the project site.

Construction

- To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated staging areas.
- Retain a qualified biologist to conduct monitoring during construction in sensitive habitats.
 - A qualified biologist will monitor all construction activities that involve ground disturbance (e.g., vegetation removal, grading, excavation) within or adjacent to environmentally sensitive areas. The biologist will ensure that fencing around environmentally sensitive areas remains in place during construction and that no construction personnel, equipment, or runoff/ sediment from the construction area enters environmentally sensitive areas. The monitor will complete weekly logs, and a final monitoring report will be prepared at the end of each construction season that will be submitted to the Service.
- Avoid and minimize potential effects on vernal pool branchiopods
 - Ground disturbance within 250 feet of suitable habitat will be avoided during the rainy season (approximately October 15 through May 15). Partial fill of vernal pool habitats (i.e., permanent impacts) will only occur when they are completely dry.
 - If requested by USFWS, the top 3-4 inches of soil in vernal habitats that would be destroyed or filled would be removed and stored in the project area until ready for placement in vernal pool habitat to be restored. The topsoil will be kept covered with tarps or other appropriate material until restored pools are ready to be

inoculated. Orange construction barrier fencing will be installed around the covered topsoil. The biological monitor will be onsite to monitor the removal of the topsoil and will check to make sure that the soil is properly covered during periodic monitoring visits to the project site. When restored pools are completed, the stored topsoil would be spread over the bottom of restored pools prior to the start of the winter rainy season.

Post-Construction

- Upon project completion, Caltrans will require the contractor to restore all temporarily disturbed grassland to pre-project or better conditions. To the extent feasible, native grasses and forbs will be used to reseed disturbed areas.

USFWS Biological Opinion

Pre-Construction

- All conservation measures, as described in the Biological Assessment and restated in the Description of The Proposed Action section of the Biological Opinion, shall be fully implemented and adhered to. Further, this reasonable and prudent measure shall be supplemented by the terms and conditions below.
 - Caltrans will include full implementation and adherence to the conservation measures as a condition of any permit or contract issued for the project.
 - Prior to construction, Caltrans will provide a copy of the completed bill of sale and payment receipt to the Service upon the applicant's purchase of vernal pool branchiopod species preservation and creation credits at a Service-approved vernal pool conservation bank.
 - In order to monitor whether the amount or extent of incidental take anticipated from implementation of the proposed project is

approached or exceeded, Caltrans will adhere to the following reporting requirement. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must immediately reinitiate formal consultation, as per 50 CFR §402.16.

- For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Caltrans will provide a precise accounting of the total acreage of habitat impacted to the Service after completion of construction.
- To offset direct effects to approximately 0.44 acre of wetlands assumed to be occupied by Threatened/Endangered vernal pool branchiopods (e.g., tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp), suitable habitat will be preserved at a ratio of 2:1 and will be created at a ratio of 1:1, as depicted in Table 10. A total of 1.3 acres of vernal pool branchiopod species credits will be purchased at a Service-approved conservation bank with a service area that covers the proposed project.

Table 10. Compensation for Direct Effects to Vernal Pool Branchiopods

Compensation Type	Impact Acreage	Compensation Ratio	Compensation Acreage to be Purchased
Preservation	0.44 acre	2:1	0.9 acre
Creation	0.44 acre	1:1	0.4 acre
Total Compensation			1.3 acre

- Where habitat for vernal pool branchiopods is present, orange construction fencing or flagging and signs will be installed to ensure that all construction activities are confined.
- Before any work occurs in the proposed project area, including grading and tree removal, Caltrans will retain a Service-approved biologist (familiar with the vernal pool branchiopods) to conduct a

mandatory contractor/worker environmental awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid effects to sensitive biological resources (including habitat for federally listed species) adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist will inform all construction personnel about the life history and habitat requirements of federally listed species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of permits. Proof of this instruction will be submitted to the Service.

Construction

- Ground disturbance within 250 feet of suitable vernal pool branchiopod habitat will be avoided during the rainy season (approximately October 15 through May 15). Partial fill of vernal pool habitats (i.e., permanent effects) will only occur when they are completely dry.

2.4.6 Invasive Species

Regulatory Setting

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

Affected Environment

The following invasive species were observed within the project area during field surveys: barb goatgrass, Russian thistle, rip-gut brome, soft brome, yellow starthistle, medusahead, and Himalayan blackberry. According to the California Department of Food and Agriculture (2020), barb goatgrass, yellow star-thistle, medusahead, and Russian thistle are designated as noxious weeds.

Environmental Consequences

Build Alternative

Construction Impacts

Construction of the project has the potential to introduce/spread invasive species into the project area. Of particular concern are noxious weed species, which crowd out native plant species. Noxious weed species are often introduced or spread into construction areas as seeds embedded in mud that is attached to construction vehicles and equipment. Noxious weeds are considered widespread in California and subject to regulations to stop their spread.

Compliance with the following Caltrans Standard Specification and implementation of construction site BMPs would prevent the introduction or spread of invasive and/or noxious weed species and ensure that any impacts on native plant and animal species as a result of the introduction of noxious weed species into the project area would be minimal:

- In accordance with Caltrans Non-Standard Specification 14-6.05, prior to beginning work, the contractor shall prepare an invasive species control plan that identifies measures to be implemented to prevent the introduction and/or spread of invasive species (e.g., noxious weeds). The invasive species control plan shall be subject to approval by Caltrans and implemented prior to beginning work.

- Caltrans will require its contractor to avoid and minimize the introduction of new invasive plants and the spread of invasive plants previously documented in the project area. Two or more of the BMPs listed below will be written into the construction specifications and implemented during project construction.
 - Retaining all fill material onsite to prevent the spread of invasive plants to uninfected areas.
 - Using a weed-free source for project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1 percent weed seed).
 - Preventing invasive plant contamination of project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin).
 - Using sterile wheatgrass seed and native plant stock during revegetation.
 - Revegetating or mulching disturbed soils within 30 days of completion of ground-disturbing activities to reduce the likelihood of invasive plant establishment.
- The proposed re-vegetation measures for all disturbed soils, including the use of native species, soil amendments, and “weed free” mulch, reduces the risk of introducing noxious weeds. The contract specifications for permanent erosion control would require the use of California native forbs and grass species. All areas disturbed by construction would be treated with a seed mix comprised of local native grasses and forbs. Soils would be amended with compost containing long-term soil nutrients and slow-release organic fertilizers to provide nutrients over the first year. Mulches used on the project would be from source materials that would not introduce exotic species. No wheat or barley straw would be used on the project because of the potential to introduce weeds.

- All off-road construction equipment will be cleaned of potential noxious weed sources (mud, vegetation) before entering the project area, and after entering a potentially infested area before moving on to another area, to help ensure noxious weeds are not introduced into the project area. The contractor shall employ whatever cleaning methods (typically with the use of a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required. Equipment washing stations shall be placed in areas that afford easy containment and monitoring and that do not drain into sensitive (riparian, streams, wetlands, etc.) areas.
- Staging and storage of equipment should only be done in weed-free areas. Hand, mechanical, or chemical eradication treatments may be needed for these areas. Additionally, areas may need to be designated as excluded from contractor's use.
- To further minimize the risk of introducing additional non-native species into the area, only locally adapted plant species appropriate for the project area will be used in any erosion control or revegetation seed mix or stock. No dry-farmed straw will be used, and certified weed-free straw shall be required where erosion control straw is to be used. In addition, any hydro-seed mulch used for revegetation activities must also be certified weed-free.

Cumulative Impacts

The project's potential impacts related to the introduction/spread of invasive species would be minimal and when these impacts are considered along with similar impacts resulting from other Caltrans projects on SR 99 in Tehama County constructed in the last 20 years or that are reasonably foreseeable, they would not contribute to an adverse cumulative impact. Therefore, the project's potential impacts related to the introduction/spread of invasive species would be individually limited but not cumulatively considerable.

No-Build/No-Action Alternative

Under the no-build/no-action alternative, no improvements would be made to the intersection. This alternative would have no potential for introduction or spread of invasive species but would not reduce the frequency of collisions at the intersection.

Avoidance, Minimization, and/or Mitigation Measures

No additional measures beyond design features and standardized measures are warranted.

Chapter 3 California Environmental Quality Act (CEQA) Evaluation

3.1 Determining Significance Under CEQA

The proposed project is a joint project by the California Department of Transportation (Department) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans. The Department is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents. CEQA, on the other hand, does require the Department to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be

disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

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

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.2.1 AESTHETICS—Except as provided in Public Resources Code Section 21099, would the project:

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Aesthetics

- a) Less than Significant Impact. Project features that would impact scenic vistas in the project area include the construction of a new roundabout, the installation of new flashing beacons, a new ~45-foot-tall steel truss tower with a closed-circuit television, and 13 new electroliers (each approximately 30 to 35 feet tall with downward-directed lighting) to provide intersection lighting. These features would be visible to the traveling public during day and night given the relative flat topography and near absence of trees in the project area. The new electroliers and steel truss tower have metal surfaces which would be a source of new glare and the new electroliers and flashing beacons would be a source of new light. Glare from newly galvanized

elements such as the electroliers and the steel truss tower is anticipated to be present until natural oxidation occurs, which could take anywhere from 6 months to several years.

The project includes design features that would minimize impacts on scenic vistas. For example, the roundabout would receive architectural treatment that is appropriate to the project setting. However, even with incorporation of these design features, implementation of minimization measures would be required to ensure that the project would not have a substantial impact on scenic vistas. Implementation of the minimization measure to reduce glare from galvanized elements would further minimize any impacts on scenic vistas. Therefore, construction of the project would have a less than substantial adverse effect on scenic vistas.

- b) No Impact. No state scenic highways are present within the project area. Therefore, construction of the project would not damage scenic resources within a state scenic highway.
- c) Less than Significant Impact. Project features that would impact the existing visual character or quality of public views of the site and its surroundings include the construction of a new roundabout, the installation of new flashing beacons, a new ~45-foot-tall steel truss tower with a closed-circuit television, and 13 new electroliers (each approximately 30 to 35 feet tall with downward-directed lighting) to provide intersection lighting. These features would be visible to the traveling public during day and night given the relative flat topography and near absence of trees in the project area. The new electroliers and steel truss tower have metal surfaces which would be a source of new glare and the new electroliers and flashing beacons would be a source of new light. Glare from newly galvanized elements such as the electroliers and the steel truss tower is anticipated to be present until natural oxidation occurs, which could take anywhere from 6 months to several years.

The project includes design features that would minimize impacts on the existing visual character or quality of public views of the site and its surroundings. For example, the roundabout would receive architectural treatment that is appropriate to the project setting. However, even with incorporation of these design features, implementation of minimization measures would be required to ensure that the project would not have a substantial impact on the existing visual character or quality of public views of the site and its surroundings. Implementation of the minimization measure to reduce glare from galvanized elements would further minimize any impacts on the existing visual character or quality of public views of the site and its surroundings. Therefore, construction of the project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.

- d) **Less than Significant Impact.** Project features that would impact day or nighttime views in the area include the construction of a new roundabout, the installation of new flashing beacons, a new ~45-foot-tall steel truss tower with a closed-circuit television, and 13 new electroliers (each approximately 30 to 35 feet tall with downward-directed lighting) to provide intersection lighting. These features would be visible to the traveling public during day and night given the relative flat topography and near absence of trees in the project area. The new electroliers and steel truss tower have metal surfaces which would be a source of new glare and the new electroliers and flashing beacons would be a source of new light. Glare from newly galvanized elements such as the electroliers and the steel truss tower is anticipated to be present until natural oxidation occurs, which could take anywhere from 6 months to several years.

The project includes design features that would minimize impacts on day or nighttime views in the area. For example, the roundabout would receive architectural treatment that is appropriate to the project setting. However, even with incorporation of these design features, implementation of minimization measures would be required to ensure that the project would not have a substantial impact on day

or nighttime views in the area. Implementation of the minimization measure to reduce glare from galvanized elements would further minimize any impacts on day or nighttime views in the area. Therefore, construction of the project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Given the determinations above, the project would have a less than significant impact on aesthetics.

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

	Significant and Unavoidable Impact	Less Than Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Agriculture and Forest Resources

- a) No Impact. No farmland (e.g., prime farmland, unique farmland, or farmland of statewide importance) is present within the project limits (California Department of Conservation 2020a). As such, the project would not 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) Less than Significant Impact. The project would conflict with existing zoning for agricultural use and would also conflict with a Williamson Act contract. However, because the amount of land that would be acquired and converted is small in relation to the size of the parcel that would be affected and is well below the 100-acre threshold for significance under CEQA, the impact would be less than significant.
- c) No Impact. The project would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).
- d-e) No Impact. No forest land or timberland is present within the project limits. As such, the project would not result in the loss of forest land or conversion of forest land to non-forest use. The project would not involve other changes in the existing environment, which due to their location or nature, could result in the conversion of farmland to non-agricultural use or conversion of forest land to non-forest use.

Given the determinations above, the project would have a less than significant impact on agriculture and forest resources.

3.2.3 Air Quality—Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Air Quality

- a) No Impact. The project would not conflict with or obstruct implementation of an air quality plan.
- b) Less than Significant Impact. The project is located in an attainment/unclassified area for all current National Ambient Air Quality Standards (NAAQS). With regard to state air quality standards, the only criteria pollutants for which the project area is in non-attainment is ozone and PM₁₀. However, the project is not a capacity-increasing project and any releases of ozone, PM₁₀, or other criteria pollutants during construction would be minimal and temporary. Compliance with Caltrans Standard Specifications for pollutant and dust control would ensure that any impacts on air quality from the release of criteria pollutants would be less than significant. Therefore,

the project's impact on air quality would be individually limited but would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

- c) No Impact. The project would not expose sensitive receptors to substantial pollutant concentrations.
- d) Less than Significant Impact. Some phases of construction, particularly asphalt paving, may result in short-term odors in the immediate area of each paving site(s). However, the rapid dissipation of any odors would ensure that any impacts on air quality would be less than significant.

Given the determinations above, the project would have a less than significant impact on air quality.

3.2.4. Biological Resources—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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, U.S. Fish and Wildlife Service, or NOAA Fisheries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Biological Resources

- a) Less than Significant with Mitigation Incorporated. Construction of the project would impact the following special-status species: vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp. Each of these species is a Threatened/Endangered vernal pool branchiopod and inhabits seasonal wetlands.

Construction of the reconfigured intersection would result in the permanent fill of 10 seasonal wetlands assumed to be occupied by the following Threatened/Endangered vernal pool branchiopods: vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp. Direct effects to Threatened/Endangered vernal pool branchiopods are estimated at approximately 0.44 acre (~0.32 acre of permanently impacted wetlands and ~0.12 acre of temporarily impacted wetlands). Direct effects would consist of mortality resulting from the permanent filling of wetlands. The potential for indirect effects to Threatened/Endangered vernal pool branchiopods extended 250 feet from construction areas. Indirect effects may include changes in vernal pool hydrology that affect the duration of ponding of wetlands or it may result from pollutants that enter wetlands and degrade water quality. In either case, indirect effects could affect the extent of suitable habitat and population numbers of vernal pool branchiopods. The project would result in no indirect effects to Threatened/Endangered vernal pool branchiopods because wetlands within 250 feet of construction areas are located upslope and their hydrology would not be affected. Direct effects to Threatened/Endangered vernal pool branchiopods would be substantial and potentially significant under CEQA without the incorporation of mitigation. With incorporation of the mitigation measures to offset direct effects to Threatened/Endangered vernal pool branchiopods, effects to these species would be reduced to levels that are less than significant.

Extension of the box culvert that conveys Hoag Slough under SR 99 would result in no direct or indirect effects to any special-status species

because the stream reach within and adjacent to the project area does not provide suitable habitat for any special-status species.

Construction of the project has the potential to introduce/spread invasive species into the project area and affect native plant and animal species. Of particular concern are noxious weed species, which crowd-out native plant species. Implementation of measures to prevent the introduction or spread of invasive and/or noxious weed species would ensure that any impacts on native plant and animal species related to the introduction/spread of invasive species would be less than significant.

- b) Less than Significant Impact. Hoag Slough and riparian habitat within the project area are protected by state laws and regulations and Sections 401 and 404 of the federal Clean Water Act. Work within the bed and banks of Hoag Slough would require a permit from the Army Corps of Engineers, Water Quality Certification from the Central Valley Regional Water Quality Control Board, and a Streambed Alteration Agreement from the California Department of Fish and Wildlife. Work within riparian habitat would require a Streambed Alteration Agreement from the California Department of Fish and Wildlife.

Extension of the box culvert that conveys Hoag Slough under SR 99 would permanently impact approximately 0.013 acre (~45 linear feet) of seasonal stream and temporarily impact approximately 0.006 acre of seasonal stream (~35 linear feet). Given the minimal amount of seasonal stream impacted, impacts to seasonal stream would not be substantial. Therefore, under CEQA, impacts to seasonal stream would be less than significant. No CEQA-driven mitigation is proposed. As a condition of permits to be issued for the project, it is anticipated that permit-driven mitigation would be required to offset permanent impacts to seasonal stream. As part of permit-driven mitigation to offset permanent impacts to seasonal stream, compensatory mitigation for impacts to seasonal stream will be addressed in the permitting phase in coordination with the regulatory agencies.

Extension of the box culvert that conveys Hoag Slough under SR 99 would permanently impact approximately 0.004 acre of riparian habitat on the west side of SR 99. This riparian habitat consists predominantly of invasive plant species. No temporary impacts to riparian habitat are expected. Given the minimal amount of riparian habitat impacted and considering that the habitat is comprised predominantly of non-native plant species, impacts to riparian habitat would not be substantial. Therefore, under CEQA, impacts on riparian habitat would be less than significant. No CEQA-driven mitigation is proposed. It is anticipated that permit-driven mitigation would not be required to offset permanent impacts to riparian habitat.

- c) Less than Significant with Mitigation Incorporated. Wetlands within the project area are protected by state laws and regulations and Sections 401 and 404 of the federal Clean Water Act. Work within wetlands would require a permit from the Army Corps of Engineers and Water Quality Certification from the Central Valley Regional Water Quality Control Board.

Construction of the realigned intersection would permanently impact approximately 0.32 acre of wetlands and temporarily impact approximately 0.12 acre of wetlands. These impacted wetlands consist of 10 vernal pools. Although the wetlands are highly degraded and a relatively small amount would be impacted, they are assumed to be occupied by Threatened/Endangered species of vernal pool branchiopods. Therefore, impacts to wetlands would result in direct effects to Threatened/Endangered species of vernal pool branchiopods that would be substantial and potentially significant under CEQA without the incorporation of mitigation. With incorporation of the mitigation measures to offset direct effects to Threatened/Endangered species of vernal pool branchiopods, impacts on wetlands would also be reduced to levels that are less than significant.

- d) Less than Significant Impact. The project would not 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. If needed, a water diversion would be installed in Hoag Slough to allow aquatic organisms to move freely around the in-channel work area. The use of a water diversion during construction would ensure that any impacts on the movement of aquatic organisms would be less than significant.

Although no active bird nests were observed during field surveys of the project area, a variety of migratory bird species could potentially nest in trees and shrubs within the project area. No active bird nests or evidence of past nesting were observed in the box culvert that conveys Hoag Slough under SR 99. If present, nesting birds could be directly and indirectly affected by the proposed work. Potential direct effects on nesting birds could include mortality resulting from destruction of nests associated with vegetation removal. Potential indirect effects on nesting birds could include disruption of feeding patterns or nest abandonment due to construction-related noise. Compliance with Caltrans Standard Specifications to protect nesting birds would ensure that vegetation removal and construction activities would have no effect on nesting birds.

- e, f) Less than Significant with Mitigation Incorporated. No habitat conservation plans or natural community conservation plans have been approved in Tehama County. Land adjacent to the project limits east of SR 99 and outside Caltrans' right-of-way is protected under a conservation easement held by The Nature Conservancy. However, this land would not be affected by construction of the project.

The Open Space and Conservation Element in the Tehama County General Plan Update 2009–2029 includes various policies related to the protection of biological resources (e.g., streams, rivers, oak woodlands, wetlands, and native plants and animals) within the county. In addition, the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (a regional recovery plan) identifies recovery goals for delisting 20 federally listed vernal pool species and long-term protection measures for 13 other vernal pool species in vernal pool

ecosystems in California and southern Oregon. Construction of the project would permanently impact a small amount of stream and wetland habitat. Because the affected wetlands are known to support Endangered/Threatened species, the project would conflict substantially with the goals for protection of natural resources in the Open Space and Conservation Element in the Tehama County General Plan Update 2009–2029 and the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Implementation of avoidance, minimization, and mitigation measures for habitat protection (e.g., wetland preservation/creation), species protection (including nesting migratory birds), and invasive species control would ensure consistency with the Open Space and Conservation Element in the Tehama County General Plan Update 2009–2029 and the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon and reduce conflicts with these plans to levels that are less than significant.

Given the determinations above, the project's impact on biological resources would be less than significant with mitigation incorporated.

3.2.5 Cultural Resources—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Cultural Resources

a - c) No Impact. The cultural resources study included a literature and records review of the project area, an archaeological field survey of the project area, and visits to and/or contacts with repositories, agencies, organizations, and Native American representatives. The purpose of these efforts was to identify and evaluate any cultural resources that may exist within the project area and to assess any effects that the project might have related to the cultural resources.

The cultural resources study determined that the project is located within the ancestral territory of the Nomlaki. Caltrans has consulted with applicable California Native American tribes and none of the tribes consulted provided notification of the presence or potential presence of tribal cultural resources, defined in Public Resource Code section 2107, within the project area. No cultural resources were observed within the project area during the field surveys.

It is Caltrans' policy to avoid cultural resources whenever possible. Compliance with Caltrans Standard Specifications to protect buried cultural materials, including human remains, that may be encountered during construction would ensure that the project would have no

adverse effect on historic/archaeological resources pursuant to §15064.5 or on buried human remains.

Given the determinations above, the project would have no impact on cultural resources.

3.2.6 ENERGY—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Energy

a) Less than Significant Impact. Wasteful/unnecessary/inefficient energy consumption would be limited to vehicles idling at the one-way reversing traffic control during construction and any vehicles idling while waiting to enter the roundabout during operation of the project. However, any wasteful/unnecessary/inefficient energy consumption during construction would be minimal and temporary. Any wasteful/unnecessary/inefficient energy consumption during operation of the project would be minimal is anticipated to be offset by the energy conserved as a result of a more efficient intersection. Therefore, the impact of this wasteful/unnecessary/inefficient energy use on the environment during construction and operation of the project would be less than significant.

b) Less than Significant Impact. During construction, there would be a short-term increase in energy consumption due to the operation of construction vehicles and equipment, and from vehicles idling at one-way reversing traffic controls. However, the increase in energy consumption during construction would be minimal and temporary.

Construction of the project would not increase capacity of the State Highway System or induce an increase in vehicle miles traveled.

Therefore, there would be no increase in energy consumption related to vehicle miles traveled. During operation of the project, sources of energy consumption include any vehicles idling while waiting to enter the roundabout and electrical power required to operate new flashing beacons, a closed-circuit television, and electroliers with LED lights (new infrastructure would utilize electrical power by connecting to existing underground electrical utilities that are maintained by Caltrans). However, the energy consumed during operation of the project would be minimal and is anticipated to be offset by the energy conserved as a result of a more efficient intersection. Therefore, the project would not substantially conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Given the determinations above, the project would have a less than significant impact on energy resources.

3.2.7 Geology and Soils—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

CEQA Significance Determinations for Geology and Soils

- a) Less than Significant Impact. The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, seismic-related ground failure (including liquefaction), and landslides. By designing the roundabout in accordance with current seismic safety standards for ground shaking, the project would have a less than significant impact.
- b) Less than Significant Impact. The project would disturb the ground surface and excavated soil would be used onsite as backfill. However, compliance with Caltrans Standard Specifications for erosion control and spill prevention would ensure that any soil erosion or loss of topsoil would be less than significant.
- c) No Impact. The project is not located on a soil that is unstable or that would become unstable as a result of the project and potentially result in onsite/offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.
- d) Less than Significant Impact. Expansive soils are present within the project area. However, by designing the roundabout to account for the presence of expansive soils, potential direct or indirect risks to life and/or property would be less than significant.
- e) No Impact. The project does not include the use of septic tanks and/or alternative waste water disposal systems.
- f) No Impact. The project would not directly or indirectly destroy a unique paleontological resource/site or unique geologic feature.

Given the determinations above, the project would have a less than significant impact on geology and soils.

3.2.8 Greenhouse Gas Emissions—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Greenhouse Gas Emissions

- a) Less than Significant Impact. The project would not increase capacity of the State Highway System and would not change travel demands. Once built, the project would result in more efficient traffic circulation at the intersection and it is anticipated that greenhouse gas emissions would be reduced (a beneficial impact). Construction of the project would generate greenhouse gas emissions, but not at a substantial level.
- b) No Impact. The project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Given the determinations above, the project would have a less than significant impact on greenhouse gas emissions.

3.2.9 Hazards and Hazardous Materials—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Hazards and Hazardous Materials

a-b) No Impact. As documented in the ISA, lead-contaminated soils may exist throughout the project limits due to the historical use of leaded gasoline on the roadway, pollutants may be present in treated wood, and lead/chromium may be present in yellow and white road striping. Construction of the project would require excavation of a relatively small amount soil along the roadway, culvert work, relocating several existing treated wood posts, and removal of a small amount of yellow and white road striping from the roadway surface. These activities have the potential to release a minimal amount of hazardous wastes/materials into the environment. Compliance with the following Caltrans Standard Specifications would ensure that the project would have no impact related to hazards and hazardous materials:

- A site investigation for aerially deposited lead (ADL) shall be conducted prior to RTL to determine whether ADL is present and what actions, if any, would be required. If encountered, soil with elevated concentrations of lead as a result of ADL on the State Highway System right-of-way within the limits of the project will be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the project limits as long as all requirements of the ADL Agreement are met.
- Asphalt grindings associated with the removal of yellow and white road striping shall be removed and disposed of by the contractor in accordance with Caltrans Standard Special Provision 36-4, which requires the contractor to prepare a Lead Compliance Plan.
- Treated wood waste shall be disposed of by the contractor in accordance with Caltrans Standard Specification 14-11.14.

- Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, nor would it 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) No Impact. There are no existing or proposed schools within a ¼-mile radius of the project. In addition, the project would not emit hazardous emissions or require the handling of hazardous or acutely hazardous materials or substances.
 - d) No Impact. No Cortese sites (sites which are known to contain hazardous wastes or substances) have been identified within or adjacent to the project area.
 - e) Less than Significant Impact. The project is not located within two miles of a public airport (the nearest airport is Corning Airport, approximately 7.5 miles to the west). Airport operations at the Corning Airport would not expose construction workers at the project site to a safety hazard or excessive noise. CAL FIRE's Vina Helitack Base is located approximately ¼-mile south of the project area. CAL FIRE occasionally operates helicopters from the base to respond to emergencies in the vicinity. The operation of helicopters from the base would generate temporary noise which would be audible in the project area. However, helicopters operating from the base would not result in a safety hazard or excessive noise for people residing or working in the project area.
 - f) No Impact. Prior to construction, the Transportation Management Plan prepared for the project will be subject to review/approval from the California Highway Patrol and CAL FIRE. As such, the project would not impair implementation or physically interfere with an adopted emergency response plan or emergency evacuation plan.
 - g) No Impact. The project does not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Rather,

the project maintains the roadway for use as an escape route during wildfire emergencies and provides fire vehicles a means of accessing/suppressing wildfires.

Given the determinations above, the project would have no impact related to hazards and hazardous materials.

3.2.10 Hydrology and Water Quality—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Hydrology and Water Quality

- a) Less than Significant Impact. Construction of the project may result in short-term impacts to water quality. However, implementation of measures during construction to minimize impacts to water quality would ensure that any impacts would be less than significant.
- c) Less than Significant Impact. Construction of the project would not 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 that would: (1) result in substantial erosion or siltation on- or off-site; (2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (3) 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 (4) impede or redirect flows. However, construction of project may result in a minimal amount of erosion or siltation on- or off-site, contribute to a minimal increase in runoff water (in both rate and amount) that may provide additional sources of polluted runoff, and redirect a limited amount of stormwater runoff from the roadway into Hoag Slough. Installation of stormwater treatment BMPS (e.g., biofiltration swales) for onsite stormwater treatment and compliance with Caltrans Standard Specifications for erosion control and spill prevention would ensure that any impacts on water quality are less than significant.
- b, d, e) No Impact. The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. The project would not risk release of pollutants due to inundation by flood, tsunami (California Department of Conservation 2020f), or seiche.

Given the determinations above, the project would have a less than significant impact on hydrology and water quality.

3.2.11 Land Use and Planning—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Land Use and Planning

- a) No Impact. The project would not physically divide an established community.
- b) Less than Significant Impact. Caltrans would permanently acquire approximately 2.75 acres of right-of-way from a ~114.16-acre parcel (a conversion of approximately 2.4% of the parcel) identified as Tehama County Assessor’s Parcel Number 079-260-008 to accommodate the new roundabout and reconfigured intersection. The parcel is currently used for livestock grazing and is assumed to be enrolled under a Williamson Act contract that was established in 1975. This acquisition of land and conversion of use would have a minimal impact on existing and future land use on the remainder of the parcel and would not conflict substantially with the Agriculture and Timber Element in the *Tehama County General Plan Update 2009–2029*, which encourages the preservation of agricultural land through enrollment in Williamson Act contracts, or the plan’s Land Use Element. Therefore, the project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Given the determinations above, the project would have a less than significant impact on land use and planning.

3.2.12 Mineral Resources—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Mineral Resources

a-b) No Impact. The *Tehama County General Plan Update 2009–2029* does not identify the locations of known deposits of valuable or locally important mineral resources. Land within the project limits is zoned as MRZ-4 (no known mineral resources) and MRZ-3b SG (areas containing inferred mineral occurrences of undetermined mineral resource significance) (California Department of Conservation (2020g). No mines have been reported within the project limits (California Department of Conservation 2020g). Review of aerial photographs found no evidence of past or present activities to recover mineral resources within the project limits. The project would not result in the loss of availability of a known mineral resource that would be of value nor would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a General Plan, specific plan, or other land use plan.

Given the determinations above, the project would have no impact on mineral resources.

3.2.13 Noise—Would the project result in:

	Significant and Unavoidable Impact	Less Than Significant with 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 applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Noise

- a-b) Less than Significant Impact. Although construction activities may periodically generate noise and vibration levels that exceed established standards, implementation of measures to control noise and vibration during construction would ensure that impacts are less than significant.

- c) Less than Significant Impact. The project is not located within the vicinity of a private airstrip, airport land use plan, or within two miles of a public airport or public use airport and would not expose people residing or working in the project area to excessive noise levels from airport operations. CAL FIRE's Vina Helitack Base is located approximately 1/4-mile south of the project area. CAL FIRE occasionally operates helicopters from the base to respond to emergencies in the

vicinity. The operation of helicopters from the base would generate temporary noise which would be audible in the project area. However, helicopters operating from the base would not expose people residing or working in the project area to excessive noise levels from base operations.

Given the determinations above, the project would have a less than significant impact on noise.

3.2.14 Population and Housing—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Population and Housing

- a) No Impact. The project would not induce population growth, either directly or indirectly.
- b) No Impact. The project would not displace any existing housing or people, necessitating the construction of replacement housing elsewhere.

Given the determinations above, the project would have no impact on population and housing.

3.2.15 Public Services

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Public Services

- a) Less than Significant Impact. The project would not provide new governmental facilities or affect demand for governmental facilities or public services. The project work scope includes the use of one-way reversing traffic control when partial closure of the roadway is required during construction. When partial closure of the roadway is required and one-way reversing traffic control is utilized, travel time through the project area is expected to be delayed by only a few minutes. However, emergency service providers (e.g., police, fire, and ambulance) would not be subject to traffic controls and any potential delays would have a negligible impact on response time. Delays in travel time for public transportation providers (e.g., local school districts that provide school buses to transport students to and from

schools) would be minimal. Implementation of public outreach efforts prior to construction would ensure that the project would have a less than significant impact on response time for emergency services and travel time for public transportation services. Therefore, the project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the 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 police and fire protection, schools, parks, or other public facilities.

Given the determinations above, the project would have a less than significant impact on public services.

3.2.16 Recreation

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Recreation

a-b) No Impact. The project would not increase the use of existing neighborhood and regional parks or other recreational facilities. In addition, the project does not include recreational facilities or require the construction or expansion of recreational facilities.

Given the determinations above, the project would have no impact on recreation.

3.2.17 Transportation—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Transportation

- a) No Impact. The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. The project work scope includes the use of one-way reversing traffic controls when partial closure of the roadway is required during construction. When partial closure of the roadway is required and one-way reversing traffic control is utilized, travel time through the project area is expected to be delayed by only a few minutes.
- b) No Impact. The project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)
- c) No Impact. The project would not substantially increase hazards due to a geometric design feature or incompatible uses.

- d) Less than Significant Impact. Once built, the project would not result in inadequate emergency access. Implementation of public outreach efforts prior to construction would ensure that construction of the project would have a less than significant impact on response time for emergency services.

Given the determinations above, the project would have a less than significant impact on transportation.

3.2.18 Tribal Cultural Resources—Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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:

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Tribal Cultural Resources

a-b) No Impact. Assembly Bill (AB) 52 (Chapter 532, California Statutes of 2014) establishes a formal consultation process for California tribes as part of the CEQA review process and equates significant impacts on “tribal cultural resources” with significant environmental impacts (Public Resources Code 21084.2). The cultural resources study determined that the project is located within the ancestral territory of the Nomlaki. Caltrans has consulted with applicable California Native American tribes and none of the tribes consulted provided notification of the presence or potential presence of tribal cultural resources, defined in Public Resource Code section 2107, within the project area. Consultation with California Native American Tribes is ongoing and will

continue through project completion. No tribal cultural resources would be impacted.

Given the determinations above, the project would have no impact on tribal cultural resources.

3.2.19 Utilities and Service Systems—Would the project:

	Significant and Unavoidable Impact	Less Than Significant with 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 or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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??	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Utilities and Service Systems

- a) Less than Significant Impact. The earthwork associated with stormdrain and utilities work has the potential to degrade water quality and the aquatic environment and may require that utilities be relocated or turned off for short periods. However, measures to protect water quality and the aquatic environment would be implemented during

- construction to ensure that any environmental impacts are less than significant.
- b) Less than Significant Impact. Once built, the project would not require a water supply to service the project. During construction, the contractor would utilize a small volume of water for dust control. However, the volume of water needed for dust control would have a less than significant impact on local water supply.
 - c) No Impact. The project would not require a wastewater treatment provider to service the project.
 - d) Less than Significant Impact. The project would not 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) No Impact. The project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Given the determinations above, the project would have a less than significant impact on utilities and service systems.

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

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CEQA Significance Determinations for Wildfire

- a) No Impact. The project does not substantially impair an adopted emergency response plan or emergency evacuation plan.
- b) No Impact. Portions of the project area to the east of SR 99 and south of South Avenue are located within a state responsibility area that has a “Moderate” fire hazard severity rating (CAL FIRE 2020). Land north of South Avenue and west of SR 99 is located within an area of local responsibility. The project area and vicinity do not include land that has a “Very High” fire hazard severity rating. The project would not exacerbate wildfire risks and thereby expose project occupants to

- pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Rather, the project maintains the roadway for use as an escape route during wildfire emergencies and provides fire vehicles a means of accessing/suppressing wildfires.
- c) No Impact. The project does not require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary ongoing impacts to the environment.
 - d) No Impact. The project does not 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.

Given the determinations above, the project would have no impact related to wildfire.

3.2.21 Mandatory Findings of Significance

	Significant and Unavoidable Impact	Less Than Significant with 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 a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CEQA Significance Determinations for Mandatory Findings of Significance

- a) Less than Significant with Mitigation Incorporated. Construction of the project would not 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, or eliminate important examples of the major periods of California history or

prehistory. However, the proposed permanent fill of wetlands would substantially reduce the number or restrict the range of Threatened/Endangered vernal pool branchiopods (e.g., vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp). Compliance with Caltrans Standard Specifications and implementation of other avoidance/minimization measures would ensure that most environmental impacts do not reach levels that are potentially significant. Implementation of CEQA-driven mitigation measures to offset permanent impacts to wetlands and effects to Threatened/Endangered vernal pool branchiopods would ensure that potentially significant environmental impacts to wetlands and effects to Threatened/Endangered vernal pool branchiopods have been reduced to levels that are less than significant.

Given the minimal amount of seasonal stream impacted, impacts to seasonal stream would not be substantial. Therefore, under CEQA, impacts to seasonal stream would be less than significant. No CEQA-driven mitigation is proposed. As a condition of permits to be issued for the project, it is anticipated that permit-driven mitigation would be required to offset permanent impacts to seasonal stream. As part of permit-driven mitigation to offset permanent impacts to seasonal stream, compensatory mitigation for impacts to seasonal stream will be addressed in the permitting phase in coordination with the regulatory agencies.

Given the minimal amount of riparian habitat impacted and considering that the habitat is comprised predominantly of non-native plant species, impacts to riparian habitat would not be substantial. Therefore, under CEQA, impacts on riparian habitat would be less than significant. No CEQA-driven mitigation is proposed. It is anticipated that permit-driven mitigation would not be required to offset permanent impacts to riparian habitat.

- b) Less than Significant. The project would result in impacts that are individually limited, but not cumulatively considerable.

- c) Less than Significant. Construction of the project would result in impacts to various resources (e.g., aesthetics, agriculture and forest resources, air quality, resources, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, noise, public services, transportation, and utilities and service systems) in the human environment. Compliance with Caltrans Standard Specifications and implementation of other avoidance/minimization measures would ensure that any impacts on human beings would be less than significant.

Given the determinations above, the project's impact related to mandatory findings of significance would be less than significant with CEQA-driven mitigation incorporated.

3.3 Amendments to the CEQA Environmental Checklist

3.3.1 Wildfire

Regulatory Setting

Senate Bill 1241 required the Office of Planning and Research, the Natural Resources Agency, and the California Department of Forestry and Fire Protection to develop amendments to the “CEQA Checklist” for the inclusion of questions related to fire hazard impacts for projects located on lands classified as very high fire hazard severity zones. The 2018 updates to the CEQA Guidelines expanded this to include projects “near” these very high fire hazard severity zones.

Affected Environment

Portions of the project area to the east of SR 99 and south of South Avenue are located within a state responsibility area that has a “Moderate” fire hazard severity rating (CAL FIRE 2020). Land north of South Avenue and west of SR 99 is located within an area of local responsibility. The project area and vicinity do not include land that has a “Very High” fire hazard severity rating.

Environmental Consequences

The project would not exacerbate wildfire risks.

Avoidance, Minimization and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are warranted.

3.4 Climate Change

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

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

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

3.4.1 Regulatory Setting

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

Federal

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

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

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

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

Energy Policy Act of 2005, 109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy

efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) the establishment of the Office of Indian Energy Policy and Programs within the Department of Energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

The U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) is responsible for setting GHG emission standards for new cars and light-duty vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence GHG emissions.

State

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

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

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

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

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

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

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

EO B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO₂e).⁵ Finally, it requires the Natural

⁵ GHGs differ in how much heat each trap in the atmosphere (global warming potential, or GWP). CO₂ is the most important GHG, so amounts of other gases are expressed relative to CO₂, using

Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

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

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

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

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

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

a metric called "carbon dioxide equivalent" (CO₂e). The global warming potential of CO₂ is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO₂.

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

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

3.4.2 Environmental Setting

The project is located in a rural part of Tehama County, with a primarily natural resources-based agricultural and tourism economy. SR 99 is the main transportation route to and through the area for both passenger and commercial vehicles. The nearest alternate route is Interstate 5, which is located approximately 6.4 miles to the west. Traffic counts are moderate. The Tehama County Transportation Commission is the state-designated Regional Transportation Planning Agency for Tehama County and guides transportation development within the County. The *Tehama County General Plan Update 2009–2029* addresses GHGs in the project area.

A GHG emissions inventory estimates the amount of GHGs discharged into the atmosphere by specific sources over a period of time, such as a calendar year. Tracking annual GHG emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. U.S. EPA is responsible for documenting GHG emissions nationwide, and the ARB does so for the state, as required by H&SC Section 39607.4.

National GHG Inventory

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

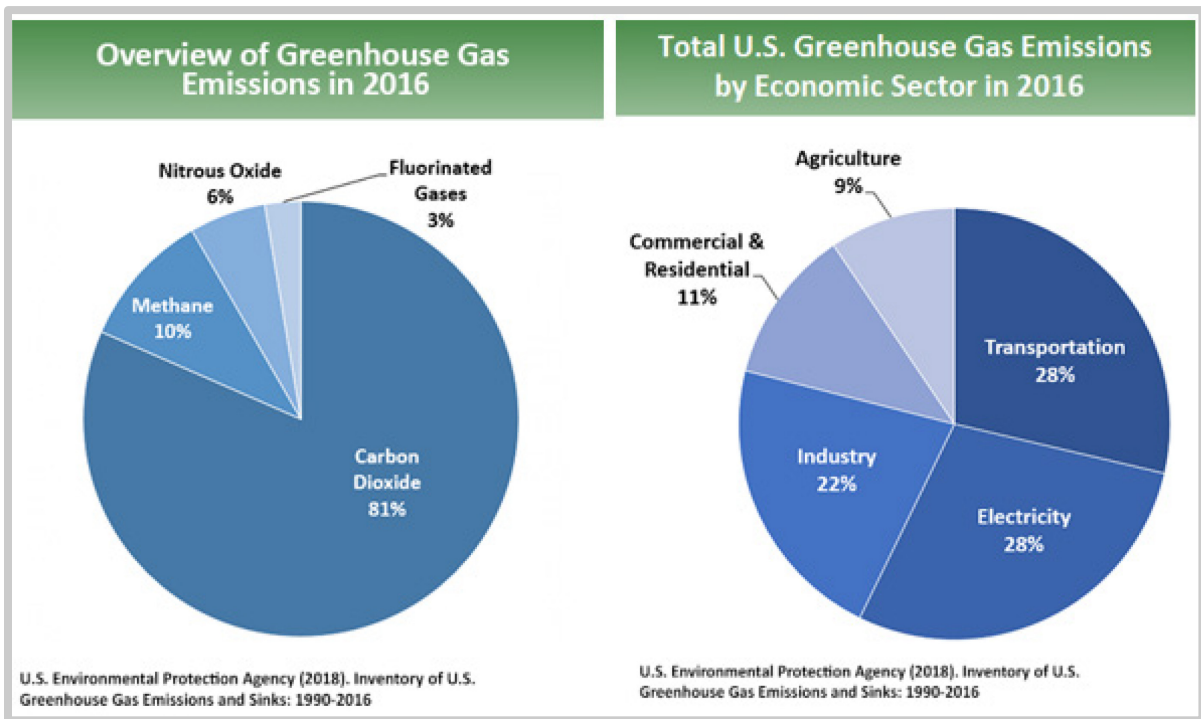


Figure 11. 2016 Greenhouse Gas Emissions

State GHG Inventory

ARB collects GHG emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management

sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2019 edition of the GHG emissions inventory found total California emissions of 424.1 MMTCO₂e for 2017, with the transportation sector responsible for 41% of total GHGs. It also found that overall statewide GHG emissions declined from 2000 to 2017 despite growth in population and state economic output (ARB 2019a).

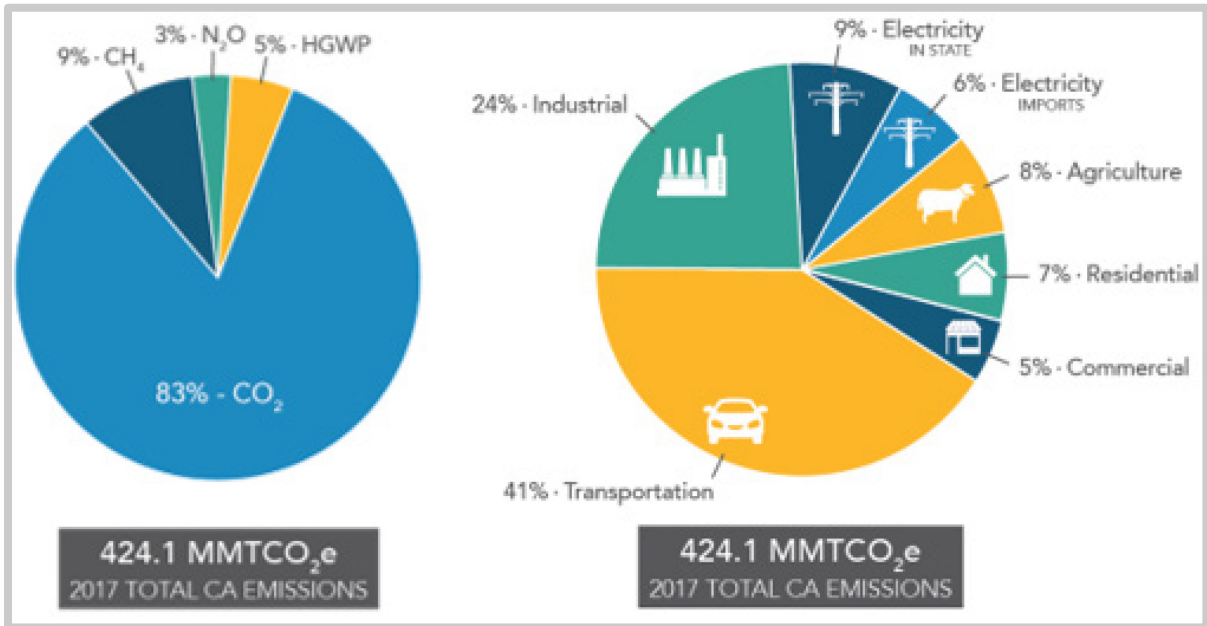


Figure 12. California 2017 Greenhouse Gas Emissions

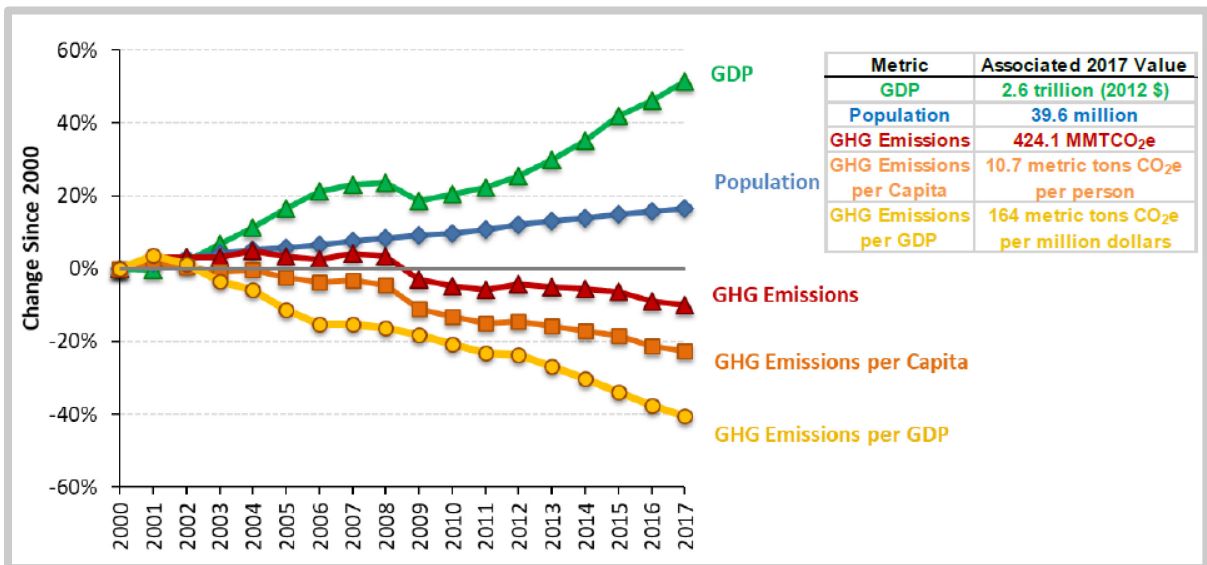


Figure 13. Change in California GDP, Population, and GHG Emissions since 2000

AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. ARB adopted the first scoping plan in 2008. The second updated plan, California's 2017 Climate Change Scoping Plan, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32. The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions.

Regional Plans

ARB sets regional targets for California's 18 MPOs to use in their Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. The project site is located in Tehama County, which is not within the jurisdiction of an MPO.

The project is within the jurisdiction of the Tehama County Transportation Commission, which is the state-designated Regional Transportation Planning Agency for Tehama County and guides transportation development within the County. The 2019 Tehama County Regional Transportation Plan identifies goals for GHG reduction within the County.

Although Tehama County is not located in an MPO and therefore not subject to the guidelines regarding GHG emissions and air quality conformity analysis, the policies and actions identified in the 2019 Tehama County Regional Transportation Plan would improve air quality and community health. Specifically, the Plan identifies the following strategies as a way to reduce GHG emissions:

- Reducing VMT
- Encouraging the use of public transportation services
- Providing multimodal options for transportation

3.4.3 Project Analysis

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

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Pub. Resources Code, §21083(b)(2)). As the California Supreme Court explained, “because of the global scale of climate change, any one project’s contribution is unlikely to be significant by itself.” (Cleveland National Forest Foundation v. San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512.) In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

Key project features include installation of a roundabout and a bypass lane that is less than one mile in length. Construction of the project would not increase capacity of the State Highway System or induce an increase in vehicle miles traveled (VMT). While some GHG emissions during the construction period would be unavoidable, no increase in operational GHG emissions is expected. Installation of the roundabout would allow eastbound traffic on South Avenue to merge onto northbound SR 99 and would improve

the efficiency of traffic flow at the intersection and lead to an overall reduction in GHG emissions.

Construction Emissions

Construction GHG emissions would result from material processing, onsite construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Estimates of various GHG including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and hydrofluorocarbons (HFCs) were made for the construction year using the Caltrans Construction Emission Tool (Cal-CET2018 version 1.3). As shown in Table 11, the primary GHG released during construction is CO₂ (California Department of Transportation 2020d).

Table 11. Estimates of GHG Emissions During Construction (in U.S. tons)

Construction Year	CO ₂	CH ₄	N ₂ O	HFCs
2024	272	<1	<1	<1

All construction contracts include Caltrans Standard Specifications Section 7-1.02A and 7-1.02C, Emissions Reduction, which require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all ARB emission reduction regulations; and Section 14-9.02, Air Pollution Control, which requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce GHG emissions.

CEQA Conclusion

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

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

3.4.4 Greenhouse Gas Reduction Strategies

Statewide Efforts

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

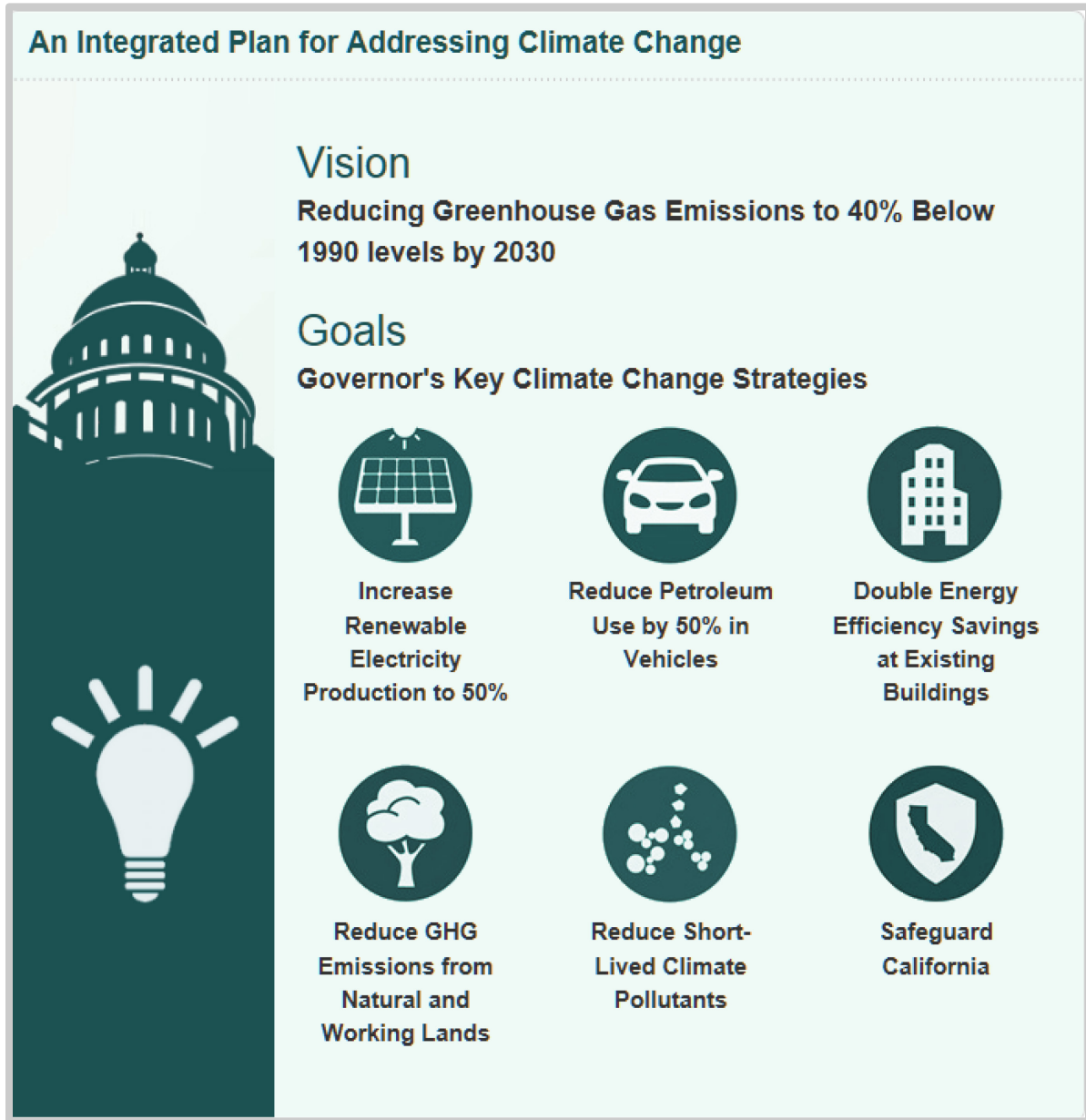


Figure 14. California Climate Strategy

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

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

Caltrans Activities

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

California Transportation Plan (CTP 2040)

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

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

Caltrans Strategic Management Plan

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

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

Funding and Technical Assistance Programs

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

Caltrans Policy Directives and Other Initiatives

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

Project-Level GHG Reduction Strategies

The following measures shall be implemented to reduce GHG emissions and potential climate change impacts:

- The contractor shall comply with Section 14-9 in the *2018 Caltrans Standard Specifications*. Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including the Tehama County Air Pollution Control District regulations and local ordinances.
- Compliance with Title 13 of the California Code of Regulations, which includes idling restrictions on construction vehicles and equipment to no more than 5 minutes.
- Compliance with Caltrans Standard Specifications 7-1.02A and 7-1.02C “Emissions Reduction.”
- Utilize a transportation management plan to minimize vehicle delays.
- To the extent feasible, construction traffic shall be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.

3.4.5 Adaptation

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

Federal Efforts

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

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

The U.S. DOT Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to “integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions” (U.S. DOT 2011).

FHWA order 5520 (Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. California's Fourth Climate Change Assessment (2018) is the state's effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales. It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- *Adaptive capacity* is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."
- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- *Resilience* is the "capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience." Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.
- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.
- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of

physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

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

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

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

EO B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change other than sea-level rise also threaten California’s infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A*

Guidebook for State Agencies in 2017, to encourage a uniform and systematic approach. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

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

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

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

- *Exposure* – Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence* – Determine what might occur to system assets in terms of loss of use or costs of repair.
- *Prioritization* – Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments was developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and development

of adaptation plans to reduce the likelihood of damage to the State Highway System, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

Sea-Level Rise

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

Floodplains

The project would not result in a substantial increase in short-term or operational emissions of greenhouse gases that would cause climate change, which could affect floodplains.

Wildfire

Portions of the project area to the east of SR 99 and south of South Avenue are located within a state responsibility area that has a “Moderate” fire hazard severity rating (CAL FIRE 2020). Land north of South Avenue and west of SR 99 is located within an area of local responsibility. The project area and vicinity do not include land that has a “Very High” fire hazard severity rating. Further, the project would not result in a substantial increase in short-term or operational emissions of greenhouse gases that would cause climate change, which could exacerbate the hazard of wildfire.

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Chapter 4 List of Preparers

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

Shaun Alexander, Project Engineer
Contribution: Project design

Alex Arevalo, Water Quality Specialist
Contribution: Water Quality Assessment

Rajive Chadha, Hazardous Waste Specialist
Contribution: Initial Site Assessment Report

Toby Crawford, Senior Design Engineer
Contribution: Project design

Darrin Doyle, Environmental Coordinator
Contribution: Document writer

Michael Feakes, Project Manager
Contribution: Project management

Linda Jones, Traffic Management
Contribution: Transportation Management Plan Data Sheet

Jason Lee, Transportation Engineer
Contribution: Air Quality/Greenhouse Gas/Noise Report and Energy Analysis Report

Chuck Lees, Hydraulic Engineer
Contribution: Floodplain Evaluation Report Summary

Eric L. Rulison, Biologist
Contribution: Wetland Delineation, Biological Assessment, and Natural Environ. Study

Alyson Sinclair, Design Engineer
Contribution: Project design

Robin Solari, Landscape Associate
Contribution: Visual Impact Assessment Report

Wesley Stroud, Environmental Office Chief
Contribution: Document oversight

Carolyn Sullivan, Senior Environmental Planner
Contribution: Document oversight

Elizabeth Truman, Archaeologist
Contribution: Cultural Resource Report

Neoma Ward, Right-of-Way Agent
Contribution: Right-of-Way Coordination

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- . 2021d. Visual Impact Assessment, South Avenue Safety Project.
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Chapter 6 Distribution List

Distribution List for Initial Study/Environmental Assessment

Jennifer Vise, County Clerk
Tehama County Clerk's Office
P.O. Box 250
Red Bluff, CA 96080

Todd Deck, County Librarian
Tehama County Library–Corning Branch
740 3rd Street
Corning, CA 96021

Todd Deck, County Librarian
Tehama County Library–Los Molinos Branch
7881 State Highway 99E
Los Molinos, CA 96055

Jim Simon, Director
Tehama County Public Works
9380 San Benito Avenue
Gerber, CA 96035

John Leach, District 5 Supervisor
Tehama County Board of Supervisors
727 Oak Street
Red Bluff, CA 96080

State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

Stephanie Berens
P.O. Box 226 Vina, CA 96092

United States Postal Service–Vina Post Office
Rebecca Gorbet (Postmaster)
4750 Rowles Road
Vina, CA 96092

Paskenta Band of Nomlaki Indians
Andrew Alejandre, Chairperson
P.O. Box 709 Corning, CA 96021

CAL FIRE Tehama Glenn Unit - Air Attack-Helitack - Vina
4520 Highway 99E
Vina, CA 96092

The Nature Conservancy
830 S Street
Sacramento, CA 95811

Agencies Indicated on the Notice of Completion form that the State Clearinghouse will provide an electronic copy to:

- California Air Resources Board
- California Highway Patrol
- Caltrans District 2
- California Department of Conservation
- California Department of Fish and Wildlife (Region 1)
- California Department of Forestry and Fire Protection (CAL FIRE)
- Native American Heritage Commission
- Central Valley Regional Water Quality Control Board (Regional Water Quality Control Board #5)
- California Department of Toxic Substances Control
- United States Environmental Protection Agency
- United States Army Corps of Engineers
- United States Fish and Wildlife Service
- NOAA Fisheries

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Appendix A Title VI Policy Statement

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STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
FAX (916) 653-5776
TTY 711
www.dot.ca.gov



*Making Conservation
a California Way of Life.*

April 2018

**NON-DISCRIMINATION
POLICY STATEMENT**

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

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

For information or guidance on how to file a complaint, please visit the following web page:
http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

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

A handwritten signature in blue ink that reads "Laurie Berman".

LAURIE BERMAN
Director

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

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Appendix B List of Technical Studies

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Air Quality/Greenhouse Gas/Noise Analysis
Biological Assessment
Cultural Resources Report
Energy Analysis
Floodplain Evaluation Report Summary
Hazardous Waste Initial Site Assessment
Historic Property Survey Report/Archaeological Survey Report
Natural Environment Study
Transportation Management Plan Data Sheet
Water Quality Assessment
Wetland Delineation
Visual Impact Assessment

To obtain a copy of one or more of these technical studies/reports or the Initial Study/Environmental Assessment, please send your request to the following email address: shanna.lebaron@dot.ca.gov.

Please indicate the project name and project identifying code (under the project name on the cover of this document) and specify the technical report or document you would like a copy of. Provide your name and email address or U.S. postal service mailing address (street address, city, state and zip code).

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Appendix C List of Acronyms and Abbreviations

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AB	Assembly Bill
ARB	(California) Air Resources Board
BMPs	Best management practices
CAFÉ	Corporate Average Fuel Economy
CAAQS	California ambient air quality standards
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH ₄	Methane
CNDDB	California Natural Diversity Data Base
CO ₂	Carbon dioxide
CO	Carbon monoxide
CTP	California Transportation Plan
DOT	Department of Transportation
EO	Executive Order
ESA	Environmentally sensitive area
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
H ₂ S	Hydrogen sulfide
IPCC	Intergovernmental Panel on Climate Change
LCFS	Low Carbon Fuel Standard
MMTCO _{2e}	Metric tons of carbon dioxide
MPO	Metropolitan Planning Organization
NAAQS	National ambient air quality standards
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration

NOAA	National Oceanic and Atmospheric Administration
NO _x	Nitrogen oxides
NRCS	Natural Resources Conservation Service
N ₂ O	Nitrous oxide
O ₃	Ozone
Pb	Lead
PPM	Parts per million
PM	Post mile or particulate matter (air quality)
RTL	Ready to List
RTP	Regional Transportation Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
Service	United States Fish and Wildlife Service
SF ₆	Sulfur hexafluoride
SIP	State Implementation Plan
SLR	Sea-level rise
SO ₂	Sulfur dioxide
SR	State Route
STAA	Surface Transportation Assistance Act
TCTC	Tehama County Transportation Commission
USC	United States Code
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental protection Agency
USFWS	United States Fish and Wildlife Service
VOCs	Volatile organic compounds
VMT	Vehicle miles traveled

Appendix D Species Lists

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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:

Consultation Code: 08ESMF00-2020-SLI-2183

Event Code: 08ESMF00-2021-E-07761

Project Name: South Avenue Roundabout

September 01, 2021

Subject: Updated 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, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

09/01/2021

Event Code: 08ESMF00-2021-E-07761

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utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

Attachment(s):

- Official Species List

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Event Code: 08ESMF00-2021-E-07761

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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

09/01/2021

Event Code: 08ESMF00-2021-E-07761

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Project Summary

Consultation Code: 08ESMF00-2020-SLI-2183

Event Code: 08ESMF00-2021-E-07761

Project Name: South Avenue Roundabout

Project Type: TRANSPORTATION

Project Description: Build roundabout at current intersection

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.931816838748134,-122.03334072669281,14z>



Counties: Tehama County, California

09/01/2021

Event Code: 08ESMF00-2021-E-07761

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Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

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

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

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

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

Birds

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS 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/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

09/01/2021

Event Code: 08ESMF00-2021-E-07761

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Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> 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
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> 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/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> 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
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> 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/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> 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/2246	Endangered

Flowering Plants

NAME	STATUS
Greene's Tuctoria <i>Tuctoria greenei</i> 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/1573	Endangered
Hairy Orcutt Grass <i>Orcuttia pilosa</i> 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/2262	Endangered
Hoover's Spurge <i>Chamaesyce hooveri</i> 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/3019	Threatened
Slender Orcutt Grass <i>Orcuttia tenuis</i> 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.

From: Rulison_Eric@DOT
To: nmfs.wrca.specieslist@noaa.gov
Cc: Rulison_Eric@DOT
Subject: California Department of Transportation - South Avenue Roundabout
Date: Tuesday, August 31, 2021 5:28:24 PM
Attachments: [image001.png](#)

Quad Name Vina
Quad Number 39122-H1
ESA Anadromous Fish

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

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

Range Black Abalone (E) -
Range White Abalone (E) -
ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -
ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -
ESA Whales

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

Guadalupe Fur Seal (T) -
Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - X
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -
MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult Monica DeAngelis
monica.deangelis@noaa.gov
562-980-3232

MMPA Cetaceans -
MMPA Pinnipeds -

Eric L. Rulison

California Department of Transportation
Associate Environmental Planner -NS
District 2 Wildlife Connectivity Coordinator
North Region
1081 Butte Street, MS 30
Redding, CA 96001

Phone: (530) 759-3421
Fax: (530) 225-3019



From: [NMFS.SpeciesList - NOAA Service Account](#)
To: Rulison_Eric@DOT
Subject: Federal ESA - - NOAA Fisheries Species List Re: California Department of Transportation - South Avenue Roundabout
Date: Tuesday, August 31, 2021 5:28:44 PM

EXTERNAL EMAIL. Links/attachments may not be safe.

Please retain a copy of each email request that you send to NOAA at nmfs.wcrea.specieslist@noaa.gov as proof of your official Endangered Species Act SPECIES LIST. The email you send to NOAA should include the following information: your first and last name; email address; phone number; federal agency name (or delegated state agency such as Caltrans); mailing address; project title; brief description of the project; and a copy of a list of threatened or endangered species identified within specified geographic areas derived from the NOAA Fisheries, West Coast Region, California Species List Tool. You may only receive this instruction once per week. If you have questions, contact your local NOAA Fisheries liaison.



Selected Elements by Scientific Name
 California Department of Fish and Wildlife
 California Natural Diversity Database



Query Criteria: Imported file selection

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
<i>Fritillaria pluriflora</i> adobe-lily	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
<i>Lepidurus packardi</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
<i>Linderiella occidentalis</i> California linderiella	ICBRA06010	None	None	G2G3	S2S3	

Record Count: 4

3/30/2021

CNPS Inventory Results



*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

8 matches found. [Click on scientific name for details](#)

Search Criteria

Found in Quad 3912281

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	4.3	S4	G4
Euphorbia hooveri	Hoover's spurge	Euphorbiaceae	annual herb	Jul-Sep(Oct)	1B.2	S1	G1
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2S3	G2G3
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	1B.1	S1	G1
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	1B.1	S2	G2
Paronychia ahartii	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	1B.1	S3	G3
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 30 March 2021].

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Contributors

[The Calflora Database](#)
[The California Lichen Society](#)
[California Natural Diversity Database](#)
[The Jepson Flora Project](#)
[The Consortium of California Herbaria](#)
[CalPhotos](#)

Questions and Comments

rareplants@cnps.org

www.rareplants.cnps.org/result.html?adv=t&quad=3912281

1/2

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Appendix E Regional Species Evaluation Table

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Appendix E Table. Evaluation of the Potential for Special-Status Species to Occur Within or Adjacent to the ESL

Common Name/ Scientific Name	Status ¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
ANIMALS				
Amphibians				
California red-legged frog <i>Rana draytonii</i>	FT/—/SSC/—	California red-legged frogs (CRLF) inhabit quiet pools of streams, marshes, and occasionally ponds. Occurs along the Coast Ranges from Mendocino County south and in portions of the Sierra Nevada and Cascades ranges, usually below 3,936 feet in elevation. The species requires permanent or nearly permanent pools for larval development, which takes 11 to 20 weeks. Intermittent streams must retain surface water in pools year-round for frog survival.	Absent	The ESL is located well outside the known range of the CRLF. Therefore, CRLF would not be present. The project will have no effect on California red-legged frog.
Birds				
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT/—/SE/—	The western yellow-billed cuckoo, a subspecies of the yellow-billed cuckoo, inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, which abut slowly flowing watercourses, backwaters, or seeps. Nests typically in sites with at least some willow, dense	Absent	No suitable nesting habitat for the western yellow-billed cuckoo is present within or adjacent to the ESL. The western yellow-billed cuckoo was not observed during the wildlife surveys and is not expected to nest within or adjacent to the ESL.

Common Name/ Scientific Name	Status ¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
		low-level or understory foliage, high humidity, and wooded foraging spaces more than 300 feet in width and 25 acres in area.		
Crustaceans				
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE/—/—/—	Conservancy fairy shrimp are endemic to the grasslands of the northern two-thirds of the Central Valley. They inhabit large, turbid pools, and astatic pools located in swales formed by old, braided alluvium. The pools and swales are filled by winter/spring rains and last until June.	Present	Many vernal pools occur within the ESL and BSA and will be directly impacted by the project. Although this species requires larger pools, with longer hydroperiods that are absent from the project location, because no protocol level surveys were conducted, Caltrans is assuming presence. The project may affect, likely to adversely affect Conservancy fairy shrimp.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/—/—/—	Vernal pool fairy shrimp are endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains. They inhabit astatic rain-filled pools; small, clear-water sandstone-depression pools; or grassed swale, earth slump, or basalt-flow depression pools.	Present	Many vernal pools occur within the ESL and BSA and will be directly impacted by the project. Because no protocol level surveys were conducted, Caltrans is assuming presence. The project may affect, likely to adversely affect vernal pool fairy shrimp.

Common Name/ Scientific Name	Status ¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
California linderiella <i>Linderiella occidentalis</i>	—/—/—/—	Linderiella inhabit seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. They require water in the pools with very low alkalinity, conductivity, and total dissolved solids.	Present	The ESL does contain seasonal pools which are habitat for this species. However, the water quality conditions are not suitable for this species. The project area is highly grazed with abundant cattle waste. This increases the total dissolved solids and affects other water quality characteristics. Therefore, California linderiella is not expected to be present.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE/—/—/—	Vernal pool tadpole shrimp inhabit vernal pools and swales in the Sacramento Valley containing clear to high turbid water. The pools are commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Present	Many vernal pools occur within the ESL and BSA and will be directly impacted by the project. Because no protocol level surveys were conducted, Caltrans is assuming presence. The project may affect, likely to adversely affect vernal pool fairy shrimp.
Fishes				
Green sturgeon <i>Acipenser medirostris</i>	—/FT/SSC/—	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Green sturgeon spawn in the Sacramento, Klamath, and Trinity Rivers. They require spawning temperatures between 8-14 Celsius. The preferred spawning substrate is large cobble but can range from clean sand to bedrock.	Absent	Drainages and sloughs within the ESL do not provide suitable habitat for green sturgeon. The project will have no effect on green sturgeon.

Common Name/ Scientific Name	Status¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
Delta Smelt <i>Hypomesus transpacificus</i>	FT/—/SE/—	Delta smelt occur in the Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay. They are seldom found at salinities > 10 ppt. Most often at salinities < 2ppt.	Absent	The ESL is well outside the reported range of the delta smelt. Therefore, delta smelt would not be present. The project will have no effect on delta smelt.
California Central Valley steelhead trout <i>Oncorhynchus mykiss irideus</i>	—/FT/—/—	Adult steelhead require high flows, with depths of at least 18 cm for passage. They require loose gravels at pool tail-outs for optimal conditions for redd construction and spawning success. Redds are usually built in water depths of 0.1 to 1.5 m, where velocities are between 0.2 and 1.6 m/sec. Optimal incubation temperature for embryos is in the range of 5 to 13° C. Fry and parr require cool, clear, fast-flowing water.	Absent	Drainages and sloughs within the ESL do not provide suitable habitat for California Central Valley steelhead trout. Therefore, steelhead would not be present. The project will have no effect on California Central Valley steelhead trout.
Sacramento River winter-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	—/FE/SE/—	Sacramento River winter-run Chinook salmon spawn almost exclusively in the Sacramento River, and not in tributary streams. Spawning generally occurs in swift, relatively shallow riffles or along the edges of fast runs where there is an abundance of loose gravel. Juveniles may rear in tributaries of the Sacramento River.	Absent	Drainages and sloughs within the ESL do not provide suitable habitat for Sacramento River winter-run Chinook salmon. Therefore, Sacramento River winter-run Chinook salmon would not be present. The project will have no effect on winter-run Chinook salmon.
Central Valley spring-run Chinook salmon	—/FT/ST/—	Central Valley spring-run Chinook salmon enter the Sacramento-San Joaquin Delta in early January and enter natal streams between March	Absent	Drainages and sloughs within the ESL do not provide suitable habitat for Central Valley spring-run Chinook salmon. Therefore, Central Valley spring-run

Common Name/ Scientific Name	Status ¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
<i>Oncorhynchus tshawytscha</i>		and May. Upon entering fresh water, spring-run are sexually immature and must hold in cold water habitats through summer to mature. Typically, Central Valley spring-run Chinook salmon utilize mid- to high-elevation streams that provide sufficient flow, water temperature, cover, and pool depth to allow over-summering. Spawning occurs between September and October.		Chinook salmon would not be present. The project will have no effect on Central Valley spring-run Chinook.
Insects				
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT/—/—/—	Valley elderberry longhorn beetle occurs only in the Central Valley of California, in association with blue elderberry (<i>Sambucus mexicana</i>). It prefers to lay eggs in elderberries 2-8 inches in diameter with some preference shown for "stressed" elderberries.	Absent	The ESL does not contain any suitable habitat as it lacks elderberry shrubs. Therefore, the Valley elderberry longhorn beetle would not be present. The project will have no effect on the Valley elderberry longhorn beetle.
Reptiles				
Giant Gartersnake <i>Thamnophis gigas</i>	FT/—/ST/—	This is the most aquatic of the gartersnakes in California. It prefers freshwater marsh and low gradient streams. It is often found in drainage canals and irrigation ditches.	Absent	The ESL is well outside the known range for giant gartersnake. Additionally, the ESL does not contain suitable habitat for this species because of the lack of low gradient streams and drainages. The giant gartersnake would thus not be

Common Name/ Scientific Name	Status ¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
				present. The project will have no effect on the giant gartersnake.
PLANTS				
Vascular Plants				
Depauperate milk- vetch <i>Astragalus pauperculus</i>	—/—/—/4.3	Depauperate milkvetch inhabits chaparral, cismontane woodland, and valley and foothill grassland. It typically occurs in vernal mesic areas with volcanic substrates. The species is reported between 195 and 3,985 feet in elevation. The flowering period is from March through June.	Absent	The ESL does not have suitable habitat for this species. Depauperate milkvetch was recorded on the adjacent property (Vina Plains) in 1984. There are no current records of the plant occurring. Additionally, the species was not identified during the multiple botanical surveys. Depauperate milk vetch is not expected to be present.
Hoover's spurge <i>Chamaesyce (Euphorbia) hooveri</i>	T/—/—/1B.2	Hoover's spurge inhabits vernal pools on volcanic mudflow or clay substrate. The species is reported between sea level and 500 feet in elevation. The flowering period is from July to September.	Present	The proposed project is in the range for Hoover's spurge and the project location has potential habitat. The closest Calflora observations are from over 2 kilometers away to the south and east in the interior locations of the Vina Plains Preserve. These observations are from the 1980's with low or medium location quality. CNDDDB nearest original observation (Occurrence number 3) is about 1,750 meters southeast of the project site. It was originally observed in 1980. Subsequent surveys have not identified it (last survey was conducted in 1987) but is presumed extant. This annual herb flowers from July to September, typically occurs in vernal

Common Name/ Scientific Name	Status ¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
				pools at elevations less than 250 meters. During focused botanical surveys this species was not observed. Therefore, the proposed action would have no effect on Hoover's spurge.
Adobe lily <i>Fritillaria pluriflora</i>	—/—/—/1B.2	Adobe lily occurs on clay soils and serpentine sites within lower valley and foothill grasslands, chaparral, and cismontane woodlands. The species is reported between 150 and 3,100 feet in elevation. The flowering period is from February through April.	Absent	Suitable habitat for adobe lily is not present within or adjacent to the ESL. The project area lacks foothill grasslands. It has all been converted to grazing land. Adobe lily was recorded north of the project location near Deer Creek in 1969 and more recently in the adjacent lands (Vina Plains) in 1998. It was not observed during the botanical surveys and is not expected to be present.
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	—/—/SE/1B.2	Boggs Lake hedge-hyssop occurs in marshes, swamps, and vernal pools. The species is reported from sea level to 7,800 feet in elevation. The flowering period is April through August.	Absent	Suitable habitat for Boggs Lake hedge-hyssop is not present within or adjacent to the ESL and BSA. It has not been recorded in the area and was not observed during the botanical surveys. Boggs Lake hedge hyssop is not expected to be present.
Hairy Orcutt grass <i>Orcuttia pilosa</i>	FE/—/SE/1B.1	Hairy Orcutt grass occurs in vernal pools within the Central Valley. The species is reported between 100 and 700 feet in elevation. The flowering period is from May through September.	Present	The proposed project is in the range for hairy Orcutt grass. The project area may have potential habitat. The closest Calflora location is about 1.5 kilometers away, from 1986 with a medium location quality. This annual grass blooms from May to September in vernal pools below 200 meters in elevation. Most reliable

Common Name/ Scientific Name	Status ¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
				<p>observations come from the interior of Vina Plains Preserve. CNDDDB nearest original observation (Occurrence number 12) is about 2,775 meters east of the project site. It was originally observed in 1988. It was not observed during the botanical surveys and is not expected to be present. The proposed project will have no effect on hairy Orcutt grass.</p>
<p>Slender Orcutt grass <i>Orcuttia tenuis</i></p>	<p>FT/—/SE/1B.1</p>	<p>Slender Orcutt grass occurs in vernal pools. The species is reported between sea level and 5,800 feet in elevation. The flowering period is from May to September.</p>	<p>Present</p>	<p>The proposed project is in the range for slender Orcutt grass, but the project location does not contain habitat for this species. The closest Calflora observation is over two kilometers from the project site. The record information is from 1987 with medium location quality. Most reliable observations come from interior locations in the Vina Plains Preserve. California Natural Diversity Database (CNDDDB) nearest original observation (Occurrence number 23) is about 1,710 meters southeast of the site. It was originally observed in 1981. Subsequent surveys have not detected it (last survey was 2011) but is presumed extant. It was not observed during the botanical surveys and is not expected to be present. The project will have no effect on slender Orcutt grass.</p>

Common Name/ Scientific Name	Status ¹ USFWS/NMFS/ CDFW/CNPS	General Habitat Description	Habitat Present/ Absent	Potential to Occur Within the ESL
Ahart's paronychia <i>Paronychia ahartii</i>	—/—/—/1B.1	Ahart's paronychia is an annual herb that occurs in vernal pools within valley and foothill grassland and cismontane woodland habitats. This plant is typically found in nearly barren clay of swales and on higher ground around vernal pools from 100 to 1,700 feet in elevation. It also occurs in rocky soils. The flowering period is March through June.	Absent	The ESL does not contain suitable habitat for this species. The ESL lacks barren clay habitat. Ahart's paronychia was recorded on the adjacent property (Vina Plains) in 1988. There are no current records of the plant occurring since. Additionally, the species was not identified during the multiple botanical surveys. Ahart's paronychia is not expected to be present.
Greene's tuctoria <i>Tuctoria greenei</i>	FE/—/R/1B.1	Greene's tuctoria occurs in dry bottoms of vernal pools in open grasslands. The species is reported between 95 and 3510 feet in elevation. The flowering period is from May to July.	Present	The ESL may contain suitable habitat for this species. The proposed project is in the range for Greene's tuctoria. The closest Calflora observation is about 1,500 meters away from 1937 with low location quality. More reliable locations from 1980's occur about 1 kilometer away south east of the project locations in the interior of the Vina Plains Preserve. CNDDDB nearest original observation (Occurrence number 4) is about 1,750 meters southeast of the project site. It was originally observed in 2007. Subsequent surveys have not been conducted but is presumed extant. This annual grass blooms from May through July and is confined to vernal pools below 1,050 meters. During focused botanical surveys this species was not observed. Therefore, the proposed action would have no effect on Greene's tuctoria.

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Appendix F Agency Communications

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From: [Vega, Jacqueline - NRCS, Red Bluff, CA](#)
To: [Doyle, Darrin@DOT](mailto:Doyle_Darrin@DOT)
Cc: [Sunseri, Tony - NRCS, Red Bluff, CA](#)
Subject: RE: South Avenue Safety Project (EA 02-0J010) - Farmland Impact Conversion Forms
Date: Thursday, October 15, 2020 12:29:41 PM
Attachments: [Farmland Classification_EA02-0J010.pdf](#)
[Soil_Report_EA02-0J010.pdf](#)
[NRCS_CPA_106_South_Avenue_Safety_Project_EA02-0J010.pdf](#)

EXTERNAL EMAIL. Links/attachments may not be safe.

Hi Darrin,

Please find attached the NRCS-CPA-106 (See Part II comments).

After evaluating the project area, I noticed that there is no farmland. Farmland Protection Policy Act (FPPA) applies only to Federal assistance and actions that would convert important farmland to nonagricultural uses. In this case, the project area (48.9 acres) is Non-farmland (See farmland classification file attached). Base on that, you are excepted from the FPPA and you can continue your project without any inconvenient.

As additional information, please find attached copy of the Soil report of the project area for your record.

Please let me know if you have any question.

Thank you,
Jacqueline
Jacqueline Vega-Pérez

Area 1 Resource Soil Scientist
USDA/Natural Resources Conservation Service
1345 Main Street
Red Bluff, CA 96080-2347
Office: 530-737-5219
Email: jacqueline.vega@usda.gov

From: Doyle, Darrin@DOT <Darrin.Doyle@dot.ca.gov>
Sent: Thursday, October 15, 2020 7:04 AM
To: Vega, Jacqueline - NRCS, Red Bluff, CA <jacqueline.vega@usda.gov>
Cc: Sunseri, Tony - NRCS, Red Bluff, CA <tony.sunseri@usda.gov>
Subject: RE: South Avenue Safety Project (EA 02-0J010) - Farmland Impact Conversion Forms

Hi Jacqueline,

Shapefiles for environmental study limits (ESL) for the subject project are attached. Let me know if the are not projecting correctly.

Darrin

Darrin Doyle

Associate Environmental Planner
Caltrans, North Region
Office of Environmental Analysis
1031 Butte Street, MS 30
Redding, California 96001
Office: (530) 225-0311
Home Teleworking: (530) 339-1510
darrin.doyle@dot.ca.gov

From: Vega, Jacqueline - NRCS, Red Bluff, CA <jacqueline.vega@usda.gov>
Sent: Thursday, October 15, 2020 6:57 AM
To: Doyle, Darrin@DOT <Darrin.Doyle@dot.ca.gov>
Cc: Sunseri, Tony - NRCS, Red Bluff, CA <tony.sunseri@usda.gov>
Subject: RE: South Avenue Safety Project (EA 02-0J010) - Farmland Impact Conversion Forms

EXTERNAL EMAIL. Links/attachments may not be safe.

Good morning Darrin,

I will be working on your NRCS-CPA-106 request. I received all the document that you submitted. However, there is not a shapefile for the project area and it would be beneficial to have one. If you could send it to me, it would greatly appreciated.

Thank you,

Jacqueline

Jacqueline Vega-Pérez

Area 1 Resource Soil Scientist
USDA/Natural Resources Conservation Service
1345 Main Street
Red Bluff, CA 96080-2347
Office: 530-737-5219
Email: jacqueline.vega@usda.gov

From: Sunseri, Tony - NRCS, Red Bluff, CA <tony.sunseri@usda.gov>
Sent: Tuesday, October 13, 2020 1:12 PM
To: Vega, Jacqueline - NRCS, Red Bluff, CA <jacqueline.vega@usda.gov>
Subject: FW: South Avenue Safety Project (EA 02-0J010) - Farmland Impact Conversion Forms

I think this one is for you.

Tony S

From: Doyle, Darrin@DOT <Darrin.Doyle@dot.ca.gov>
Sent: Wednesday, October 7, 2020 9:52 AM
To: Sunseri, Tony - NRCS, Red Bluff, CA <tony.sunseri@usda.gov>
Subject: South Avenue Safety Project (EA 02-0J010) - Farmland Impact Conversion Forms

Hi Tony,

Attached is the farmland impact conversion form package that I previously submitted to the NRCS on September 15, 2020. It appears as though it was mailed to an old address for the NRCS and so it may not have been received at your current office. Please forward the attached package to the appropriate staff for processing.

Thank you,

Darrin

Darrin Doyle

Associate Environmental Planner
Caltrans, North Region
Office of Environmental Analysis
1031 Butte Street, MS 30
Redding, California 96001
Office: (530) 225-0311
Home Teleworking: (530) 339-1510
darrin.doyle@dot.ca.gov

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STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

GAVIN NEWSOM, Governor

DEPARTMENT OF TRANSPORTATION

NORTH REGION ENVIRONMENTAL
 1031 BUTTE STREET, MS 30
 REDDING, CA 96001
 PHONE (530) 225-0311
www.dot.ca.gov
 TTY 711



Making Conservation
 a California Way of Life.

September 15, 2020

Natural Resources Conservation Service
 Red Bluff Service Center
 2 Sutter Street Suite C
 Red Bluff, CA 96080-4353

Dear Natural Resources Conservation Service:

The California Department of Transportation, using state and federal funding, proposes to reconfigure the existing intersection of SR 99 and South Avenue in Tehama County by replacing the existing minor leg stop-controlled only intersection with a roundabout; the limits of work on State Route 99 are from post mile 4.20 to 4.80. The purpose of the project is to reduce the frequency and severity of collisions by at least 50 percent. The project is needed because there were 17 collisions along this section of roadway between July 1, 2010 and June 30, 2015. A vicinity map showing project area is provided in Figure 1. A project area map is shown in Figure 2.

To accommodate the new roundabout and reconfigured intersection, Caltrans proposes to permanently acquire approximately 2.61 acres of right-of-way from a ~114.16-acre parcel (a conversion of approximately 2.3% of the parcel) identified as Tehama County Assessor's Parcel Number 079-260-008. The parcel is located west of SR 99 and bisected by South Avenue.

The terrain within the parcel is relatively flat and supports an annual grassland with inclusions of vernal pools and swales outside of the roadway and shoulders. The parcel is currently undeveloped. According to the *Tehama County General Plan Update 2009–2029*, zoning within the parcel is designated as "Valley Floor Agriculture" (see attached land use/zoning map). Review of the California Important Farmland Finder found that no farmlands are present within the parcel. Land within the parcel is designated as "Grazing Land" (see attached print-out). The parcel is currently used for livestock grazing and is enrolled under a Williamson Act contract that was established in 1975. A map showing the subject parcel that is enrolled in a Williamson Act contract and right-of-way proposed to be permanently acquired by Caltrans is provided in Figure 3. Because the land is used for livestock grazing, it meets the definition of "Prime Agricultural Land," as defined in Government Code §51201(c).

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

 California Department of Transportation—North Region Environmental

District 1	District 2	District 3
1656 Union Street, Eureka, CA 95501	1657 Riverside Drive, Redding, CA 96001 (DO) 1031 Butte Street, Redding, CA 96001 (W. Venture)	703 B Street, Marysville, CA 95901

Natural Resources Conservation Service
South Avenue Safety Project
September 15, 2020
Page 2

Enclosed is a partially completed Form AD-1006 (Farmland Conversion Impact Rating Form) that addresses the land proposed to be permanently acquired by Caltrans. Caltrans, which has been delegated NEPA duties for this project by the Federal Highway Administration, has completed Part I and Part III. It is our understanding that the NRCS will complete Part II, IV, and V, then return the form to Caltrans. Caltrans will then Complete Part VI and VII and then return the form to the NRCS.

If you have further questions or need additional information, please contact me at darrin.doyle@dot.ca.gov or at (530) 225-0311.

Sincerely,



Darrin Doyle
Environmental Coordinator

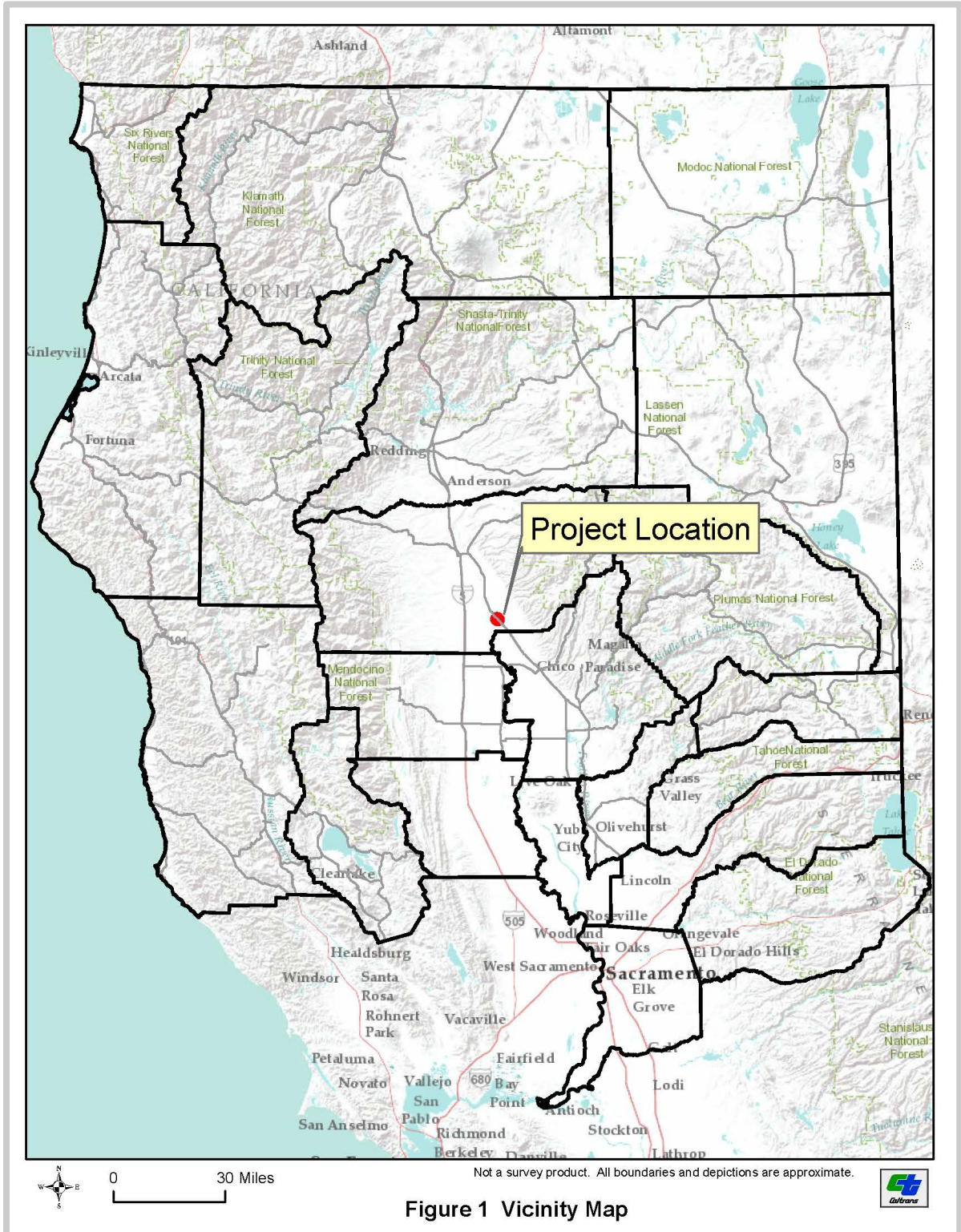
- Enclosures:
1. Figure 1—Vicinity Map
 2. Figure 2—Project Area
 3. Figure 3—Proposed Permanent Acquisition of Right-of-Way
 4. Tehama County Land Use/Zoning Map
 5. California Important Farmland Finder Print-Out
 6. Form AD-1006—Farmland Conversion Impact Rating Form

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

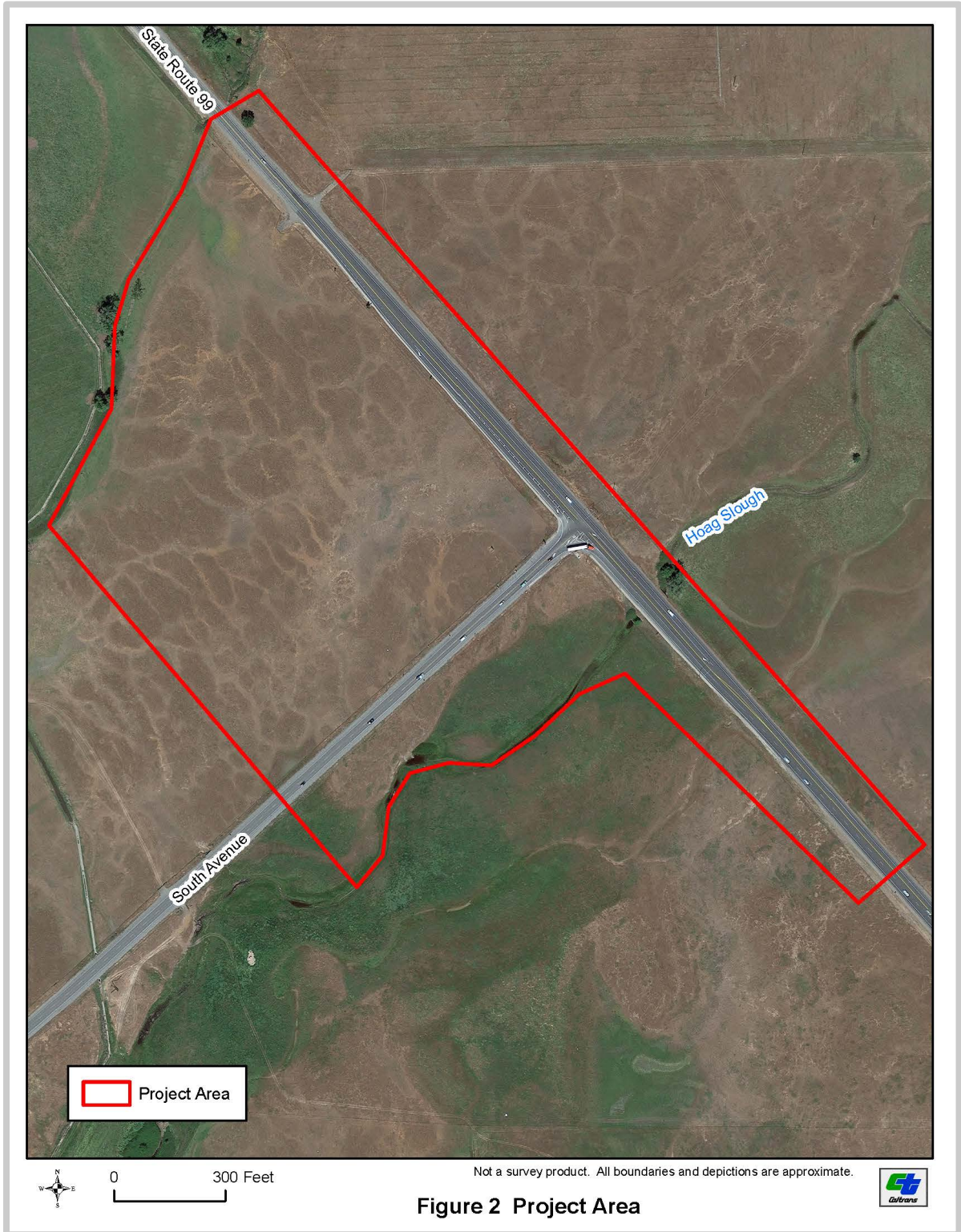
California Department of Transportation—North Region Environmental

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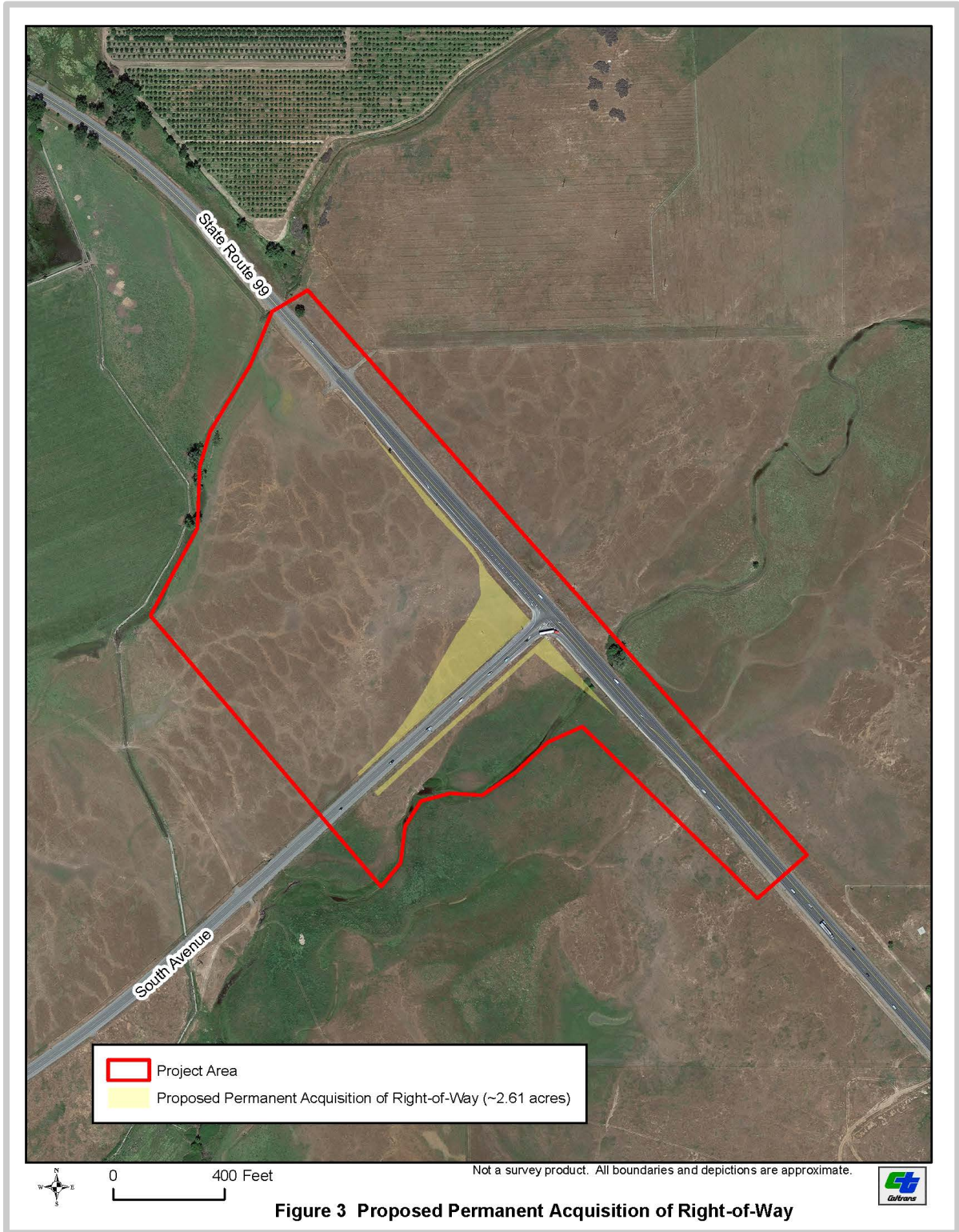
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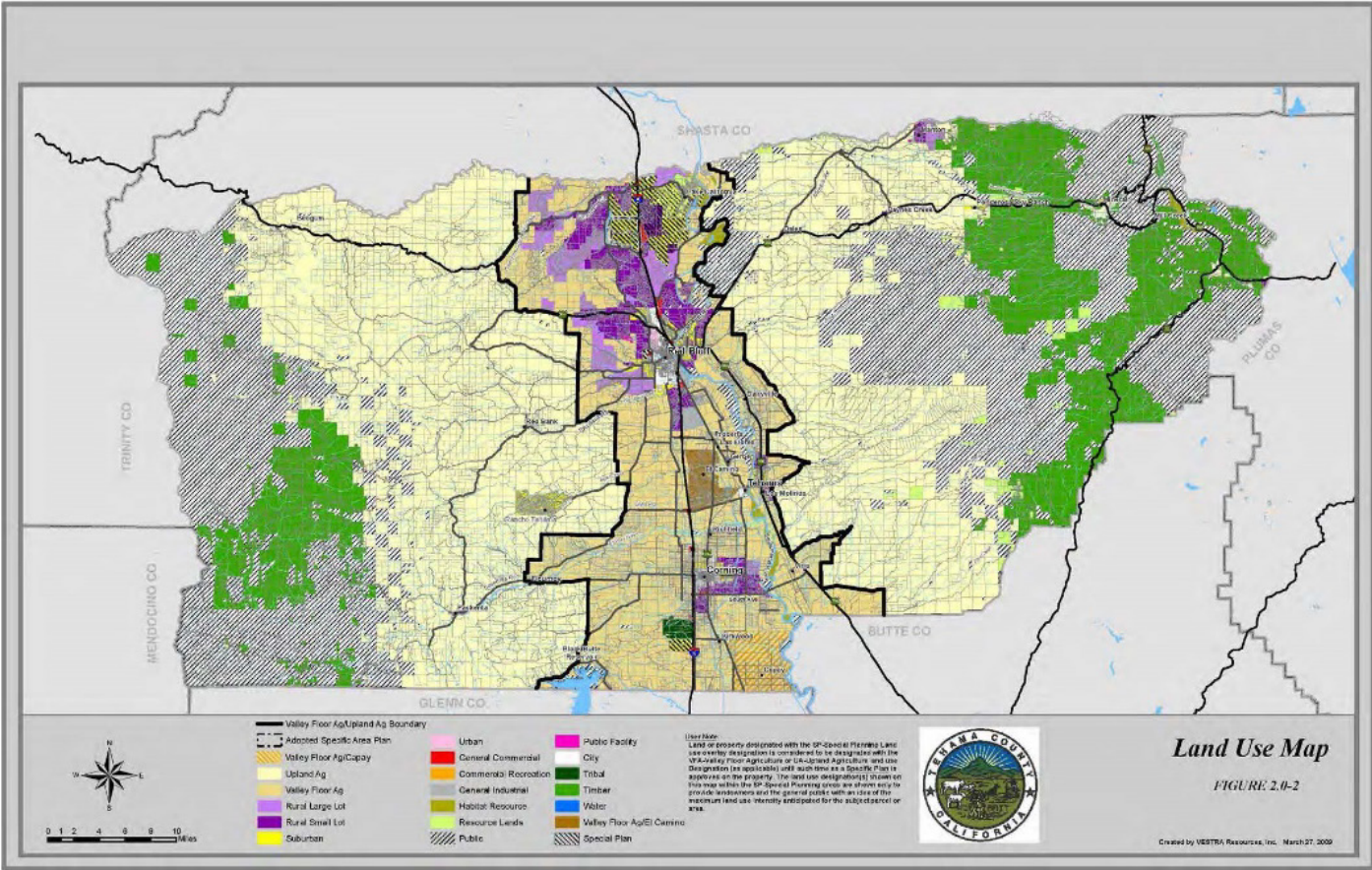


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2.0 LAND USE



Tehama County
March 2009

General Plan
Page 2.0-27

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California Department of Conservation

California Important Farmland Finder

Ca: Legend

Find address or place

0.4km
-173,460.574 214,896.589 Meters

California Important Farmland: Most Recent

Most Recent

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Grazing Land
- Farmland of Local Importance
- Farmland of Local Potential
- Other Land
- Confined Animal Agriculture
- Nonagricultural or Natural Vegetation
- Vacant or Disturbed Land
- Rural Residential Land
- Semi-agricultural and Rural Commercial Land
- Urban and Built-Up Land
- Water Area
- Irrigated Farmland
- Nonirrigated Farmland

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U.S. Department of Agriculture								
FARMLAND CONVERSION IMPACT RATING								
PART I (To be completed by Federal Agency)				Date Of Land Evaluation Request September 15, 2020				
Name of Project South Avenue Safety Project				Federal Agency Involved CA Dept. Transportation (Caltrans)				
Proposed Land Use Realign intersection/Install roundabout				County and State Tehama County, California				
PART II (To be completed by NRCS)				Date Request Received By NRCS 10/13/2020		Person Completing Form: Jacqueline Vega-Perez		
Does the site contain Prime, Unique, Statewide or Local Important Farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form)</i>				YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	Acres Irrigated	Average Farm Size	
Major Crop(s)		Farmable Land In Govt. Jurisdiction Acres: %		Amount of Farmland As Defined in FPPA Acres: %				
Name of Land Evaluation System Used		Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS				
PART III (To be completed by Federal Agency)				Alternative Site Rating				
				Site A	Site B	Site C	Site D	
A. Total Acres To Be Converted Directly				2.61	-	-	-	
B. Total Acres To Be Converted Indirectly				0.00	-	-	-	
C. Total Acres In Site				2.61	-	-	-	
PART IV (To be completed by NRCS) Land Evaluation Information								
A. Total Acres Prime And Unique Farmland								
B. Total Acres Statewide Important or Local Important Farmland								
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted								
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value								
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)								
PART VI (To be completed by Federal Agency) Site Assessment Criteria <i>(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)</i>				Maximum Points	Site A	Site B	Site C	Site D
1. Area In Non-urban Use				(15)				
2. Perimeter In Non-urban Use				(10)				
3. Percent Of Site Being Farmed				(20)				
4. Protection Provided By State and Local Government				(20)				
5. Distance From Urban Built-up Area				(15)				
6. Distance To Urban Support Services				(15)				
7. Size Of Present Farm Unit Compared To Average				(10)				
8. Creation Of Non-farmable Farmland				(10)				
9. Availability Of Farm Support Services				(5)				
10. On-Farm Investments				(20)				
11. Effects Of Conversion On Farm Support Services				(10)				
12. Compatibility With Existing Agricultural Use				(10)				
TOTAL SITE ASSESSMENT POINTS				160	0	0	0	0
PART VII (To be completed by Federal Agency)								
Relative Value Of Farmland (From Part V)				100	0	0	0	0
Total Site Assessment (From Part VI above or local site assessment)				160	0	0	0	0
TOTAL POINTS (Total of above 2 lines)				260	0	0	0	0
Site Selected:		Date Of Selection		Was A Local Site Assessment Used?				
				YES <input type="checkbox"/> NO <input type="checkbox"/>				
Reason For Selection:								
Name of Federal agency representative completing this form:						Date:		
<i>(See Instructions on reverse side)</i>						Form AD-1006 (03-02)		



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846
SFWO_mail@fws.gov



In Reply Refer to:
08ESMF00-2021-F-2446-1

August 31, 2021

Carolyn Sullivan
Chief, Environmental Management, R2
California Department of Transportation, District 2
1031 Butte Street, MS 30
Redding, California 96001
carolyn.sullivan@dot.ca.gov

Subject: Formal Consultation on the South Avenue Safety Improvement Project, Tehama County, California (Caltrans Fed. ID# EA 02-0J010)

Dear Carolyn Sullivan:

This letter is in response to the California Department of Transportation's (Caltrans) February 8, 2021, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed South Avenue Safety Improvement Project (proposed project) in Tehama County, California. Your request was received by the Service on February 8, 2021. At issue are the proposed project's effects on the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*), and the federally endangered vernal pool tadpole shrimp (*Lepidurus packardii*) and conservancy fairy shrimp (*Branchinecta conservation*) (collectively called vernal pool branchiopods). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal action on which we are consulting is the reconfiguration of the existing intersection of State Route 99 and South Avenue by replacing the existing minor leg stop-controlled only intersection with a roundabout. Caltrans has assumed Federal Highway Administration's (FHWA) responsibilities as the lead agency under the Act for this consultation in accordance with Section 1313, Surface Transportation Project Delivery Program, of the Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012. The MAP-21 is described in the National Environmental Policy Act assignment Memorandum of Understanding between FHWA and Caltrans (effective March 30, 2017) and codified in 23 U.S.C 327.

Pursuant to 50 CFR 402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect the vernal pool branchiopods.

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

- 1) Your February 8, 2021, letter requesting initiation of formal consultation and the February 2021, *South Avenue Safety Improvement Project Biological Assessment* (biological assessment), prepared by Caltrans and received by the Service on February 8, 2021;
- 2) Email correspondence between the Service and Caltrans; and
- 3) Other information available to the Service.

Consultation History

June 2, 2020: Conference call between the Service and Caltrans to discuss project effects on listed species and proposed compensation ratios.

February 8, 2021: The Service received the February 8, 2021, letter from Caltrans requesting initiation of formal consultation.

BIOLOGICAL OPINION

Description of the Proposed Action

The proposed project is located in Tehama County, approximately 7 miles south of Los Molinos from 0.3 mile south of South Avenue to 0.6 miles south of Vina Road. Caltrans proposes to reconfigure the existing intersection of State Route 99 (SR 99) and South Avenue by replacing the existing minor leg stop-controlled only intersection with a roundabout. The purpose of the project is to reduce the frequency and severity of collisions by at least 50 percent. The proposed work includes:

- Removal of vegetation
- Placement of temporary stream crossing and gravel pads
- Culvert work
 - Cut-and-cover excavation for culverts
 - Concrete box culvert extension
- Installation of rock slope protection
- Electrical work
- Construct concrete curb/gutter and raised islands
- Construct center island
- New roadway structural section
- Shoulder backing
- Installing guardrail
- Striping
- Erosion control

Construction of the proposed project will disturb approximately 8.8 acres of ground surface and require the excavation of approximately 14,000 cubic yards of soil. Maximum excavation depths are estimated at approximately 2.5 feet deep for the structural section work and approximately 5 feet deep for the culvert work. Earthwork will be balanced onsite thus avoiding the need for borrow or disposal sites. A staging area approximately 100 feet wide and 300 feet long would be located south of South Avenue and west of the intersection of South Avenue and SR 99. The

work will be completed in one construction season and will require approximately 120 working days. Construction of the proposed project will result in 0.44 acre of direct permanent effects to suitable vernal pool branchiopod habitat. Eight vernal marshes and two vernal pools will be permanently affected. No swales or marshes are anticipated to be affected.

Conservation Measures

Caltrans has proposed the following measures to minimize effects on vernal pool branchiopods. The following conservation measures proposed by Caltrans, including all other conservation measures proposed within the biological assessment, are part of the proposed project description and evaluated by the Service in this biological opinion:

- 1) To compensate for direct effects to the vernal pool branchiopods, suitable habitat will be preserved at a ratio of 2:1 and will be created at a ratio of 1:1, as depicted in Table 1. A total of 1.3 acres of vernal pool branchiopod species credits will be purchased at a Service-approved conservation bank with a service area that covers the proposed project.

Table 1. Compensation for Direct Effects to Vernal Pool Branchiopod Habitat

Compensation Type	Impact Acreage	Compensation Ratio	Compensation Acreage to be Purchased
Preservation	0.44 acre	2:1	0.9 acre
Creation	0.44 acre	1:1	0.4 acre
Total Compensation			1.3 acre

- 2) Where habitat for vernal pool branchiopods is present, orange construction fencing or flagging and signs will be installed to ensure that all construction activities are confined.
- 3) Before any work occurs in the proposed project area, including grading and tree removal, Caltrans will retain a Service-approved biologist (familiar with the vernal pool branchiopods) to conduct a mandatory contractor/worker environmental awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid effects to sensitive biological resources (including habitat for federally listed species) adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist will inform all construction personnel about the life history and habitat requirements of federally listed species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of permits. Proof of this instruction will be submitted to the applicants and the Service.
- 4) Ground disturbance within 250 feet of suitable vernal pool branchiopod habitat will be avoided during the rainy season (approximately October 15 through May 15). Partial fill of vernal pool habitats (i.e., permanent effects) will only occur when they are completely dry.

Action Area

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” For the proposed project, the action area encompasses the entire project site, including access and staging areas.

Analytical Framework for the Jeopardy Determination

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

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

Status of the Species

The status of the vernal pool branchiopods have been assessed in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005) (Recovery Plan) and 5-year reviews. For the most recent comprehensive assessment of the range-wide status of the vernal pool fairy shrimp, please refer to the *Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) 5-Year Review: Summary and Evaluation* (Service 2007a). For the most recent comprehensive assessment of the range-wide status of the vernal pool tadpole shrimp, please refer to the *Vernal Pool Tadpole Shrimp (*Lepidurus packardii*) 5-Year Review: Summary and Evaluation* (Service 2007b). For the most recent comprehensive assessment of the range-wide status of the conservancy fairy shrimp, please refer to the *Conservancy Fairy Shrimp (*Branchinecta conservancy*) 5-Year Review: Summary and Evaluation* (Service 2012).

No change in any of the vernal pool branchiopods listing status was recommended in the 5-year reviews. Threats such as the loss of vernal pool habitat primarily due to widespread urbanization were evaluated during the reviews and discussed in the final documents and have continued to act on the vernal pool branchiopods since the 5-year reviews were finalized. The construction of infrastructure associated with urbanization also has contributed greatly to the loss and fragmentation of vernal pool species including the construction of roads. Habitat loss exacerbates the highly fragmented distribution of these species. Direct losses of habitat generally represent an irreversible damage to vernal pools. The alteration and destruction of

habitat disrupts the physical processes conducive to functional vernal pool ecosystems. Vernal pool hydrology may be altered by further changes to the patterns of surface and subsurface flow due to the increase in the runoff associated with infrastructure.

While there have been continued losses of vernal pool habitat throughout the various vernal pool regions identified in the Recovery Plan, including the Northeastern Sacramento Valley Vernal Pool Region where the proposed project is located, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for any of the vernal pool branchiopods.

Environmental Baseline

Environmental baseline refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

The proposed project is located in the Northeastern Sacramento Valley Recovery Unit, as described in the Recovery Plan. The topography of the action area includes rolling grassland interspersed by wet areas. Elevations range from about 214 feet at the streambed of Hoag Slough to 231 feet above mean sea level. SR 99 is around 226 to 227 feet. The proposed action area encompasses SR 99 from about 0.3 miles south of South Avenue to 0.6 miles south of Vina Road, the surrounding right-of-way, and portions of adjacent parcels. Land uses in the action area and the surrounding area are agricultural or protected natural areas.

The proposed project sits within the Big Chico Creek – Sacramento River watershed and drains to the Sacramento River. Hoag Slough, an intermittent stream, is present within that action area. Hoag Slough flows into the Sacramento River over 2 miles downstream of the proposed project. The action area contains 6 swales, 13 vernal marshes, and 3 vernal pools (collectively called vernal pool features or habitats). The vernal marshes and pools are isolated and often lack swales that connect to other areas. The roadway prism is a barrier to overland flow allowing low elevation areas adjacent to the roadway to inundate. Eleven of the 22 vernal pool features are directly adjacent to the roadway prism. Vernal pool habitats away from the roadway lack a barrier that cause water to pool, most of these also lack any depression making them a swale. Most vernal pool habitats have some degree of silt or clay accumulated by erosion from surrounding higher ground.

Nineteen of the 22 vernal habitats occur north of South Avenue and west of SR 99. One occurs between Hoag Slough and South Avenue, and the remaining two are adjacent to the northbound lane of SR 99. No protocol-level surveys for vernal pool branchiopods were conducted within the action area. Vernal pool features within the action area pond water for a sufficient period of time to support the hatching of vernal pool branchiopod eggs; therefore, the action area is reasonably likely to support the vernal pool branchiopods. In addition, the vernal pool features within the action area are adjacent to the Vina Plains Preserve which has numerous recorded occurrences of vernal pool branchiopods. Approximately 0.5 mile east of SR 99, within the Vina

Plains Preserve, is the closest known occurrence within the California Natural Diversity Database (CNDDDB) of the vernal pool branchiopods to the proposed project (CNDDDB 2021). The vernal pools occurring within the action area provide suitable habitat for the vernal pool branchiopods and are in close proximity to other occurrences; therefore, it is likely that the vernal pool branchiopods are present within the action area.

Effects of the Action

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

The proposed project will result in the loss of eight vernal marshes and two vernal pools (10 vernal pool features) totaling 0.44 acre of suitable vernal pool habitat that is reasonably likely to support the vernal pool branchiopods. Any vernal pool branchiopod eggs in the soil will be crushed or removed and thus unable to hatch. This habitat will be permanently modified by construction activities such as grading and the use of earth moving equipment. Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. No indirect effects are expected to occur from the proposed project on any vernal pool features within the action area based on the minimization measures proposed. No construction activities will occur within 250 feet of any vernal pool feature excluding the 10 vernal pool features being filled.

As noted previously in the Description of the Proposed Action section, the project proponent has also proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to offset the effect on the species from the permanent loss of habitat described above. The compensatory habitat proposed will be in the form of purchasing vernal pool branchiopod species preservation and creation credits (acres) at a Service-approved vernal pool conservation bank.

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

Cumulative Effects

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

Conclusion

After reviewing the current status of the vernal pool branchiopods, the environmental baseline for the action area, the effects of the proposed South Avenue Safety Improvement Project, and the cumulative effects, it is the Service's biological opinion that the South Avenue Safety Improvement Project, as proposed, is not likely to jeopardize the continued existence of the vernal pool branchiopods. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. The acreage of habitat that will be affected by the proposed project represents a very small portion of habitat available in the Northeastern Sacramento Valley Vernal Pool Region. In addition, the compensatory habitat proposed will ensure that habitat for the vernal pool branchiopods will be protected and managed in perpetuity.

INCIDENTAL TAKE STATEMENT

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

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

Amount or Extent of Take

The Service anticipates that incidental take of the vernal pool branchiopods will be difficult to detect due to the fact that it is not possible to know how many eggs are in the soil of any wetland feature. Incidental take of the vernal pool branchiopods in the form of harm due to injury or death will result from the excavation and permanent modification of the 10 vernal pool features, for a total of 0.44 acre of suitable vernal pool branchiopod habitat. The life stage affected by this action will be the vernal pool branchiopod's eggs, which are embedded in the soil and are

difficult to detect without a detailed microscopic analysis. Therefore, due to the fact that it is not possible to know how many eggs are in the soil of any feature, or how many eggs will occupy any feature later in time, the Service cannot quantify the total number of vernal pool branchiopod eggs that we anticipate will be taken as a result of the proposed project. In instances in which the total number of eggs anticipated to be taken cannot be determined, the Service may use the acreage of habitat impacted as a surrogate for the take of eggs. Therefore, the Service anticipates take incidental to the construction of the proposed project as the 0.44 acre of suitable vernal pool branchiopod habitat that will be filled due to proposed project construction activities.

Upon implementation of the following reasonable and prudent measure, incidental take of vernal pool branchiopod eggs associated with the South Avenue Safety Improvement Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

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

Reasonable and Prudent Measures

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

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

Terms and Conditions

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

- 1) Caltrans will include full implementation and adherence to the conservation measures as a condition of any permit or contract issued for the project.
- 2) Prior to construction, Caltrans will provide a copy of the completed bill of sale and payment receipt to the Service upon the applicant's purchase of vernal pool branchiopod species preservation and creation credits at a Service-approved vernal pool conservation bank.
- 3) In order to monitor whether the amount or extent of incidental take anticipated from implementation of the proposed project is approached or exceeded, Caltrans will adhere to the following reporting requirement. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must immediately reinstate formal consultation, as per 50 CFR §402.16.

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

CONSERVATION RECOMMENDATIONS

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

- 1) Caltrans should work with the Service to assist us in meeting the goals of the Recovery Plan for the vernal pool branchiopods as outlined in the December 2005, Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (Service 2005).

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

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the South Avenue Safety Improvement Project. As provided in 50 CFR §402.16(a), reinitiation of consultation is required and shall be requested by the federal agency or by the Service where discretionary federal involvement or control over the action has been retained or is authorized by law, and:

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

If you have any questions regarding this biological opinion, please contact Adam Stewart, Senior Fish and Wildlife Biologist (adam_stewart@fws.gov) or Michelle Havens, Sacramento Valley Division Supervisor (michelle_havens@fws.gov), at the letterhead address, or at (916) 414-6600

Sincerely,

Michael Fris
Field Supervisor

LITERATURE CITED

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STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

Gavin Newsom, Governor

DEPARTMENT OF TRANSPORTATION

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*Making Conservation
a California Way of Life.*

February 8, 2021

Mr. Adam Stewart
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

Dear Mr. Stewart:

The California Department of Transportation, using state and federal funding, proposes to reconfigure the existing intersection of State Route (SR) 99 and South Avenue in Tehama County by replacing the existing minor leg stop-controlled only intersection with a roundabout; the limits of work on State Route 99 are from post mile 4.20 to 4.80. The purpose of the project is to reduce the frequency and severity of collisions by at least 50 percent. The project is needed because there were 17 collisions along this section of roadway between July 1, 2010 and June 30, 2015.

Enclosed for your review is a copy of a Biological Assessment (BA) to initiate formal consultation for the following species:

- Conservancy fairy shrimp (*Branchinecta conservatio*) – Endangered.
- Vernal pool fairy shrimp (*Branchinecta lynchi*) – Threatened.
- Vernal pool tadpole shrimp (*Lepidurus packardi*) – Endangered.

This project **may affect, likely adversely affect** the above species. The project will have **no effect** on critical habitat for the above listed species, because the project does not fall in the Designated Critical Habitat for any of those species.

Sincerely,

Carolyn Sullivan

Carolyn Sullivan
Chief, Environmental Management, R2

Enclosure:
South Avenue Safety Improvement Biological Assessment

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

South Avenue Safety Improvement Project



Biological Assessment

In Tehama County about 7 miles south of Los Molinos
from 0.3 mile south of South Avenue to 0.6 miles
south of Vina Road

02-TEH-99-PM 4.2/4.8

EA 02-0J010 / E-FIS 02 1900 0044

Consultation Code: 08ESMF00-2020-SLI-0251

February 2021

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



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Biological Assessment

In Tehama County about 7 miles south of Los Molinos from 0.3 mile south of South Avenue to 0.6 miles south of Vina Road

02-TEH-99-PM 4.2/4.8

EA 02-0J010 / E-FIS 02 1900 0044

Consultation Code: 08ESMF00-2020-SLI-0251

February 2021

STATE OF CALIFORNIA
Department of Transportation

Prepared By: Eric L. Rulison Date: February 8, 2021
Eric L. Rulison, Associate Environmental Planner, NS
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Approved By: Carolyn Sullivan Date: 2/8/21
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District 2/ North Region

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Carolyn Sullivan, Office of Environmental Management, North Region – Redding, 1031 Butte Street, Redding, CA 96001; (530) 218-8940 Voice, or use the California Relay Service TTY number, (530) 225-2019.

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List of Abbreviated Terms

AA	Action area
BA	Biological assessment
BMP	Best management practices
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CWA	Clean Water Act
ESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
MPH	Miles per hour
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
ROW	right-of-way
RSP	Rock slope protection
RWQCB	Regional Water Control Board
SR	State Route
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VPA	Vernal pool associates
VPI	Vernal pool indicators

Executive Summary

The purpose of this biological assessment is to provide technical information and to review the proposed project in sufficient detail to determine to what extent the proposed project potentially may affect threatened, endangered, or proposed species. The California Department of Transportation, as assigned by the Federal Highway Administration, has prepared this biological assessment under its assumption of responsibility at 23 United States Code 326 or 23 USC 327. The biological assessment is also prepared in accordance with 50 Code of Federal Regulations 402, legal requirements found in section 7 (a)(2) of the federal Endangered Species Act (16 United States Code 1536(c)), and with Federal Highway Administration and California Department of Transportation regulations, policy and guidance. The document presents technical information upon which later decisions regarding project effects are developed.

California Department of Transportation proposes to reconfigure the existing intersection of State Route 99 and South Avenue in Tehama County by replacing the existing minor leg stop-controlled only intersection with a roundabout. The limits of work on State Route 99 are from post mile 4.20 to 4.80. The purpose of the project is to reduce the frequency and severity of collisions by at least 50 percent. The project is needed because there were 17 collisions along this section of roadway between July 1, 2010 and June 30, 2015.

An official species list was provided by United States Fish and Wildlife Service for the project area. The following federal species were listed to potentially occur.

- Slender orcutt grass (*Orcuttia tenuis*) – Threatened
- Hairy orcutt grass (*Orcuttia pilosa*) – Endangered
- Greene’s tuctoria (*Tuctoria greenei*) – Endangered
- Hoover’s spurge (*Chamaesyce hooveri*) – Threatened
- Conservancy fairy shrimp (*Branchinecta conservatio*) – Endangered
- Vernal pool fairy shrimp (*Branchinecta lynchi*) – Threatened
- Vernal pool tadpole shrimp (*Lepidurus packardii*) – Endangered
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) – Threatened
- Delta smelt (*Hypomesus transpacificus*) – Threatened
- California red-legged frog (*Rana draytonii*) – Threatened
- Giant gartersnake (*Thamnophis gigas*) – Threatened
- Yellow-billed cuckoo (Western U.S. DPS) (*Coccyzus americanus*) – Threatened

A thorough review was conducted for the species listed above to more accurately determine the potential for each species to occur within the action area. Based on this review, vernal pool fairy shrimp, vernal pool tadpole shrimp, and conservancy fairy shrimp (collectively called brachiopods) have the potential to occur and will be evaluated in this biological assessment.

The action area is the area that may be directly or indirectly affected by the proposed project. The initial action area consists of the project area work limits and a 250-foot area extending from those limits to areas where vernal habitats are present. An additional area of

250-feet from impacted vernal habitats was included for the assessment of indirect effects of potentially altering hydrologically connected vernal habitats.

The proposed project will cause direct and indirect effects to vernal brachiopods. Direct effects include injury and mortality of cysts as a result of loss of habitat. Vernal habitat will be filled to accommodate the proposed project. Indirect impacts may occur from increased human and vehicular activity in dry pools during construction. Additionally, hydrological impacts to the remaining vernal habitats was evaluated. However, no indirect impacts to pools outside those being directly and indirectly impacted will occur because of the topography of the proposed location. The above potential detrimental effects will be avoided or minimized through conservation measures listed in section 4.6.

Approximately 0.32 acres of vernal pool habitat would be permanently impacted (filled) because of the proposed project. Approximately 0.12 acres of temporary impacts to vernal pool habitat would be caused by vehicle traffic and human traffic on dry habitats and hydrologic impacts of the remaining directly impacted habitats. Because the direct and indirect impacts are occurring in the same habitat, with no connectivity to other downgradient habitats, compensation for 0.44 acres of brachiopod habitat will occur. Because a total of 0.44 direct and indirect impacts are anticipated, 0.9 preservation credits will be compensated at the Caltrans owned Cottonwoods Conservation Area (USFWS approved). Additionally, Caltrans will purchase 0.4 creation credits from the 530-acre Meridian Ranch Mitigation Bank (USACE and USFWS approved).

It has been determined that the proposed project *may affect, likely to adversely affect*, vernal pool fairy shrimp, vernal pool tadpole shrimp, and conservancy fairy shrimp. The project will have *no effect* on critical habitat for these species.

Chapter 1. Introduction

1.1. Purpose and Need of the Proposed Action

The California Department of Transportation (Caltrans), using state and federal funding, proposes to reconfigure the existing intersection of State Route (SR) 99 and South Avenue in Tehama County by replacing the existing minor leg stop-controlled only intersection with a roundabout; the limits of work on SR 99 are from post mile 4.2 to 4.8. The purpose of the project is to reduce the frequency and severity of collisions by at least 50 percent. The project is needed because there were 17 collisions along this section of roadway between July 1, 2010 and June 30, 2015.

1.2. Species and Critical Habitats Assessed

A species list was provided by U.S. Fish and Wildlife Service (USFWS) on October 31, 2019 (Sacramento Office: Consultation Code 08ESMF00-2020-SLI-0251, Event Code 08ESMF00-2020-E-00702) and updated on June 10, 2020 and January 27, 2021 for the action area (AA) of this project (see Appendix 1). The following listed and proposed species and/or designated critical habitats were identified on the updated federal species list and are considered during this analysis (Table 1):

1.2.1 Threatened and Endangered Species

Slender orcutt grass (*Orcuttia tenuis*) – Threatened.
Hairy orcutt grass (*Orcuttia pilosa*) – Endangered.
Greene’s tuctoria (*Tuctoria greenei*) – Endangered.
Hoover’s spurge (*Chamaesyce hooveri*) – Threatened.
Conservancy fairy shrimp (*Branchinecta conservatio*) – Endangered.
Vernal pool fairy shrimp (*Branchinecta lynchi*) – Threatened.
Vernal pool tadpole shrimp (*Lepidurus packardii*) – Endangered.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) – Threatened.
Delta smelt (*Hypomesus transpacificus*) – Threatened.
California red-legged frog (*Rana draytonii*) – Threatened.
Giant gartersnake (*Thamnophis gigas*) – Threatened.
Yellow-billed cuckoo (Western U.S. DPS) (*Coccyzus americanus*) – Threatened.

1.2.2 Critical Habitat

Critical habitat is defined in Section 3(5)A of the Endangered Species Act (ESA) as the specific areas within the geographical area occupied by a species on which are found physical or biological features essential to the conservation of the species and that may require special management considerations or protection (15 USC 1632A).

The official species list did not identify designated critical habitat for any federally listed species within the AA (U.S. Fish and Wildlife Service 2003). Accordingly, critical habitat is not discussed further in this BA.

Table 1. Effect Determinations for Federally Listed Species

Common Name	Scientific Name	Status	Effect Determination	Rationale
Slender Orcutt grass	<i>Orcuttia tenuis</i>	Threatened	No effect	During multiple surveys, this species was not observed in the project area.
Hairy Orcutt grass	<i>Orcuttia pilosa</i>	Endangered	No effect	During multiple surveys, this species was not observed in the project area.
Greene's tuctoria	<i>Tuctoria greenei</i>	Endangered	No effect	During multiple surveys, this species was not observed in the project area.
Hoover's spurge	<i>Chamaesyce hooveri</i>	Threatened	No effect	During multiple surveys, this species was not observed in the AA.
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Threatened	Likely to adversely affect	Suitable habitat may be present and they are known to occur in the general vicinity. Therefore, presence is assumed. Habitat loss will occur.
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	Endangered	Likely to adversely affect	Suitable habitat may be present. They are known to occur in the general vicinity. Therefore, presence is assumed. Habitat loss will occur.
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Endangered	Likely to adversely affect	Suitable habitat may be present. They are known to occur in the general vicinity. Therefore, presence is assumed. Habitat loss will occur.
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Threatened	No effect	No elderberry shrubs were present in the AA.
Delta smelt	<i>Hypomesus transpacificus</i>	Threatened	No effect	The two ephemeral drainages in the AA do not provide habitat or adequate connection to the Sacramento River.
California red- legged frog	<i>Rana draytonii</i>	Threatened	No effect	Considered extirpated from the valley floor (U.S. Fish and Wildlife Service 2002).
Giant gartersnake	<i>Thamnophis gigas</i>	Threatened	No effect	No suitable habitat in the AA. distribution does not extend north into the AA.
Western yellow- billed cuckoo	<i>Coccyzus americanus</i>	Threatened	No effect	No suitable habitat (wide, dense riparian forest) in the AA.

1.2.3 Species Eliminated from Consultation

Slender Orcutt Grass (Orcuttia tenuis)

The proposed project is in the range for slender Orcutt grass. The closest California observation is over two kilometers from the project site. The record information is from 1987 with medium location quality. Most reliable observations come from more central lands in the Vina Plains. California Natural Diversity Database (CNDDDB) nearest original observation (Occurrence number 23) is about 1,710 meters southeast of the site. It was originally observed in 1981. Subsequent surveys have not detected it (last survey was 2011) but is

presumed extant. This annual grass blooms from May to October and is confined to vernal pools between 200 and 1,100 meters. This plant typically occurs in deeper pools with long hydro periods compared to the pools at this location. This is because they germinate later in the season and bloom during mid to late summer. During focused botanical surveys this species was not observed. As such, the proposed action would have no effect on slender Orcutt grass; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

Hairy Orcutt Grass (Orcuttia pilosa)

The proposed project is in the range for hairy Orcutt grass. The closest Calflora location is about 1.5 kilometers away, from 1986 with a medium location quality. This annual grass blooms from May to September in vernal pools below 200 meters in elevation. Most reliable observations come from more central lands in the Vina Plains. CNDDDB nearest original observation (Occurrence number 12) is about 2,775 meters east of the project site. It was originally observed in 1988. Subsequent surveys have not been conducted but is presumed extant. During focused botanical surveys this species was not observed. As such, the proposed action would have no effect on hairy Orcutt grass; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

Greene's Tuctoria (Tuctoria greenei)

The proposed project is in the range for Greene's tuctoria. The closest Calflora observation is about 1,500 meters away from 1937 with low location quality. More reliable locations from 1980's occur about 1 kilometer away south east of the project locations in more central lands of the Vina Plains. CNDDDB nearest original observation (Occurrence number 4) is about 1,750 meters southeast of the project site. It was originally observed in 2007. Subsequent surveys have not been conducted but is presumed extant. This annual grass blooms from May through July and is confined to vernal pools below 1,050 meters. During focused botanical surveys this species was not observed. As such, the proposed action would have no effect on Greene's tuctoria; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

Hoover's Spurge (Chamaesyce hooveri)

The proposed project is in the range for Hoover's spurge. The closest Calflora observations are from over 2 kilometers away to the south and east in the central lands of the Vina Plains. These observations come from the 1980's with low or medium location quality. CNDDDB nearest original observation (Occurrence number 3) is about 1,750 meters southeast of the project site. It was originally observed in 1980. Subsequent surveys have not identified it (last was conducted in 1987) but is presumed extant. This annual herb flowers from July to September, typically occurs in vernal pools at elevations less than 250 meters. During focused botanical surveys this species was not observed. As such, the proposed action would have no effect on Hoover's spurge; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

Delta Smelt (Hypomesus transpacificus)

The proposed project is outside of the range of Delta smelt. This species is an euryhaline species, spending much of its life inhabiting bays, tidal rivers, channels, and sloughs where zooplankton populations are dense. As such, the proposed action would have no effect on

delta smelt; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)

The AA is in the range of the valley elderberry longhorn beetle. However, its host plant (elderberry species; *Sambucus* spp.) does not occur in the AA, and because this beetle is nearly always found on or close to its host plant the beetle will not be affected. Because there is no suitable habitat in the AA, the proposed action would have no effect on valley elderberry longhorn beetle; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

California Red-legged Frog (Rana draytonii)

The AA is not located within the current known range of California red-legged frog (USFWS 2002) and is not expected to occur in the AA because it is considered extirpated from the valley floor (USFWS 2002). Because California red-legged frog would not occur in or near the AA, there would be no potential for effects on California red-legged frog from the proposed action. The proposed action would have no effect on California red-legged frog; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

Giant Gartersnake (Thamnophis gigas)

The AA is not located within the current known range of giant gartersnake and is not expected to occur in the AA. The northern limit of its predicted range is over 10 miles south of the project areas (CNDDDB giant gartersnake range -CWHR R079). The closest extant observation in CNDDDB (Occurrence number 235) is 27,800 meters (17.3 miles) western south the of AA. Because giant gartersnake would not occur in or near the AA, there would be no potential for effects from the proposed action. The proposed action would have no effect on giant gartersnake; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

Western Yellow-billed Cuckoo (Coccyzus americanus)

The AA is in the range of the western yellow-billed cuckoo. The closet observation is adjacent to the Sacramento River in 1988 over 4,000 meters west of the AA. The Sacramento River has areas of dense riparian forest that are a minimum of 300 feet wide that provide suitable habitat for western yellow-billed cuckoo. Dense riparian forest habitat is absent in the AA. Because there is no suitable habitat in the AA, the proposed action would have no effect on western yellow-billed cuckoo; no further evaluation is needed, and there is no need for consultation on this species (50 CFR 402.12).

1.2.4 Species Requiring Consultation

Of the 12 federally listed species considered for inclusion in this BA, three species (vernal pool fairy shrimp, vernal pool tadpole shrimp, and conservancy fairy shrimp (together termed vernal pool brachiopods)) are known or have the potential to occur in the AA and may be affected by the proposed action; accordingly, these species are the subject of this BA.

Vernal pool fairy shrimp (Branchinecta lynchi)

Construction of the proposed action would result in direct permanent and temporary effects on vernal pools and seasonal wetlands that provide suitable habitat for vernal pool fairy

shrimp, including the burial or removal of resting cysts. Indirect effects (changes in hydrology and degradation of habitat) may also affect vernal pool fairy shrimp and its habitat. Therefore, the proposed action is likely to adversely affect vernal pool fairy shrimp.

Vernal pool tadpole shrimp (Lepidurus packardii)

Construction of the proposed action would result in direct permanent and temporary effects on vernal pools and seasonal wetlands that provide suitable habitat for vernal pool tadpole shrimp, including the burial or removal of resting cysts. Indirect effects (changes in hydrology and degradation of habitat) may also affect vernal pool tadpole shrimp and its habitat. Therefore, the proposed action is likely to adversely affect vernal pool tadpole shrimp.

Conservancy fairy shrimp (Branchinecta conservatio)

Construction of the proposed action would result in direct permanent and temporary effects on vernal pools and seasonal wetlands that provide suitable habitat for vernal pool fairy shrimp, including the burial or removal of resting cysts. Indirect effects (changes in hydrology and degradation of habitat) may also affect vernal pool fairy shrimp and its habitat. Therefore, the proposed action is likely to adversely affect Conservancy fairy shrimp.

1.3. Authorities and Discretion

The proposed action is subject to state and federal environmental review requirements because of the proposed use of federal funds from the Federal Highway Administration (FHWA).

Accordingly, project documentation is being prepared in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Caltrans is the lead agency under NEPA. Other public agencies whose secondary approvals may also be required (e.g., permits, financing approval, or participation agreement) are the USFWS, California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), and U.S. Army Corps of Engineers (USACE). A description of the federal, state, and local authorities' policies and ordinances affecting the proposed action are included below:

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, and subsequent amendments, provides regulations for the conservation of endangered and threatened species and the ecosystems on which they depend. The USFWS (with jurisdiction over plants, wildlife, and resident fish) and the National Marine Fisheries Service (NMFS) (with jurisdiction over anadromous fish and marine fish and mammals) oversee the ESA. Section 7 of the ESA mandates all federal agencies to consult with USFWS and NMFS if they determine that a proposed project may affect a listed species or destroy or adversely modify designated critical habitat. Section 7 requirements do not apply to nonfederal actions. Federal funding from FHWA would be used for construction of the proposed action. Consequently, consultation under Section 7 for effects on federally listed species is required. Under Section 7, the federal lead agency must obtain incidental take authorization or a letter of concurrence stating that the proposed action is not likely to adversely affect federally listed species.

Section 9 of the ESA prohibits the take of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species' recovery. Take is defined as any action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule has been defined regarding take at the time of listing. Under Section 9 of the ESA, the take prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the unlawful removal and possession, or malicious damage or destruction, of any endangered plant from or on federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species proposed for or under petition for listing receive no protection under Section 9.

California Endangered Species Act

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Section 2081 of the California Endangered Species Act (CESA) prohibits the "take" of any State-listed threatened and endangered species. CESA defines take as "any action or attempt to hunt, pursue, catch, capture, or kill any listed species. If the proposed project would result in a take of a State-listed species, an Incidental Take Permit pursuant to Section 2081(b) of CESA would be required. Those permits are issued by CDFW regional offices.

Clean Water Act, Sections 401 and 404

The Clean Water Act (CWA) is a federal law that protects the chemical, physical, and biological integrity of the nation's waters by preventing pollutants, providing assistance for the improvement of wastewater treatment, and maintaining the integrity of wetlands. The Environmental Protection Agency defines the CWA as a law that "...establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters." The State of California regulates water quality related to discharge of fill material into waters of the State pursuant to Section 401 of the CWA. The local RWQCB has jurisdiction over all those areas defined as jurisdictional under Section 404 of the CWA and regulates water quality for all waters of the State. The USACE, under Section 404 of the CWA, regulates discharges of dredged or fill material in "waters of the United States." In addition to designated and traditional navigable waters, this term includes "waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: 1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or 2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or 3) Which are used or could be used for industrial purpose by industries in interstate commerce." Tributaries to "waters of the United States" and adjacent wetlands would also be included [33 CFR §328.3].

Lake or Streambed Alteration Agreements

The CDFW is authorized under State Fish and Wildlife Code Sections 1600-1607 to develop mitigation measures and enter into a Lake or Streambed Alteration Agreements with applicants (both public and private) that propose a project that would divert or obstruct the natural flow of or change the bed, channel, or bank of any lake or stream in which there is a

fish or wildlife resource. Through this agreement, the CDFW may impose conditions to limit and fully mitigate impacts on fish and wildlife resources.

1.4. Consultation History

Pursuant to ESA, Caltrans must consult with USFWS regarding any proposed action that may affect a federally listed species. Following is a summary of communications with USFWS for the proposed action.

- June 2, 2020—Caltrans biologists Eric Rulison and Robert Meade conducted a phone call meeting with USFWS representative Adam Stewart, to discuss the project and ask for a site visit. However, with the current pandemic a site visit was not allowed. Guidance and assistance were provided.
- August 2020 – Caltrans biologist Eric Rulison conducted a phone call meeting with USFWS representative Adam Stewart to discuss the level of consultation needed for geotechnical boring on the site.
- October 2020 – Caltrans Biologist notified USFWS representative Adam Stewart that Consultation for geotechnical driving would not be needed.
- January 2021 – Caltrans Biologist notified USFWS representative Adam Stewart that a draft Biological assessment has been completed and it is in internal review.

1.5. Resource Agency Coordination and Professional Contacts

Caltrans has begun coordination with CDFW on the proposed action and does not anticipate having to apply for an incidental take permit for CESA compliance. A field visit and discussion of the project have occurred.

Caltrans has notified the USACE about the impacts and discussed mitigation areas.

1.6. Study Methods

Potential biological resource issues associated with the proposed action were identified through review of existing information and field surveys. Information obtained from the following surveys was used to identify habitat for, and assess potential effects on, federally listed species in the AA.

- General habitat evaluation to determine whether suitable habitat exists for federally listed species.
- Botanical field surveys to map land cover types and survey for special-status plant species.
- Delineation of waters of the United States and waters of the State.
- Focused surveys to assess the potential direct and indirect effects of the proposed action on vernal pool branchiopod habitat.

Prior to conducting fieldwork, biologists reviewed existing resource information related to the proposed action to evaluate whether federally listed species or their habitats could occur in the AA. The sources listed below were reviewed.

- California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California records search of the Vina U.S. Geological Survey (USGS) 7.5-minute quadrangle.
- California Natural Diversity Database (CNDDDB) records search.
- USFWS’s list of endangered and threatened species that may occur in or be affected by the proposed project.
- Lists of plants identified as noxious weeds or invasive plants by the U.S. Department of Agriculture, the California Department of Food and Agriculture, and the California Invasive Plant Council.
- Soil map unit descriptions for the project area.

1.6.1. Personnel and Survey Dates

Caltrans biologists conducted biological surveys in the project area from 2020 to 2021 (Table 2).

Table 2. Biological Survey Personnel and Dates

Survey Type	Survey Date	Surveyors
Natural communities mapping, general botanical and animal surveys, and habitat-based assessment for special-status plants and animals	May 6, 2020	Eric Rulison
Focused Botanical Surveys	May 15, 2020	Emily Henderson, Mikayla Loucks, Eric Rulison
Delineation of waters of the United States and waters of the State	May 19, 2020	Rob Meade, Brendan Barney, Eric Rulison
Additional Wetland Delineations	May 27, 2020	Eric Rulison
Focused Botanical Surveys	July 8, 2020	Eric Rulison, Emily Henderson
Wetland Delineation/verification of dry season delineation	January 5, 2021	Eric Rulison, Rob Meade
Wildlife/vernal pool investigations	January 20, 2021	Eric Rulison

Methods of the natural communities mapping, botanical surveys, habitat-based assessment for special-status species, and delineation of waters of the United States, including wetlands, are described below.

1.6.1.1 Natural Communities Mapping, Botanical Surveys, and Habitat-Based Assessment for Special-Status Plants

Natural communities in the project area were identified and mapped during the 2020 field surveys. Caltrans biologists Eric L. Rulison, Mikala Loucks, and Emily Henderson conducted botanical surveys in the project area on May 15, 2020. The survey time coincided with the identification periods of special-status plants with potential to occur in the project region. The biologists walked the project area and compiled lists of plant species observed. More time was devoted to searching vernal pools. A follow-up focused botanical survey was conducted on July 8, 2020 to identify summer blooming plants. The above method was followed.

1.6.1.2 Habitat-Based Assessment for Special-Status Animals

Caltrans Biologists conducted a reconnaissance-level field survey of the project area on May 6, 2020. This survey focused on evaluating biological communities in the project area and determining their suitability for special-status animal species. Biologists walked portions of the project area, making notes on the types and suitability of habitat present, and recording any wildlife species observed. The assessment for presence of special-status fish was based on information collected during the field survey, examination of topographic maps, and aerial photographs. Each subsequent field visit added information and observations of animal species.

1.6.1.3 Focused Survey to Assess Impacts on Vernal Pool Branchiopod Habitat

Caltrans biologists conducted a focused survey to assess the potential direct and indirect effects of the proposed action on suitable vernal pool branchiopod habitat in and adjacent to the project area. The biologists walked where areas of suitable habitat were present and evaluated how the existing topography and/or changes resulting from the proposed action may impact suitable branchiopod habitat. No habitat was inundated at the time of surveys, but vernal pool branchiopods are assumed present based on proximity to Vina Plains.

1.6.1.4 Delineation of Waters of the United States

Caltrans biologists Eric L. Rulison, Brendan Barney, and Robert Meade conducted delineation field work in the project area on May 19, 2020. Further delineations by Eric L. Rulison occurred on May 27, 2020. A final delineation and verification of summer season delineations was made on January 5, 2021 by Eric Rulison and Rob Meade. During the previous winter 9.58 inches of rain fell. To check the delineation, Rob Meade and Eric Rulison revisited the site on January 5, 2021. Up to that date, 4.24 inches of rain had fallen.

Delineations was conducted using the routine onsite determination method described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental procedures and wetland indicators provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008).

Other waters of the United States were mapped and delineated in the field in accordance with indicators and guidance in USACE Regulatory Guidance Letter No. 05-05, dated

December 7, 2005 (U.S. Army Corps of Engineers 2005), and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region* (Lichvar and McColley 2008).

1.6.2. Limitations and Assumptions that may Influence Results

The potential presence of special-status wildlife that were not observed during surveys were evaluated based on desktop review of historical data and required habitat characteristics. Additionally, it is often the case that historical data is the only available information regarding occurrence. Historic data is useful for assessing whether a site is/can be suitable habitat for a species, but it has the potential to skew site evaluations. Land use can change from historic landscapes, and therefore, the potential habitat characteristics associated with it. Special-status species distributions may have changed with the changing land use patterns.

Problems with property access was not encountered. No other limitations such as weather were encountered during field surveys that would affect the conclusions of the BA. Project biologists reviewed information regarding special-status plant species that could occur in or near the ESL. The special-status wildlife for this area are well documented. Therefore, protocol-level wildlife surveys were not conducted for all rare species.

Chapter 2. Proposed Agency Action

2.1. Proposed Action Location

The proposed project is from post mile 4.2 to post mile 4.8 in Tehama County about 7 miles south of Los Molinos from 0.3 mile south of South Avenue to 0.6 miles south of Vina Road (Figures 1 and 2). Public land survey system information and additional information for the proposed project are below (Table 3).

Table 3. Public Land Survey System of the project area in Tehama County, California

Description Information	
South Ave. Roundabout	
North Latitude/Longitude	39.9349 / -122.0366
South Latitude/Longitude	39.928300 / -122.028837
West Latitude/Longitude	39.928300 / -122.038021
Townships, Range, and Sections	
Rio de Los Molinos Land Grant	

2.2. Action Area

The Action area (AA) is defined in 50 CFR 402.02 as:

“All areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.”

The AA consists of the project area and a 250-foot area extending from the project area in areas where grassland vernal habitats are present. This additional area was included in the AA for the assessment of indirect effects on vernal pools/swales resulting from the proposed action (Figure 3).

2.3. Description of the Proposed Action

The purpose of the project is to reduce the frequency and severity of collisions by at least 50 percent. The project is needed because there were 17 collisions along this section of roadway between July 1, 2010 and June 30, 2015.

The proposed work includes (Figure 4):

- Relocating the intersection of SR 99 and South Avenue to the northwest.
- Constructing a roundabout with 3 legs at the intersection of SR 99 and South Avenue. The roundabout would consist of a center island with mountable curb, textured median paving, and interior curb. The roundabout would have an inscribed diameter that is 165 feet. This diameter, along with a circling single lane and truck apron width of up to 45 feet, would accommodate all vehicle sizes from bicycles to Surface Transportation Assistance Act trucks. Traffic speed in the roundabout would be 25 miles per hour (MPH).
- Realigning the approaches to the roundabout, including installing splitter islands to separate traffic lanes and a bypass (an auxiliary lane) that is approximately 0.15 miles

in length for traffic eastbound on South Avenue to merge onto southbound SR 99. The speed limit on the approach from South Avenue would be reduced from 55 MPH to 25 MPH. The speed limit on the approaches from SR 99 would be reduced from 65 MPH to 25 MPH.

- Installing advance flashing beacons north and south of the roundabout along SR 99.
- Installing 13 electroliers (poles with lights that provide intersection lighting).
- Installing a new closed-circuit television south of the roundabout.
- Installing new road signs.
- Extending a 4-cell (each cell is approximately 5.5 feet tall and 4.5 feet wide) concrete box culvert that conveys Hoag Slough under SR 99 approximately 45 feet to the west of SR 99.
- Installing 6 culverts (17 feet of 24-inch diameter culvert, 140 feet of 24-inch diameter culvert, 153 feet of 24-inch diameter culvert, 124 feet of 24-inch diameter culvert, 57 feet of 24-inch diameter culvert, and 65 feet of 24-inch diameter culvert) under the roadway to convey stormwater runoff.
- Installing 6 new drainage inlets on the roadway to collect stormwater runoff and direct it into new culverts.
- Removing an existing culvert under SR 99 that is approximately 125 feet long and 18 inches in diameter.
- Installing an approximately 15-foot-wide biofiltration strips along the edge of pavement throughout the project limits.
- Installing biofiltration swales at the outlets of new culverts and constructing a drainage ditch south of South Avenue that would collect runoff from the biofiltration swales and discharge flow to Hoag Slough. The ditch, which would be protected with a permanent drainage easement, would be approximately 300 feet in length, 6 feet wide, and lined with Class 1 rock slope protection (RSP).
- Rehabilitating abandoned sections of roadway and applying erosion controls as needed.

Disposal/Borrow Sites

Construction of the project would disturb approximately 8.8 acres of ground surface and require the excavation of approximately 14,000 cubic yards of soil. Maximum excavation depths are estimated at approximately 2.5 feet deep for the structural section work and approximately 5 feet deep for the culvert work. Earthwork would be balanced onsite thus avoiding the need for borrow or disposal sites. Construction of the project would generate approximately 4,000 cubic yards of asphalt grindings, which would become property of the contractor. Asphalt grindings may be reused onsite (excluding a minimal amount of grindings associated with yellow and white road striping).

Impervious Surface

Construction of the project would result in 3.3 acres of new impervious area, which is the sum of 2.1 acres of new impervious surface and 2.6 acres of redeveloped impervious surface minus 1.4 acres of impervious surface that would be removed.

Staging

A staging area approximately 100 feet wide and 300 feet long would be located south of South Avenue and west of the intersection of South Avenue and SR 99.

Utilities

Existing communication utilities within the project limits may need to be relocated.

Right-of-Way

Caltrans would permanently acquire approximately 2.61 acres of right-of-way (ROW) from a private landowner to accommodate the new roundabout and reconfigured intersection. In addition, Caltrans would obtain a temporary construction easement to utilize approximately 0.82 acres of the same landowner's property south of South Avenue for project staging and constructing a drainage ditch. Caltrans would also establish an approximately 0.09-acre permanent easement around the drainage ditch for future maintenance operations on the landowner's property.

Traffic Management

Construction of the project would be staged and would utilize one-way reversing traffic control as needed.

Schedule

The work would be completed in one construction season and would require approximately 120 working days.

Figure 1. South Avenue Safety Improvement Project location in Tehama County, California.

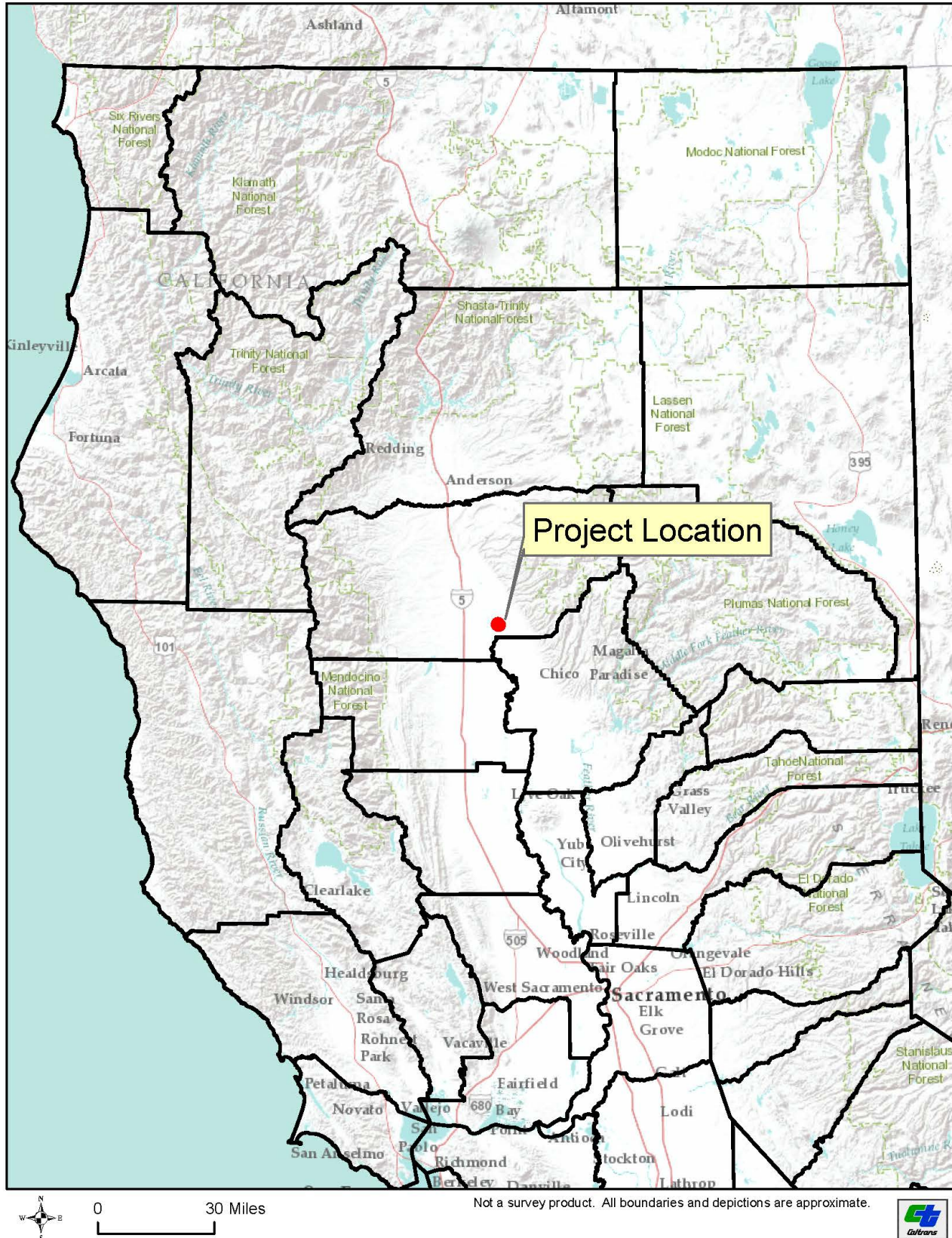


Figure 2. South Avenue Safety Improvement Project location with USGS topographical map, in Tehama County, California.

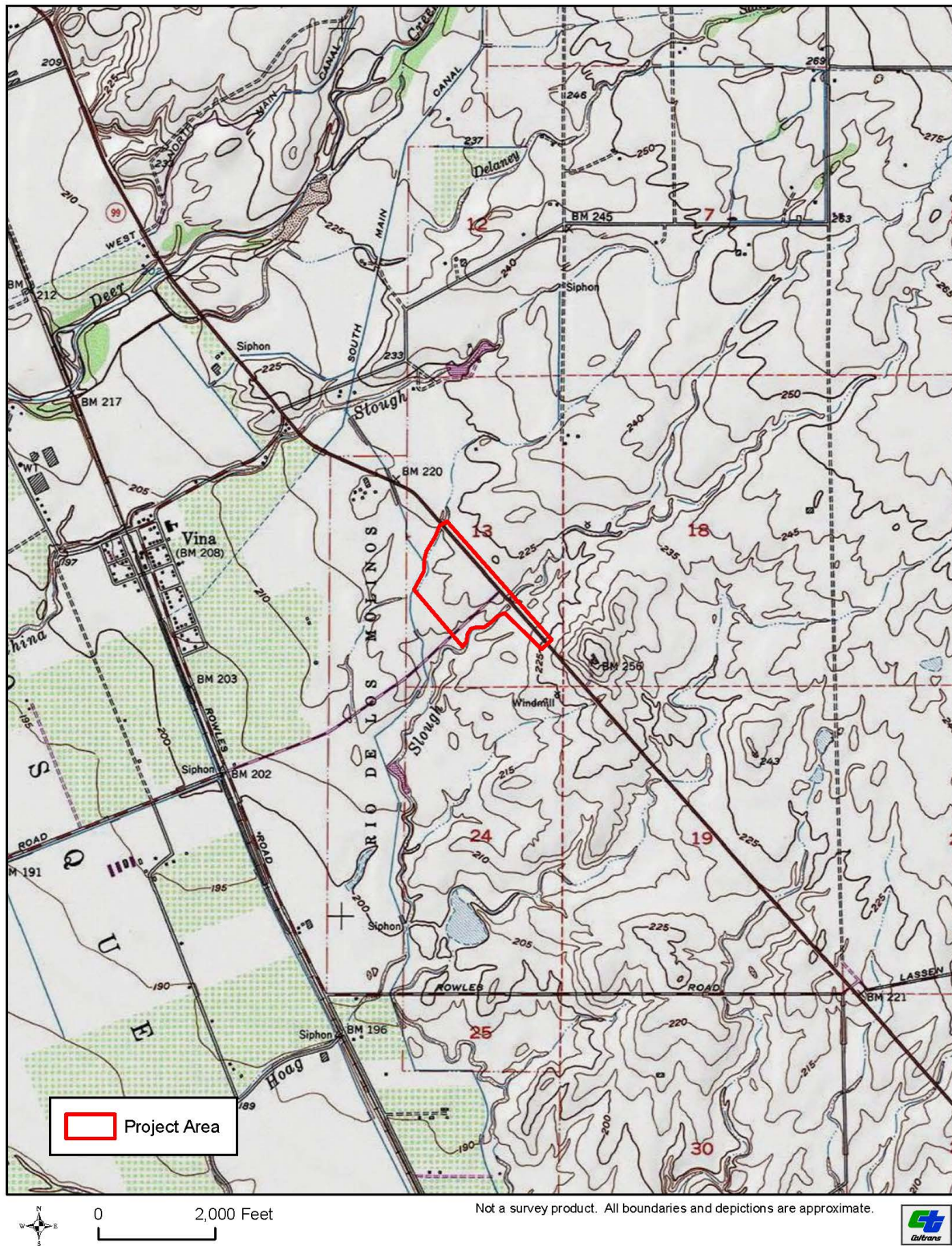
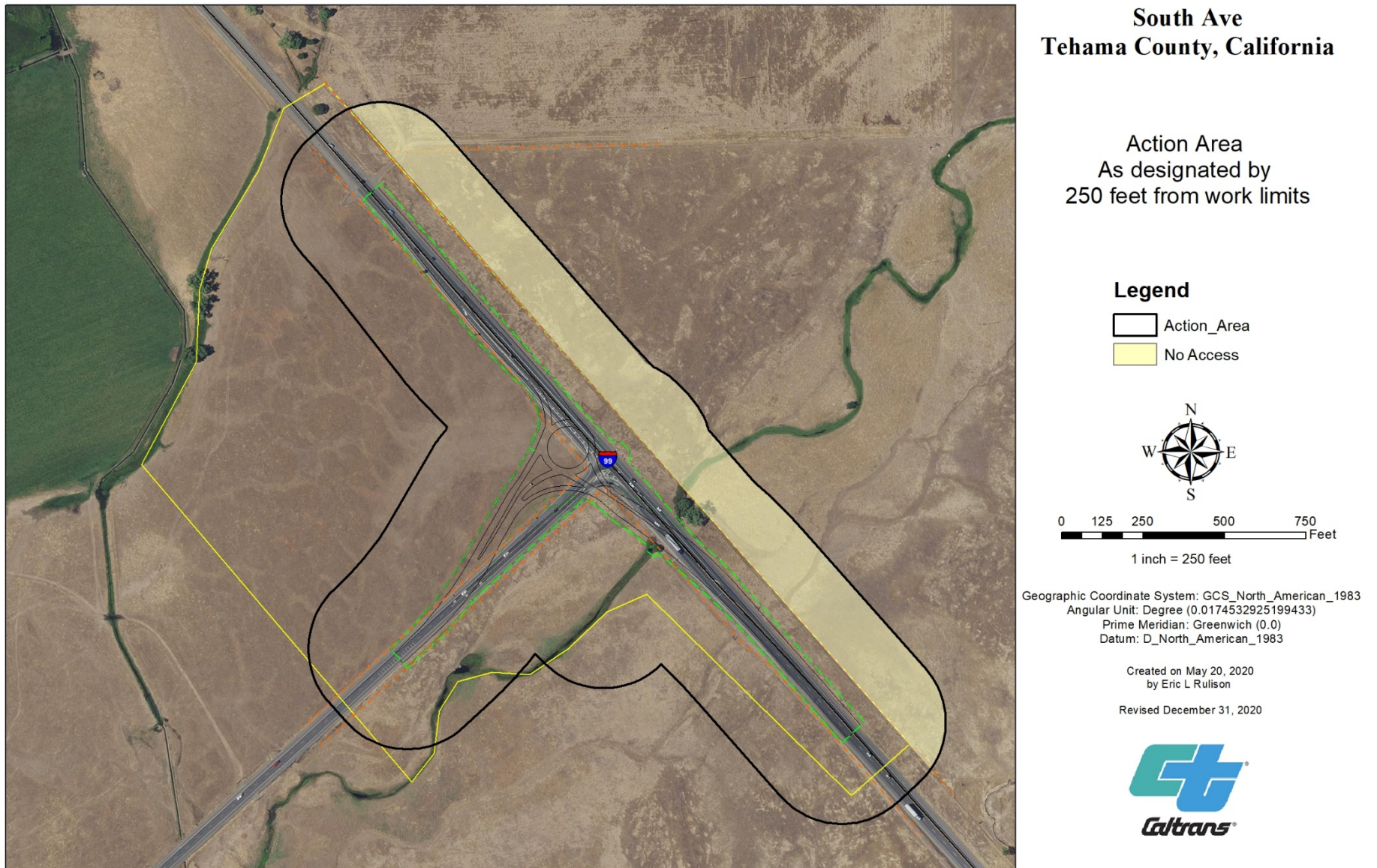


Figure 3. Proposed action area of the South Avenue Safety Improvement Project. Tehama County, California.



2.4. Deconstruct the Proposed Action

Project actions with potential to affect vernal pool brachiopods are limited to construction activities. Below are the proposed work actions:

- Removal of vegetation
- Placement of temporary stream crossing and gravel pads
- Culvert work
 - Cut-and-Cover Excavation for Culverts
 - Concrete Box Culvert Extension
- Installation of Rock Slope Protection
- Electrical Work
- Construct Concrete Curb/Gutter and Raised Islands
- Construct Center Island
- New Roadway Structural Section
- Shoulder Backing
- Installing Guardrail
- Striping
- Erosion Control

2.4.1. Construction Scenario Summary

2.4.1.1. Removal of Vegetation

Existing native plant communities within the project limits and/or adjacent to the AA will be surrounded by protective fencing during construction. This is intended to prevent unnecessary removal of additional vegetation. Where feasible, rapidly sprouting plants (e.g., willows) will be cut off at ground level, and root systems will be left intact to promote regeneration. Landscape fabric is anticipated to be utilized prior to laying down a gravel pad for the access roads to prevent any disturbance to the stumps and roots.

Areas of the streambank that are disturbed during construction will be restored to their pre-construction conditions. All disturbed and exposed areas will be reseeded with a local, native seed mix. Reseeding and reestablishment of roots will take place over the winter months. Hydroseeding will be done ahead of the first wet season after construction to minimize the extent of erosion into the stream post in-water work.

2.4.1.2. Placement of Temporary Crossing and/or Gravel Work Pad

This may be necessary for the extension of the concrete box culvert. A temporary stream crossing may be required to allow equipment to cross creeks during construction and aid in the minimization, reduction, or management of erosion and downstream sedimentation caused by equipment. A culvert will be placed in the channel and water routed through it. Then the culvert will be covered with clean, rounded gravel (e.g., fish rock gravel). Then fabric is placed on top of the gravel and angular/crushed rock will be placed on top of the fabric. The contractor will prepare a temporary stream crossing plan (if necessary) for approval.

2.4.1.3 Cut-and-Cover Excavation for Culverts

Cut and cover involves excavating to the existing culvert from the top down and placing the new culvert within the trench, then backfilled. Cut and cover construction is used when the culvert profile is shallow and excavation from the surface is possible. Also, cut and cover excavation is used for culverts that are in a flat area or where it is advantageous to construct the culvert at a shallow depth. Typically, all work is performed from the existing paved and unpaved staging areas using a rubber-tired backhoe.

2.4.1.4 Concrete Box Culvert Extension

To extend the existing concrete box culvert, the area will be trenched to the needed depth and width compacted then graded to the invert elevations and slope. This project will extend the culvert by cast-in-place method by setting up falsework for the concrete box limits and steel rebar within the ceiling, floor, walls of the box culvert. Once the falsework and rebar are set, a concrete mix truck will fill the falsework with concrete to the designed top of box surface. The box culvert will be overfilled with the proper, suitable material and compacted until final grade is reached.

2.4.1.5 Installation of Rock Slope Protection

Rock slope protection will be placed at ditches, inlets, and outlets to dissipate energy. Rock slope protection is installed using an excavator.

2.4.1.6 Electrical Work

This project has luminaires (streetlights) and flashing beacons. Electrical conduit must be installed throughout the intersection to power these lights, beacons and CCTV by a trencher or backhoe. Once conduits are installed, wire is pulled through all the conduits. The foundation of the luminaires will be 7 feet deep.

2.4.1.7 Construct Concrete Curb/Gutter and Raised Islands

Curb and gutter will be installed within the roundabout and for the raised islands. The grade for the bottom of curb/gutter and raised islands is performed with a backhoe equipment with a small bucket or an excavator with a small bucket for easy grading. Forms or a curb mold is needed for the limits of the concrete work, this is typically done by hand. Once the forms are set and grades are approved, a concrete mix truck will fill the forms to the design finish grade. The limits of the curb/gutter and islands sets the roadway pavement limits.

2.4.1.8 Construct Center Island

The center of the roundabout (center island) will consist of rock landscape and concrete. The grading of the center island will be done by excavator or labor. The center island will have aesthetic features that will fit with the native landscape.

2.4.1.8 New Roadway Structural Section

Project will have new roadway structural section throughout the project limits. A dozer and excavator will grade the new bottom of structural section limit (subgrade; about 2.5 feet deep). Once the subgrade has been established, see Cut-and-Cover Excavation for Culverts. The structural section will consist of subgrade enhancement geotextile, an aggregate base layer, and finally a new hot mix asphalt pavement layer. Subgrade enhancement geotextile will be utilized to reduce the depth of the structural section, therefore reducing excavation of the native material. Subgrade enhancement geotextile will

be rolled out to cover the native soil at the subgrade level. The aggregate base material is brought to the project site by dump trucks and is typically placed at the location where the base is needed. A grader will spread the base material to the limits of the roadway section. A vibratory roller will compact the base material to meet the compaction requirements. Now for the paving operation, the two pieces of equipment needed for paving is a paver and a material transfer vehicle. A dump truck full of asphalt mix dumps the load into the transfer vehicle. The transfer vehicle keeps the asphalt mix hot and the paver consistently full. The paver will spread the asphalt material as a consistent thickness. After the paver has spread the hot mix asphalt, a vibratory roller rolls the new asphalt to the standard compaction requirements.

2.4.1.9 Shoulder Backing

After the pavement is installed, shoulder backing is required for a smooth surface between the pavement and earth material. A finished paved surface will leave a 3-inch drop to the earthen material and is typically 3 to 4 feet wide. Shoulder backing is an aggregate base type material. The equipment to install this is a backhoe with a front bucket and a vibratory plate. A truck will stockpile this material at a staging area, and the backhoe will scoop it up and place it throughout the project. A vibratory plate can compact this material relatively quickly.

2.4.1.10 CCTV Tower

The cast-in-drilled-hole (CIDH) foundation for the CCTV will be approximately 20 feet deep. CIDH foundation construction process: A large metal temporary casing is drilled into the ground with an oscillator; soil is removed from inside the casing, and a rebar cage is lowered into the hole; concrete is poured, and the temporary steel casing is extracted. After the concrete cures, CCTV tower is placed and secured on the concrete foundation.

2.4.1.11 Installing Guardrail

Guardrail posts can be installed by either pounded in the substrate using a truck mounted hammer or by excavating a hole with an augur. Depth is anticipated to be 4 feet. A metal or wooded post is then installed or backfilled. A bolt is then used to hold the blackout (wood or plastic) and the guardrail to the post. Depending on location posts are placed every 6 feet.

2.4.1.12 Striping

Following the completion of paving operations, road surfaces will be painted with traffic stripes and markings. Markings on highways have important functions in providing guidance and information for the road user. Pavement stripes and markings within the project are placed by using spray-on paints from a striper truck. Any refilling of paint in striper trucks will occur in previously disturbed, vegetation-free areas. The striping truck operates along the highway, spraying paint directly onto the paved roadway. Striping trucks will only operate on paved surfaces. Pavement striping operations may require traffic control.

2.4.1.13 Erosion Control

After earth disturbing activities are complete, a native seed mix combined with fiber and water-resistant bonding agent in a hydro mulcher hopper. The hydro mulcher is towed behind a diesel truck and has a hydro cannon that can reach any of the disturbed areas from the roadway. Typically, one person runs the hydro cannon, one person maintains the hopper, and one person drives the truck. Because of grazing activities, the seed mix will not contain milkweed, as this can be toxic to cattle.

2.4.2. Construction Sequencing and Schedule

The entire project is scheduled as a one-season project, anticipated to take place between April 2024 and October 2024. Construction would span approximately 120 working days. All construction activities will be conducted during daylight hours (Table 4).

Table 4. Proposed construction schedule for South Avenue Safety in Tehama County, California.

Work Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mobilize/ Road work												
In-channel / Vernal Pool work												
Notes: Work in Vernal Habitats will occur starting May 15, or when they dry.												

Chapter 3 Results: Environmental Baseline

Environmental baseline refers to the condition of the listed species or its designated critical habitat in the AA, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the AA, the anticipated impacts of all proposed Federal projects in the AA that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR SS 402.02).

3.1 Summary of Environmental Baseline

The proposed action is in Tehama County. The topography of the AA is rolling grassland interspersed by wet areas. Elevations range from about 214 feet at the streambed of Hoag slough to 231 feet above mean sea level. SR 99 is around 226 to 227 feet. The proposed AA encompasses SR 99 from about 0.3 miles south of South Avenue to 0.6 miles south of Vina Road, the surrounding right-of-way, and portions of adjacent parcels. Land uses in the AA and the surrounding area are agricultural or protected natural areas.

3.2 Description of the Action Area/Habitat Conditions

3.2.1 Topography

The North Valley Alluvium subsection consists of the northern part of the geologically recent alluvial plain in the Sacramento Valley, which is mainly floodplains and very gently sloping alluvial fans. The subsection elevation range is 150-300 feet. Local topographic relief in the AA is flat to very gently sloping to all directions. In the northwest quadrant (north of South Avenue, west of SR 99), the highest elevation occurs in the northeast portion abutting the roadway prism at 225 feet. From that location, grades decrease gradually to the south (towards the intersection), west (parallel to South Avenue), and north (out of the AA). In the southwest quadrant (south of South Avenue, west of SR 99) the high point is adjacent to the roadway and land slopes towards Hoag Slough. Landscape east of SR 99 gently slopes south.

3.2.2 Hydrology

This project sits within the Big Chico Creek – Sacramento River watershed (HUC 8, 8020157). This unit is 609,427.08 acres and drains to the Sacramento River which eventually makes its way to the Pacific Ocean. Precipitation averages 21.6 inches, falling as rain. During the wet season of 2019-2020 only 9.58 inches fell.

3.2.2.1 Riverine

Hoag Slough is an intermittent stream that flows into the Sacramento River over 2 miles downstream of the AA. By mid-spring the slough starts to have wetland vegetation growing throughout its limits. Agricultural practices may interfere with the slough's natural hydrologic patterns. It may only flow during the winter. The slough was dry other than some low spots in May and completely dry in July. The slough has hydrophytic vegetation growing throughout

including Italian ryegrass (*Festuca perennis*), rabbitsfoot grass (*Polypogon monspeliensis*), Baltic rush (*Juncus balticus*), spreading spikerush (*Eleocharis macrostachya*), flat sedge (*Cyperus difformis*), dallis grass (*Paspalum dilatatum*), and curly dock (*Rumex crispus*). In lower elevational depressions within the slough, soft stem bulrush (*Schoenoplectus tabernaemontani*) and cat-tail (*Typha angustifolia*) grow.

3.2.2.2 Vernal Habitats

Vernal pools include, but are not restricted to, ephemeral wetlands that form in shallow depressions underlain by a substrate near the surface that restricts the percolation of water. They are characterized by a barrier to overland flow that causes water to collect and pond. These depressions fill with rainwater and runoff from adjacent areas during the winter and may remain inundated until spring or early summer, sometimes filling and emptying more than once during the wet season.

For the purposes of this report, the vernal habitats have been divided into four habitat types (swale, hog wallow, vernal pool, and vernal marsh) adapted and modified from Broyles (1987). These habitats vary in depth and hydroperiod to provide a clearer picture of different habitats. Descriptions of each are below.

- Swale – Areas that have at least some moisture supplied by slow-moving water during rain events.
- Hog wallows – Shallow depressions that have ephemeral standing water. The depth varies from 0-6 inches. Hog wallows may have rocky bottoms and varying amounts of sand and silt. In this area they contain heavy cattle prints and tend to be very mucky.
- Vernal Pool – Deeper and larger than a hog wallow. Water accumulates during winter rains and remains into late spring or early summer. The depth of the different pools varies from 0.5 to 1 foot; however, depth also fluctuates with seasonal rainfall and with dry-down.
- Vernal Marsh – Differs from the hog wallow habitat in its greater area and from the pool habitat in that it lacks deep, standing water. Water remains in the marsh habitat longer than in the hog wallows, but shorter than in the pools. The areas are completely vegetated with taller annual forbs.

The AA contains 6 swales, 12 hog wallows, 3 pools, and 1 marsh (Table 5; Figure 5).

The hog wallows and pools are isolated and often lack swales that connect to other areas. The roadway prism is a barrier to overland flow allowing low elevational areas adjacent to the roadway to inundate. Eleven of the 22 vernal habitats are directly adjacent to the roadway prism. Vernal habitats away from the roadway lack a barrier that cause water to pool most of these also lack any depression making them a swale. Most vernal habitats have some degree of silt or clay accumulated by erosion from surrounding higher ground. The hog wallows, pools, and marshes had no standing water by early to mid-May (in 2020). In most, there are many cobbles with heavy varnish that indicates flow and age.

Few areas were ponded during January visits (2021). All having less than 1 inch of water. Albeit, not a lot of rain had occurred. The visit occurred a day after 0.57-inch rainfall event,

leading to the interpretation that waterflows follow the topography, either running on the surface, or just subsurface to the low spots adjacent to the roadway prism, and if the roadway was not present, to Hoag Slough.

Table 5. Vernal habitats in the AA of South Avenue Roundabout, Tehama County California.

Vernal Habitat	Pool ID
Swale	VP10, VP13, VP14, VP 15, VP 16, VP 17
Hog wallows	VP 2, VP 5, VP 6, VP 7, VP 8, VP 9, VP 11, VP 18, VP 19, VP 20, VP 21
Pools	VP 1, VP 3, VP12
Marsh	VP22

3.2.3 Soils

The ESL is comprised of Tuscan clay loam north of South Avenue as well as east of SR 99. The soils south of South Avenue associated with Hoag slough are a Molinos complex. There are small areas of Anita Clay at the south limits of the project (Figure 6).

3.2.3.1 Tuscan Clay Loam

This soil map unit typically occurs on terraces with a parent material from alluvium from volcanic rock. Slopes range from 0 to 8% at elevations of 200–1,000 feet. This soil is well drained. Runoff is extremely high with low water storage in the profile. The surface soil is a clay loam, with cobbly clay loam and very cobbly clay prior to the indurated layer. The soil frequency of flooding is none and frequently of ponding is none. It is not listed as hydric.

Similarly, Northern Hardpan vernal pools are typically found in complexes formed on alluvial terraces with silicate-cement soil layers. Clay particles sorted out and accumulate forming a claypan layer that becomes impermeable when saturated.

3.2.3.2 Molinos

This soil map unit typically occurs in drainageways. The parent material is alluvium from igneous rock. Slopes range from 0 to 3% at elevations of 10–2,900 feet. This soil is well drained but frequently flooded. Runoff is very low with low water storage in the profile. The surface soil is a sandy loam, with stratified sandy loam to silt loam. The soil frequency of flooding is frequent, and frequency of ponding is none. It is listed as a hydric soil in group B.

3.2.3.3 Anita Clay

This soil typically occurs on basin floors with a parent material from alluvium from volcanic rock. Slopes range from 0 to 3% at elevations of 150–1,500 feet. This soil is shallow (15-25 inches to indurated) and somewhat poorly drained. Runoff is high with very low water storage in the profile. The surface soil is a clay, prior to the indurated layer. The soil frequency of flooding is none and frequency of ponding is frequent. It is listed as hydric in group D.

3.2.3.4 Survey Results

During wetland delineations soiling sampling was attempted the pit was only 6-inches deep before refusal. The soil had manganese concentrations, but little signs of reductions. On the adjacent Vina Plains Property, most of the pools occurred on Anita clay loam. Vernal marshes and hog wallows occurred on Tuscan Loam. It appears the thinner the Tuscan loam soil and change to Anita Clay, the wetter the depression and longer the hydroperiod (Broyles 1987).

Figure 5. Vernal habitats in the action area of South Avenue Safety Improvement Project, Tehama County, California.

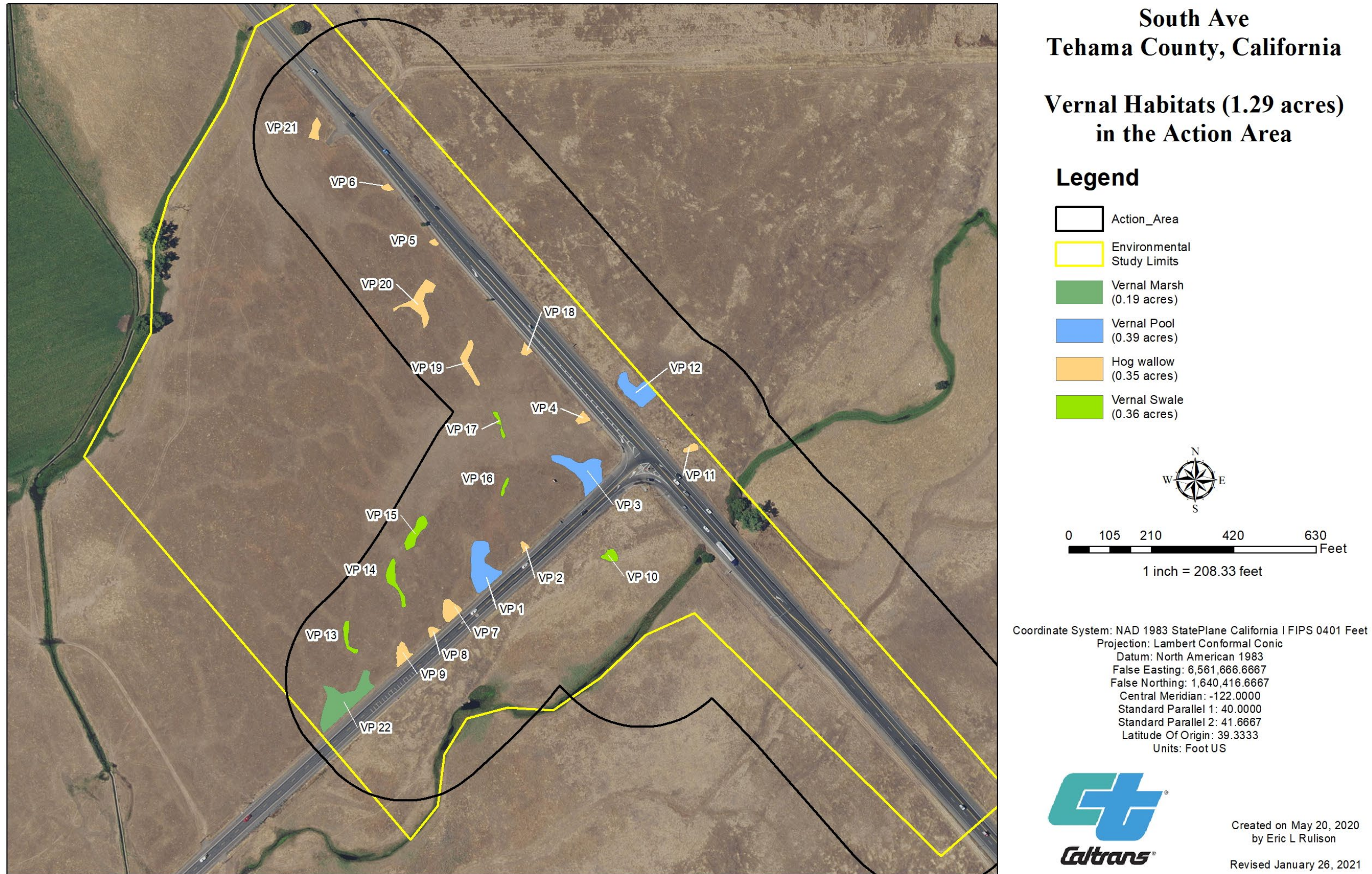
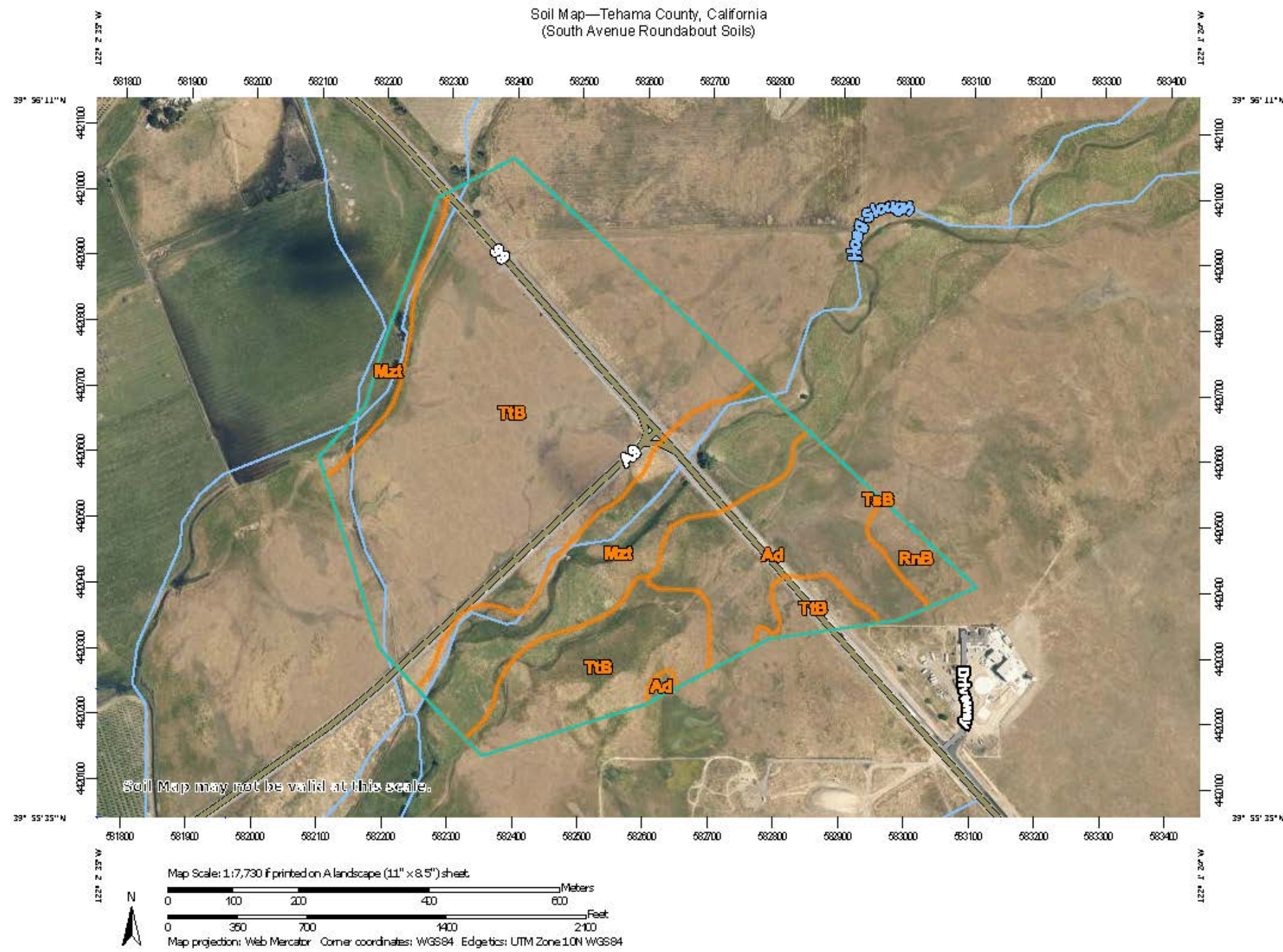


Figure 6. Soils of the AA in the South Avenue Safety Improvement Project, Tehama County, California.



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ad	Anita clay	16.6	13.7%
Mzt	Molinos complex, channeled	22.9	18.9%
RnB	Redding gravelly loam, 0 to 8 percent slopes, MLRA 17	2.7	2.3%
TsB	Tuscan loam, 1 to 5 percent slopes	0.0	0.0%
TtB	Tuscan clay loam, 1 to 8 percent slopes	79.0	65.1%
Totals for Area of Interest		121.3	100.0%

3.2.4 Vegetation Communities

The California Vegetation Ecoregion Province is California Dry Steppe in the ecoregion Section of the Great Valley. The predominant plant communities in the AA are pastureland, cropland, and annual grasslands. The area is also identified in the Vina quadrangle for vernal pool complexes (Figure 7). This quadrangle has low distribution and density of vernal pools.

The California Wildlife Habitat Relationship System identifies the AA as annual grassland. The roadway is classified as Urban. Vernal pool communities are interspersed within the grassland. Cropland and Irrigated Hayfield communities occur north of the project.

3.2.4.1 Annual Grassland

Grasslands are composed primarily of annual plant species. Structure in grasslands depends largely on weather patterns and livestock grazing. Introduced annual grasses are the dominant plant species in this habitat. These include wild oats, soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), barley (*Hordieum* spp.), and fescue (*Festuca* spp.). Common forbs include turkey mullein (*Croton setiger*) and clover (*Castilleja* spp.).

The over grazed grassland is ubiquitous in vegetation composition. Vegetation that could be identified included tumbleweed (*Amaranthus albus*), Bindweed (*Calystegia* spp.), yellow star thistle (*Centaurea solstitialis*), rose clover (*Trifolium hirtum*), medusahead (*Taeniatherum caput-medusae*), ripcut brome, and cow bag clover (*Trifolium depauperatum*).

3.2.4.2 Vernal Pools/vernal swales

The AA contains 22 vernal habitats. Vernal habitats are defined in this context as at least having two vernal pool indicator plants species. Vernal pool indicator or associates are taken from the California Vernal Pool Assessment Preliminary Report (1998). Definitions are:

- Vernal pool indicators (VPI) = species that are restricted to vernal pools and are not known from other habitats
- Vernal pool associates (VPA) = species that regularly occur in vernal pools but are not restricted to them, also occurring in other similar wetland habitats

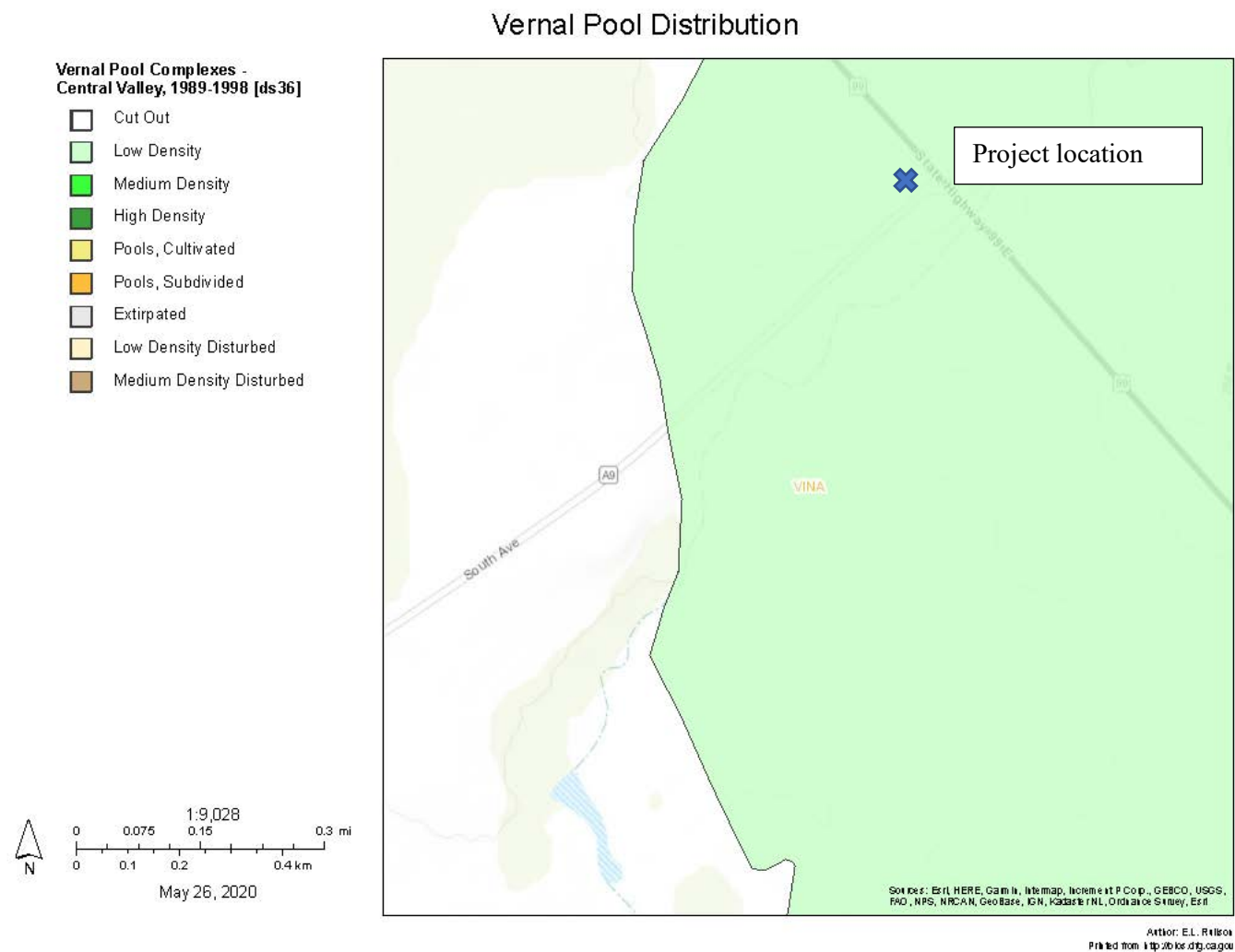
The following VPI species were observed.

- *Alopecurus saccatus* (Pacific meadow fox-tail)
- *Eleocharis macrostachya* (spreading spike rush)
- *Eryngium vaseyi* (coyote thistle)
- *Navarretia leucocephala* (white-headed navarretia)
- *Psilocarphus brevissimus* (woolly marbles)

The following VPA species were observed.

- *Downingia bicornuta* (bristled downingia)
- *Lythrum hyssopifolia* (Hyssop loosestrife)
- *Myosurus minimus* (mouse tail)
- *Plagiobothrys stipitatus* (popcornflower)
- *Polypogon monspeliensis* (rabbitsfoot grass)

Figure 7. Location of South Avenue Safety Improvement Project within the Vina Plains Vernal Pool Complex system, Tehama County, California.



Nineteen of the 22 vernal habitats occur north of South Avenue and west of SR 99. One occurs between Hoag slough and South Avenue, and the remaining two are adjacent to the northbound lane of SR 99.

Two habitats (VP 10, and VP11) were dominated by wild oats (*Avena* spp.), Italian ryegrass, and curly dock (*Rumex crispus*). They are shallower than the others and contain dense grasses year-round. One is within the property that is grazed seasonally. It is north of Hoag Slough and south of South Avenue. The other pool was within the Caltrans ROW, on the northbound side of the roadway cross from the current intersection with South Avenue.

The remaining habitats were dominated by coyote thistle (*Eryngium vaseyi*), woolly marbles (*Psilocarphus brevissimus*), white headed navarretia (*Navarretia leucocephala*), spikeweed (*Centromadia fitchii*) and bare soil and abundant cobbles. Other plants identified were hair grass (*Deschampsia cespitosa*), popcornflower (*Plagiobothrys stipitatus*), mouse tail (*Myosurus minimus*), Italian ryegrass (*Festuca perennis*), and bristled downingia (*Downwingia bicornuta*). By July vegetation was sparse consisting of mostly bare ground, but vegetation was dominated by vinegarweed (*Trichostema lanceolatum*), little lessingia (*Lessingia nana*), spikeweed, russian thistle (*Salsola tragus*) and turkey mullein (*Croton setiger*).

See Appendix 2 for a list of observed species during botanical surveys.

3.2.4.3 Urban

The structure of urban vegetation varies regionally and by location. Composition usually. Monocultures are common. Along urban highways vegetation, such as red brome, bulbous bluegrass (*Poa bulbosa*), pineapple weed (*Matricaria discoidea*), plantain (*Plantago* spp.), Spanish lotus (*Acmispon americanus*), and yellow starthistle are common.

3.2.5 Wildlife

The AA is mostly grazing land. Also, annual grasslands and orchards surround the area. Because much of the area is grazed, (some areas overgrazed), wildlife species diversity is lower in the grazing area versus the annual grasslands. The grazed area provides no cover and lacks food resources for small mammals. The lack of small mammals reduces predators in the area, both terrestrial and avian. Wildlife was accessed based on wildlife habitat relationships.

3.2.5.1 Annual Grassland

Wildlife species commonly associated with these natural vegetation communities and that occur or have the potential to occur within the AA include western gray squirrel (*Sciurus griseus*)*, California ground squirrel (*Spermophilus beecheyi*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), blacktail deer (*Odocoileus hemionus columbianus*), raccoon (*Procyon lotor*)*, opossum (*Didelphis virginiana*), black-tailed jackrabbit (*Lepus californicus*)*, deer mouse (*Peromyscus maniculatus*)*, harvest mouse (*Reithrodontomys megalotis*)* California towhee (*Pipilo crissalis*), mourning dove (*Zenaida macroura*)*, western scrub jay (*Aphelocoma californica*), northern harrier (*Circus hudsonius*)*, kestrel (*Falco sparverius*)*, red-tailed hawk (*Buteo jamaicensis*), California quail (*Callipepla californica*), pacific chorus frog (*Pseudacris regilla*), western fence lizard (*Sceloporus occidentalis*)*, common garter snake (*Thamnophis sirtalis*), gopher snake

*(Pituophis melanoleucus)**, and western rattlesnake (*Crotalus viridis*). Species that are italicized were observed either directly or indirectly.

3.2.5.2 Vernal Habitats

Vernal pools have unique wildlife because of their temporary aquatic components prevent large, aquatic predators. Many brachiopods have adapted to survive in these environments. However, because of habitat loss most species associated with vernal pools are rare and protected at the state or federal level.

The AA is mapped on the Vina Vernal Pool Complex system. This complex has low distribution and density of vernal pools. Most of the vernal pools in the AA lack the hydroperiod to complete a life cycle for brachiopods. Only two pools (VP1 and VP3) appear to have to characteristics needed.

Generally, vernal pools and swales are clustered into assemblages where individual pools within a vernal pool complex are mutually interdependent in supporting listed vernal pool species. When a species is extirpated from an individual pool, other pools in the complex may serve as recolonization sources. The AA is at the outer limits of the Vina complex and is isolated from other pools by roadways and miles of upland habitat. Distance to a source population of brachiopods places these pools at a high probability of extirpation during any catastrophic event. Because they are adjacent to the roadway, invasive and noxious plant species, chemical pollution, a refuse degrade many of the pools. Additionally, the area is highly grazed and contains an abundance of cow dung. This has been linked to a low plant diversity and potential poor aquatic environments for brachiopods due to nutrient loading (Croel and Kneitel 2011).

No crustaceans were observed during field visits and no molts were found; however, no protocol level or intense surveys were conducted. Brief surveys by standing on the side of pools and observing were conducted. Because of the lack of surveys, vernal pool fairy shrimp and vernal pool tadpole shrimp are assumed present. The site contains no playas or habitats that are likely favorable for conservancy fairy shrimp, however, because no surveys were conducted, they are also assumed present.

3.3 Status of Federally Listed Species

3.3.1 Discussion of Species Vernal Pool Fairy Shrimp

Status and Distribution

Vernal pool fairy shrimp (*Branchinecta lynchi*) is federally listed as threatened. The species is found in southern Oregon and in California, in approximately 32 populations scattered from Shasta County in the north through the Central Valley to the southern border of Tulare County, and along the central Coast Range from northern Solano County to San Benito County. Four disjunct populations occur in San Luis Obispo, Santa Barbara, and Riverside Counties (Eriksen and Belk 1999; U.S. Fish and Wildlife Service 2007a).

Habitat

Vernal pool fairy shrimp commonly inhabit vernal pools or vernal pool-like habitats, typically in grassland landscapes. Most commonly, vernal pool fairy shrimp are found in vernal pools or vernal swales, in unplowed grasslands (Eng et al. 1990). The chemical composition of the habitat and temperature variations resulting from pools filling at different times and

distribution of pools along altitudinal and longitudinal gradients are the most important factors in determining the distribution of different species fairy shrimp (including vernal pool fairy shrimp), or their appearance from year to year (Eng et al. 1990; U.S. Fish and Wildlife Service 2007a). Vernal pool fairy shrimp sometimes occur in other wetlands that provide habitat characteristics similar to those of vernal pools; these other wetlands include alkaline rain pools, rock outcrop pools, and some disturbed and constructed sites, including tire ruts, ditches, and puddles (Eriksen and Belk 1999; U.S. Fish and Wildlife Service 2007a). Occupied habitats range in size from 6-square-foot puddles to pools exceeding 24 acres (Eriksen and Belk 1999). Vernal pool fairy shrimp are not found in riverine, marine, or other permanent waters (U.S. Fish and Wildlife Service 2007a). Suitable pools must stay inundated long enough for the shrimp to complete their life cycle.

Biology

They are generally less than 2.5 centimeters (1 inch) in length, and swim on their backs by slowly moving their 11 pairs of swimming legs. They eat algae and plankton by scraping and straining them from surfaces within the vernal pool. Vernal pool fairy shrimp typically hatch when the first rains of the year fill vernal pools. They mature in about 41 days under typical winter conditions (U.S. Fish and Wildlife Service 1994). Adult fairy shrimp live only for a single season, while there is water in the pools. Toward the end of their lifetime, females produce cysts to survive the summer and winter (U.S. Fish and Wildlife Service 1994).

Reasons for Decline

Conversion of vernal pool habitat to agricultural uses and urban development was identified as the primary threat to vernal pool fairy shrimp in 1994 (U.S. Fish and Wildlife Service 1994). The largest continuing threats to vernal pool fairy shrimp are habitat loss and modification of habitat from urban development, agricultural conversion, and infrastructure construction, especially along the periphery of urban areas (U.S. Fish and Wildlife Service 2007a).

3.3.1.1 Survey Results

No vernal pool branchiopod surveys were conducted to collect information for the proposed action. area). Presence was assumed. To date there are 29 occurrences of vernal pool fairy shrimp in Tehama county ranging in dates from 1980 to 2019. In 1994 a non-specific polygon was created from the AA, south for 3 miles surrounding SR 99. Populations potentially occur within the Nature Conservancy Preserve that abuts the AA (nearest observation is 1.1 miles away). Remaining observations in the county occur to the south near singer creek and on the opposite side of Interstate-5 in southwest Corning (Figure 8).

The area is mapped as habitat on the Vina vernal pool complex. Which has low distribution and density of vernal pools. Vernal pools in the AA most likely contain water long enough to complete the life cycle of vernal pool fairy shrimp. Even with intermittent drying, these shrimps can survive.

3.3.1.2 Status of Designated Critical Habitat in the AA

The AA does not contain the critical components for designated critical habitat.

3.3.2 Discussion of Vernal Pool Tadpole Shrimp

Status and Distribution

Vernal pool tadpole shrimp (*Lepidurus packardii*) is federally listed as endangered. This species is a California Central Valley endemic species, with most populations in the Sacramento Valley. Vernal pool tadpole shrimp has also been reported from the Sacramento River Delta east of San Francisco Bay and from scattered localities in the San Joaquin Valley from San Joaquin to Madera Counties (Rogers 2001).

Habitat

Vernal pool tadpole shrimp occur in a wide variety of seasonal habitats including vernal pools, ponded clay flats, alkaline pools, ephemeral stock tanks, and roadside ditches. Habitats where vernal pool tadpole shrimp have been observed range in size from small (less than 25 square feet), clear, vegetated vernal pools to highly turbid alkali scald pools to large (more than 100 acres) winter lakes (Helm 1998; Rogers 2001). These pools and other ephemeral wetlands must dry out and be inundated again for the vernal pool tadpole shrimp cysts to hatch. This species has not been reported in pools that contain high concentrations of sodium salts but may occur in pools with high concentrations of calcium salts (Helm 1998; Rogers 2001).

Biology

Vernal pool tadpole shrimp are large brachiopods, ranging in size from 15 to 86 millimeters (0.6 to 3.3 inches) in length. Helm (1998) found that the vernal pool tadpole shrimp live significantly longer than any other species except for the California fairy shrimp. Vernal pool tadpole shrimp continue growing throughout their lives, periodically molting their shells. These shells can often be found in vernal pools where vernal pool tadpole shrimp occur. Helm (1998) found that vernal pool tadpole shrimp took a minimum of 25 days to mature and the mean age at first reproduction was 54 days. They consume both organic detritus in the sediment and live prey, including amphibian larvae and other freshwater crustaceans. Creating a potential problem if other rare brachiopods are present in the pools. Vernal pool tadpole shrimp hatching is temperature dependent. Optimal hatching occurs between 10 to 15 degrees Celsius (50 to 59 degrees Fahrenheit), some cysts in the vernal pool soils will hatch, sometimes in as few as four days. Other cysts will wait for another season. Adult fairy shrimp live only for a single season, while there is water in the pools. Adult vernal pool tadpole shrimp die when the pools dry out but leave cysts to survive summer and winter conditions (U.S. Fish and Wildlife Service 1994).

Reasons for Decline

Conversion of vernal pool habitat to agricultural uses and urban development was identified as the primary threats to vernal pool tadpole shrimp (U.S. Fish and Wildlife Service 2007b). Modification of surrounding uplands that alter vernal pool hydrology may also result in habitat loss. Loss of habitat is expected to continue as urban boundaries expand further through high and low terrace formations on the east and west sides of the Central Valley areas (U.S. Fish and Wildlife Service 2007b).

3.3.2.1 Survey Results

No vernal pool brachiopod surveys were conducted to collect information for the proposed action. area). Presence was assumed. To date there are 22 occurrences of vernal pool tadpole shrimp in Tehama County ranging in dates from 1973 to 2009. In 1987 they were observed in the AA. Populations occur potentially within 0.19 miles (300 meters) in the

Nature Conservancy Preserve that abuts the AA (polygon was added in 1993). The nearest remaining observations in the County occur to the southeast of the AA, about a mile away and to the northeast about 3 miles away (Figure 9).

The area is mapped as habitat on the Vina vernal pool complex. Which has low distribution and density of vernal pools. Vernal pools in the AA most likely contain water long enough to complete the life cycle of vernal pool fairy shrimp. Even with intermittent drying, these shrimps can survive.

3.3.2.2 Status of Designated Critical Habitat in the AA

The AA does not contain the critical components for designated critical habitat.

3.3.3 Discussion of Conservancy Fairy Shrimp

Status and Distribution

Conservancy fairy shrimp (*Branchinecta conservatio*) is federally listed as endangered. Conservancy fairy shrimp endemic to California are restricted to the Central Valley except for one population along the Central Coast in Ventura County (U.S. Fish and Wildlife Service 2012). Currently, the Service is aware of 10 populations of Conservancy fairy shrimp, which include (from north to south): (1) Vina Plains, Butte and Tehama counties; (2) Sacramento National Wildlife Refuge (NWR), Glenn County; (3) Mariner Ranch, Placer County; (4) Yolo Bypass Wildlife Area, Yolo County; (5) Jepson Prairie, Solano County; (6) Mapes Ranch, Stanislaus County; (7) University of California (U.C.) Merced area, Merced County; (8) the Highway 165 area, Merced County; (9) Sandy Mush Road, Merced County; and (10) Los Padres National Forest, Ventura County (U.S. Fish and Wildlife Service 2012).

Habitat

Most sites inhabited by the Conservancy fairy shrimp are relatively large and turbid vernal pools, or playa pools (Helm 1998, Eriksen and Belk 1999, Vollmar 2002). Playa pools often remain inundated much longer than typical vernal pools, in some cases into the summer (Vollmar 2002). Conservancy fairy shrimp require ponding for a minimum of 3 weeks above 2 inches in depth (Helm 1998).

Biology

The conservancy fairy shrimp is a small crustacean ranging in size from about 1.3 to 2.5 cm (½ to 1 inch) long. They feed on algae, bacteria, protozoa, rotifers and bits of detritus. Conservancy fairy shrimp breed in somewhat turbid ephemeral or temporary pools (i.e., vernal pools, swales, and seasonal wetlands) and eggs are dropped to the bottom of these pools. As the pools refill with rainwater, some cysts hatch, others stay inactive for futures emergence. This occurs primarily between November and April, and conservancy fairy shrimp take approximately 49 days to reach maturity. However, it is temperature dependent in warmer pools they could reach maturity in as little as 19 days (Eriksen and Belk 1999).

Reasons for Decline

The largest continuing threats to Conservancy fairy shrimp are habitat loss and modification of habitat from urban development, agricultural conversion, and infrastructure construction, especially along the periphery of urban areas (U.S. Fish and Wildlife Service 2012).

Stochastic extinction as a result of random or unpredictable disturbances also continues to threaten this species, as well as climate change, invasive plant species, inappropriate

grazing regimes, and contaminants (e.g., pesticide use) (U.S. Fish and Wildlife Service 2012). Six of the ten known localities in the Vina Plains, Butte and Tehama County are protected either by a preserve, Conservation Bank, or Conservation Easement (U.S. Fish and Wildlife Service 2012).

3.3.3.1 Survey Results

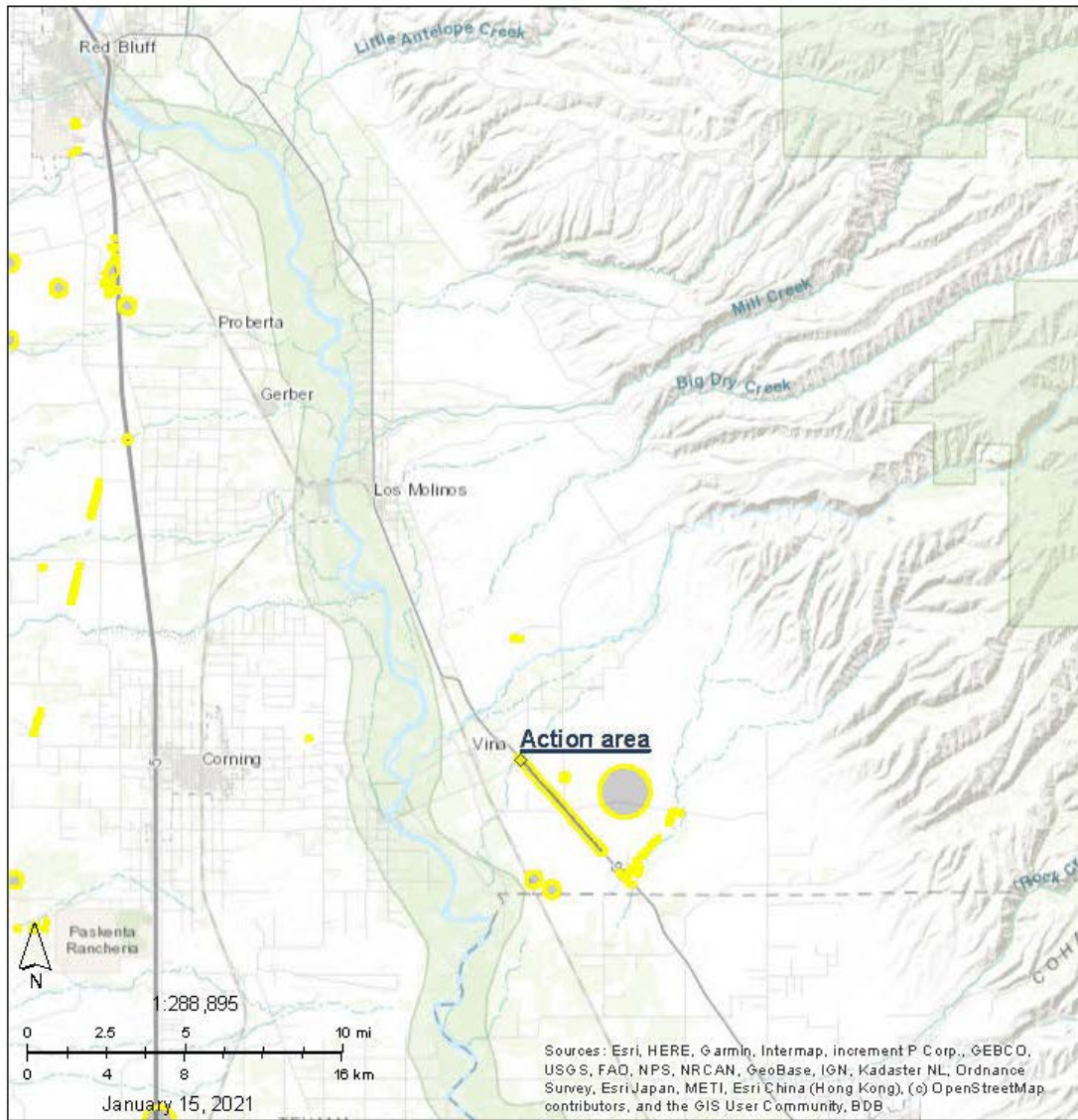
No vernal pool branchiopod surveys were conducted to collect information for the proposed action. area). To date there are 8 occurrences of conservancy fairy shrimp in Tehama County ranging in dates from 1988 to 2009. No vernal pool branchiopod surveys were conducted to collect information for the proposed AA. One observation was recorded 2 miles east of the AA. Another eight known localities are under 5 miles from the AA (all range from the northeast to the south of the AA (Figure 10)). All but 3 observations came from the Nature Conservancy-Vina Plains Preserve.

At the AA there is potentially two isolated pools that may have a hydroperiod, depth, and time needed for conservancy fairy shrimp. Although, typical habitat characteristics are not met at the vernal pools in the AA, because of the proximity to Vina Plains, they are assumed present.

3.3.3.2 Status of Designated Critical Habitat in the AA

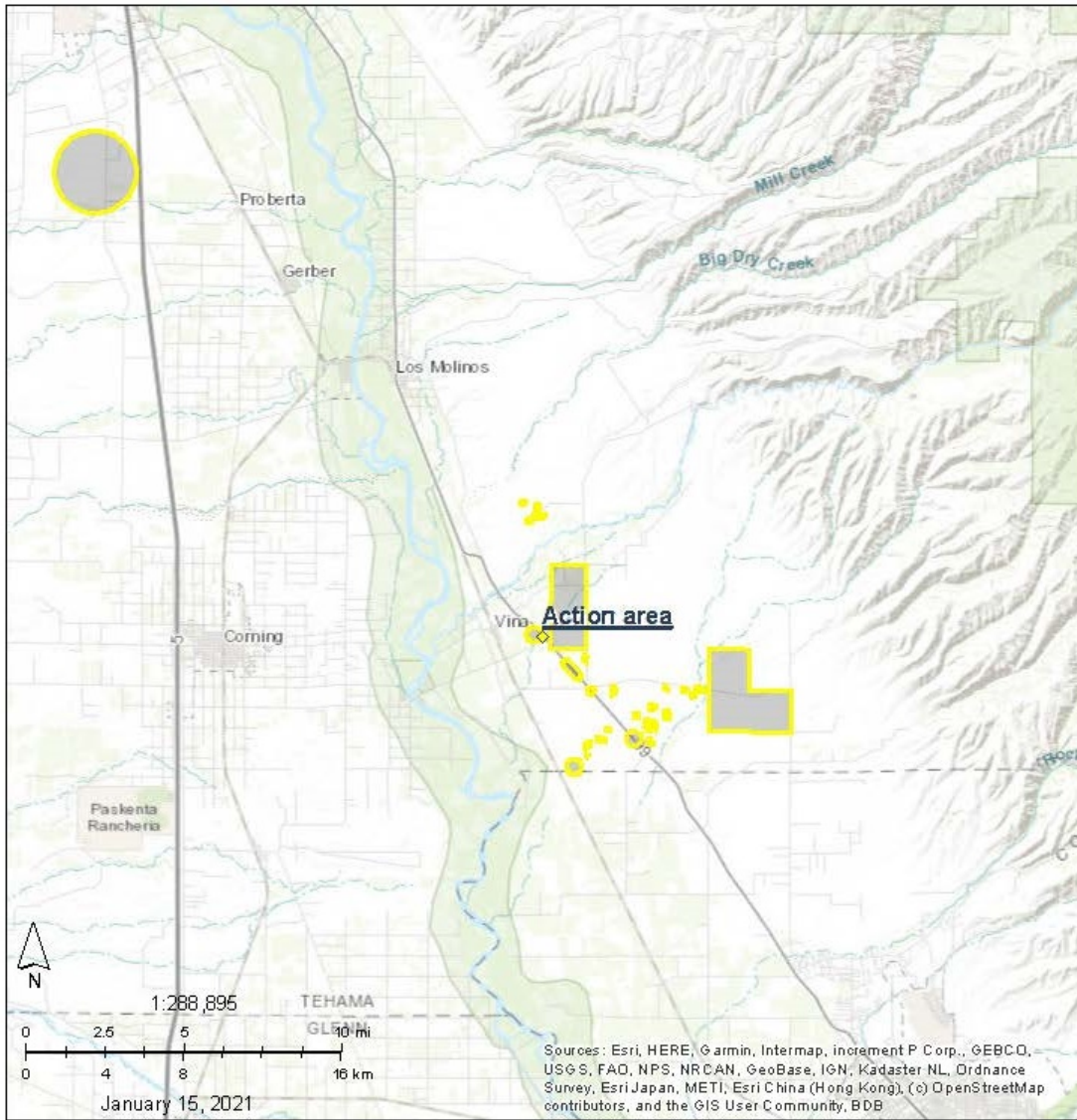
The AA does not contain the critical components for designated critical habitat.

Figure 8. Occurrences of vernal pool fairy shrimp near the action area of South Avenue Safety Improvement Project, Tehama County, California.



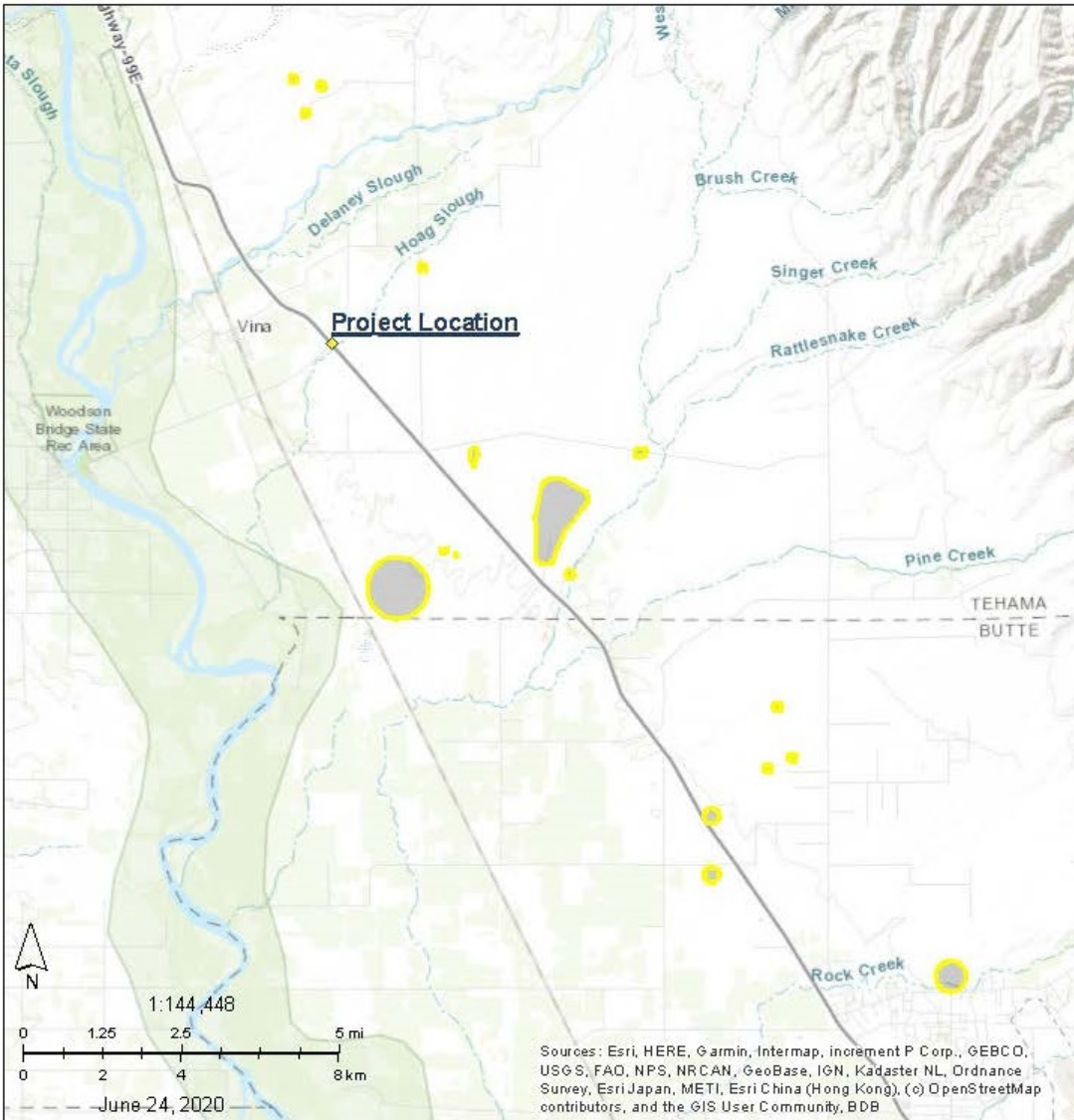
Author: eric.milko@dot.ca.gov
Printed from <http://bbs.dfg.ca.gov>

Figure 9. Occurrences of vernal pool tadpole shrimp near the action area of South Avenue Safety Improvement Project, Tehama County, California.



Author: eric.n.kou@dot.ca.gov
Printed from <http://bbs.dti.ca.gov>

Figure 10. Occurrences of conservancy fairy shrimp near the action area of South Avenue Safety Improvement Project, Tehama County, California.



Author: eric.n.levi@dot.ca.gov
 Printed from: <http://bbs.dfg.ca.gov>

Chapter 4 Effects of the Action

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including consequences of other activities that are caused by the proposed action. The analysis of effects of the action first identifies stressors from project actions, then exposure to stressors, and finally the response to exposure to stressors to determine consequences. The effects of the action are used to make determinations for each listed species and critical habitat.

4.1 Stressors from Project Actions

Stressors induce an adverse response in an organism by any physical, chemical, or biological alteration of the environment (or resource) that can lead to a response from the individual. Stressors can act directly on an individual, or indirectly through effects to a resource.

The following stressors from the proposed action could induce an adverse response from vernal pool brachiopods.

- Partial or complete filling of habitat with soil or other materials.
- Burying of brachiopod resting cysts.
- Clearing, excavation or other ground disturbing activities that modify the pool/swale bottoms or margins or impact the hard pan layer of the pool/swale.
- Changes in the topography of the surrounding area or hydrological connectivity that would change the hydrology of the pool.

4.2 Exposure to Stressors from the Action

Exposures are defined as the interaction of the species, their resources, and the stressors that result from the project action. Based the habitat in the AA, it is unlikely that vernal pool brachiopods would occur in the AA. However, because no protocol-level surveys were conducted, and presence is assumed, they could be exposed either directly or indirectly to stressors.

If vernal pool brachiopods are present in the AA during the construction period, direct interactions would include death covering and death of cysts from being buried. Construction will not occur during the time when adults or immature brachiopods are present. The additional loss of habitat would result in indirect mortality to all live stages.

4.3 Response to the Exposure

The life cycle of vernal pool brachiopods presents no response to the exposure. Because only a hard cyst will occur during the time of construction, no movement or response will occur. Mortality of the cysts would eventually occur when they do not experience the environmental factors triggering hatching.

4.4 Effects of the Action

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur (50 CFR §402.17). Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR §402.02). The effect of the action is the consequence (behavioral, physical, or physiological) of a response to a stressor.

A conclusion that activities are reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available. Factors to consider whether an activity caused by the proposed action is reasonably certain to occur include, but are not limited to: past experiences with similar activities that have resulted from actions that are similar in scope, nature and magnitude to the proposed action; existing plans for the activities; any remaining economic, administrative and legal requirements necessary for the activity to go forward.

Considerations for determining a consequence to the species or critical habitat is not caused by the proposed action include, but are not limited to: the consequence is so remote in time from the proposed action that it is not reasonably certain to occur; or the consequence is so geographically remote from the immediate area involved in the proposed action that it is not reasonably certain to occur; or the consequence is only reached through a lengthy causal chain that involves so many steps as to make the consequence not reasonably certain to occur (50 CFR §402.17).

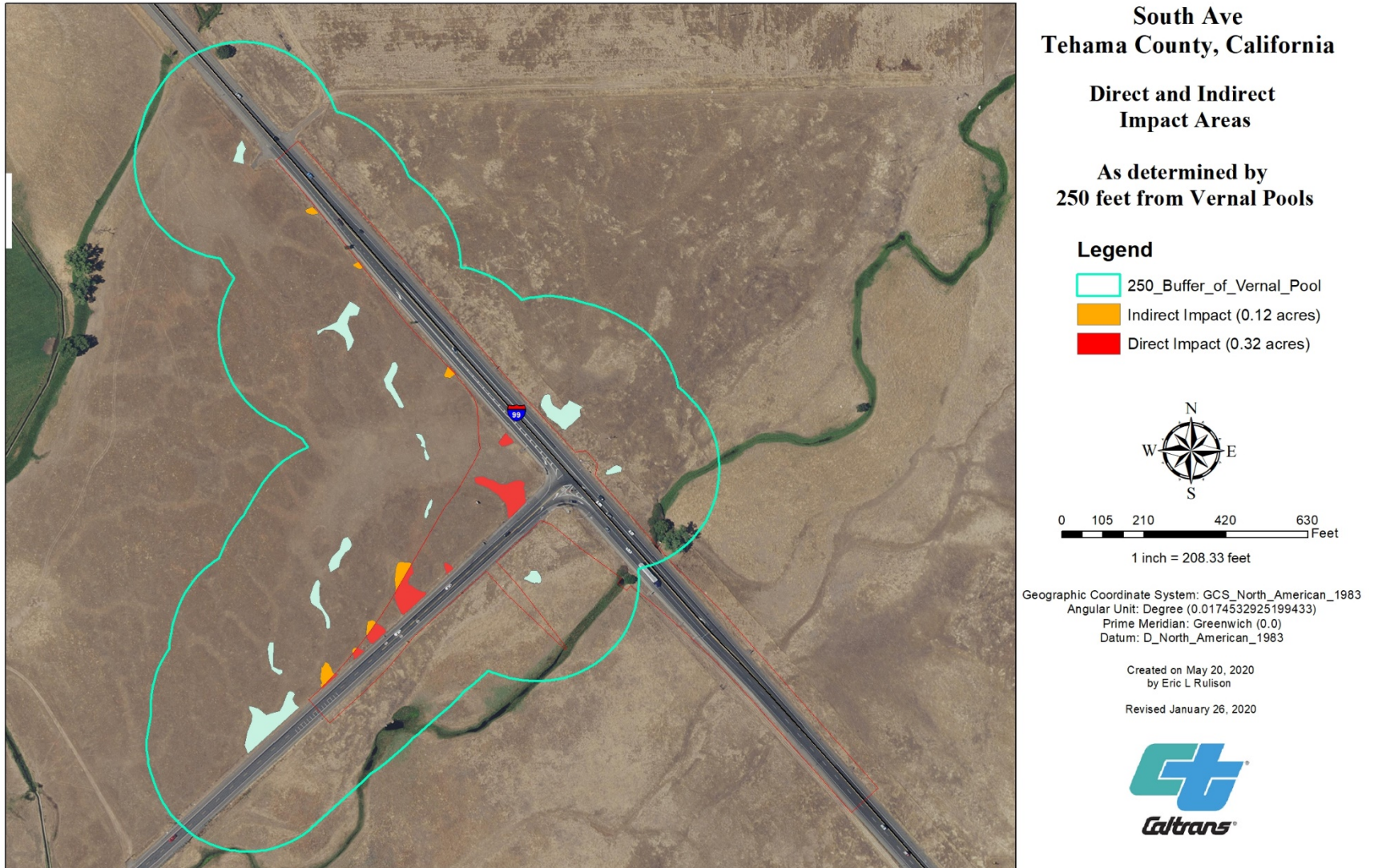
Ten vernal habitats will be directly and indirectly affected.

4.4.1 Direct Effects

For purposes of calculating direct and indirect effects on vernal pool branchiopod habitat and based on the sensitive nature of vernal habitat hydrology, the entire habitat was considered directly affected even if only a portion of the habitat will be directly affected. Vernal habitats within 250 feet of permanent or temporary disturbance were analyzed to determine if indirect effects on these pools/wetlands/swales will occur.

Construction of the proposed action will result in 0.44 acres of direct permanent effects on vernal habitats that could provide suitable habitat for listed vernal pool branchiopods (Figure 11). Eight hog wallows and two pools will be impacted. No swales or marshes are anticipated to be impacted. Vernal pool branchiopod cysts will be crushed, buried, or moved to unsuitable habitat (where they would not hatch) during ground disturbing activities. Ground disturbance in suitable habitat will not occur during the rainy season, consequently there will be no direct effects from ground disturbance on immature and mature vernal pool branchiopods.

Figure 11. Impacts to vernal pool habitats during South Avenue Safety Improvement Project, Tehama County, California.



Temporary effects from the proposed action consist of light grading, driving through habitats when they are dry, or other short-term ground disturbance. All habitats affected by the proposed action are presumed to be occupied by listed vernal pool branchiopods.

Exposure to habitat loss will further reduce the amount of suitable habitat within the vicinity of the AA and within the range of the species. Exposure to crushing, burying, or movement out of suitable habitat by heavy equipment will affect the cyst life stage of vernal pool branchiopods. Because the cysts are microscopic in size and data on the number of cysts in pools in the surrounding area is not available, mortalities will not be detectable; therefore, no estimate can be provided for the number of individuals lost to this exposure. Crushing, burying, or movement of cysts out of suitable habitat will occur multiple times if an occupied area is scraped, filled, or excavated as needed to construct the proposed action.

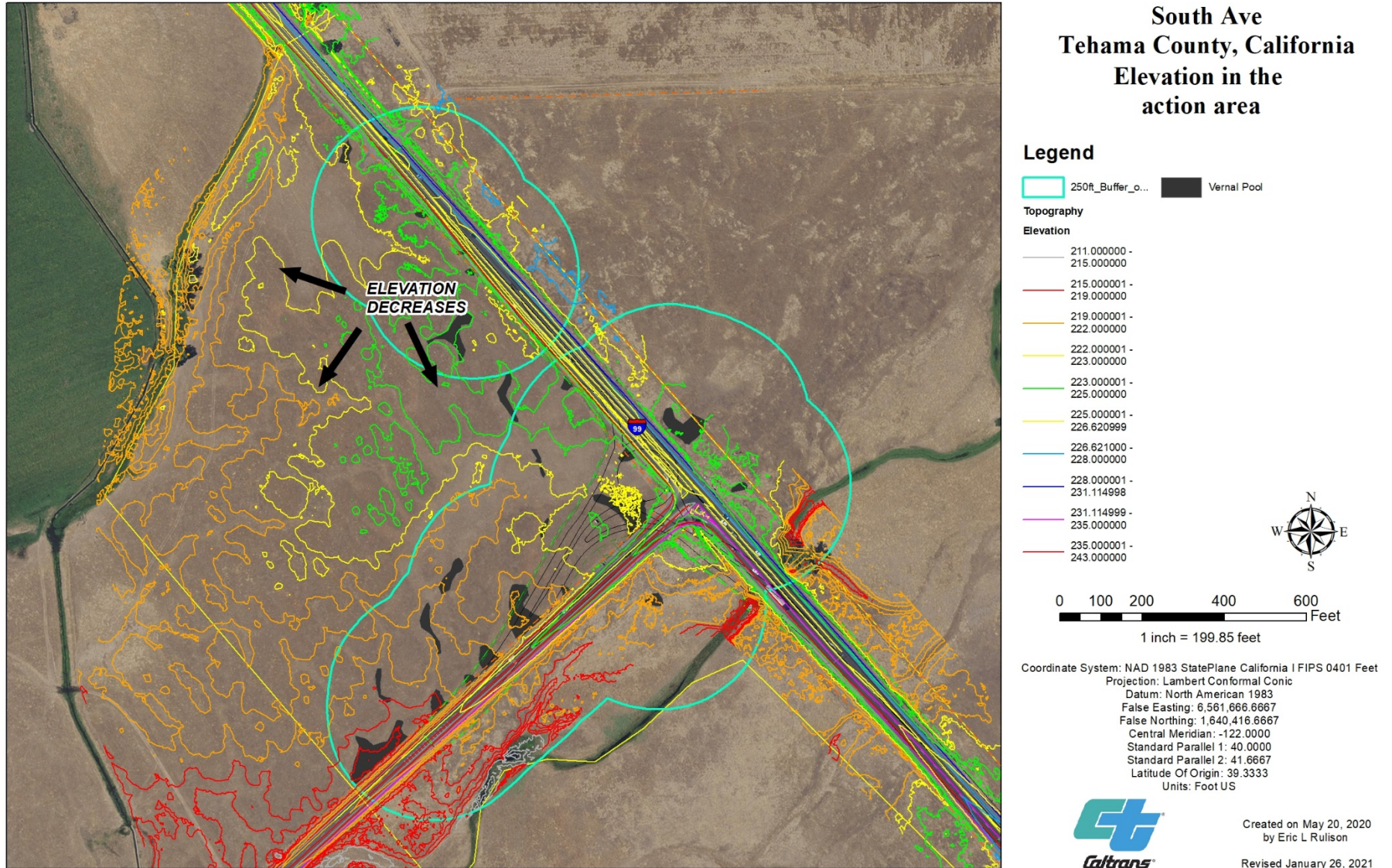
4.4.2 Indirect Effects

The only indirect effect on vernal pool branchiopods from the proposed project is changes in hydrology and no habitats are expected to be affected. Degradation of habitat from increased human presence, and introduction of exotic predators are indirect effects that were considered but were dismissed as potentially affecting vernal pool branchiopods. The area of analysis for indirect effects was 250 feet from the edge of permanent or temporary disturbance. Existing topography and hydrological conditions were analyzed to determine if indirect effects on wetlands within 250 feet of the construction limit could occur. The proposed action would not result in indirect effects. These pools are isolated and occur at the low elevations adjacent to the roadway prism, which prevent pools from draining (see environmental baseline for description of habitats). Because the remaining pools are up slope, indirect impacts based on changes of hydrology are not anticipated (Figure 12).

Grading for the roads may affect the water regime of vernal pool habitat, particularly when grading involves cutting into the substrata in or near habitat areas. Exposure of sub-surface layers of soil at road cuts may hasten the loss of water from adjacent habitat by mass flow through networks of cracks, lenses of coarser material, animal burrows, or other macroscopic channels. Any decrease in the duration of inundation of habitat can affect the reproductive success of species present. However, at this location that does not seem to be the case. In fact, the roadway seems to aide in the creation of pools by providing a barrier were flow cannot continue down grade.

Erosion associated with road building can contaminate vernal habitat through the transport and deposition of sediments into these areas. In addition, roads or other changes in drainage patterns could result in an increase in surface runoff and conversion of vernal pool habitat.

Figure 12. Topography of the action area of South Avenue Safety Improvement Project, Tehama County, California.



Roads in or near habitat can lead to additional impacts through the introduction of chemically laden runoff (i.e., petroleum products) from the road surfaces. Chemical contamination of habitat can kill listed species by poisoning. Roads near habitat areas may encourage additional impacts through other human activities.

Soil compaction and relocating South Avenue will modify the existing hydrologic regime, but because grading will not be conducted outside of the new alignment hydrology in pools outside the work zone are not anticipated to be altered. The pools that remain after construction as well as new pools that naturally occur because they are the new low spot where surrounding uplands are draining to, will have the same amount of water entering these habitats from the upland areas surrounding them.

Installation of guardrails, light fixtures, and CCTV tower could potentially break the hardpan and create a drain. However, this is extremely unlikely because of the type of soil that these bases will be installed into and the concrete backfill which should plug any cracks in the duripan. Location of most of the light fixtures and the CCTV will occur the existing pavement in the current roadway alignment. Additionally, they will be in areas near vernal habitats that have already been included as being directly impacted.

4.5 Cumulative Effects

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the AA described in this biological assessment. Future federal actions that are unrelated to the proposed action are not considered in section because they require separate consultation pursuant to Section 7 of the Act.

Habitat loss as a result of conversion of vernal pool habitat to agricultural uses and urban development is the largest historic and current threat to vernal pool species (U.S. Fish and Wildlife Service 2005). Direct effects of vernal pool habitat will be mitigated at a 2:1 ratio (habitat preserved: habitat impacted) to ensure that vernal pool brachiopods are protected in perpetuity. Habitat creation at a 1:1 ratio (habitat created: habitat impacted) for direct effects on habitat for vernal pool brachiopods will additionally ensure that there will be no net loss of vernal pool habitat from construction of the proposed action. Therefore, the proposed action will not contribute to the cumulative loss of habitat for vernal pool brachiopods in the project vicinity and region. The preservation and creation of pools will occur in areas of denser populations, thereby adding some plasticity and additional pools to absorb impacts from catastrophic events. Implementation of Best Management Practices (BMPs) and conservation measures will avoid and minimize potential impacts on individuals, and proposed compensation will ensure that the proposed action does not contribute to cumulative effects on vernal pool brachiopod habitat.

4.6. Conservation Measures

4.6.1. Project Design Modifications for Avoidance and Minimization

During project documentation to comply with NEPA and CEQA, the proposed action was designed to reduce potential effects on listed species and reduce soil disturbance. The boundaries of the potential staging area and a bioswale were modified to remove direct impacts to vernal habitats.

4.6.2. Species Specific Conservation Measures – Vernal Pool Brachiopods

In addition to implementing Caltrans' standard BMPs throughout the proposed project area for the duration of construction, including erosion and sediment control. The following measures are adapted from the 1996 programmatic biological opinion "Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California," and are to be incorporated.

1. Install Fencing and/ or Flagging to Avoid and Protect Sensitive Biological Resources

- Where habitat for vernal pool brachiopods is present orange construction fencing or flagging and signs will be installed to ensure that all construction activities are confined.

Barrier fencing will be installed as one of the first orders of work and prior to equipment staging, maintained throughout the construction period, and removed after completion of construction. Before construction begins, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the orange construction. The protected areas will be designated as environmentally sensitive areas and clearly identified on the construction plans and described in the specifications. To minimize the potential for snakes and other ground-dwelling animals from being caught in the orange construction fencing, the fencing will be placed with at least a 1-foot gap between the ground and the bottom of the orange construction fencing.

2. Conduct Mandatory Environmental Awareness Training for Construction Personnel

- Before any work occurs in the project area, including grading and tree removal, the applicants will retain a qualified biologist (familiar with the brachiopods) to conduct a mandatory contractor/worker environmental awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid effects to sensitive biological resources (including habitat for federally listed species) adjacent to construction areas

and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist will inform all construction personnel about the life history and habitat requirements of federally listed species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of permits. Proof of this instruction will be submitted to the applicants and the Service;

- The environmental training also will cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction. General restrictions and guidelines that must be followed by construction personnel are:
 - i. Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 10-mile-per-hour speed limit on unpaved roads or access areas during travel within the project limits;
 - ii. Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area;
 - iii. Vegetation clearing and construction operations will be limited to the minimum necessary in areas of temporary access work areas and staging;
 - iv. All food-related trash will be disposed of in closed containers and removed from the project site at least once a week during the construction period. Construction personnel will not feed or otherwise attract wildlife to the project site;
3. To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated staging areas;
4. Avoid and Minimize the Spread of Invasive Plant Species during Project Construction
- Caltrans will require its contractor to avoid and minimize the introduction of new invasive plants and the spread of invasive plants previously documented in the project area. Two or more of the BMPs listed below will be written into the construction specifications and implemented during project construction.
 - Retain all fill material onsite to prevent the spread of invasive plants to uninfected areas.
 - Use a weed-free source for project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1 percent weed seed).
 - Prevent invasive plant contamination of project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin).
 - Use sterile wheatgrass seed and native plant stock during revegetation
 - Revegetate or mulch disturbed soils within 30 days of completion of ground-disturbing activities to reduce the likelihood of invasive plant establishment.

The goal for implementation of these two or more of these BMPs is to minimize the disturbance and transport of soil and vegetation to the greatest extent feasible to complete the work. Detailed information about implementing these BMPs is available in the Cal-IPC publication Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors (California Invasive Plant Council 2012).

5. Upon project completion, Caltrans will require the contractor to restore all temporarily disturbed grassland to pre-project or better conditions. To the extent feasible, native grasses and forbs will be used to reseed disturbed areas.
6. Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats
 - A qualified biologist will monitor all construction activities that involve ground disturbance (e.g., vegetation removal, grading, excavation, bridge construction) within or adjacent to environmentally sensitive areas. The biologist will ensure that fencing around environmentally sensitive areas remains in place during construction and that no construction personnel, equipment, or runoff/ sediment from the construction area enters environmentally sensitive areas. The monitor will complete weekly logs, and a final monitoring report will be prepared at the end of each construction season that will be submitted to the applicants and the Service.
7. Avoid and Minimize Potential Effects on Vernal Pool Branchiopods
 - Ground disturbance within 250 feet of suitable habitat will be avoided during the rainy season (approximately October 15 through May 15). Partial fill of vernal pool habitats (i.e., permanent impacts) will only occur when they are completely dry.
 - If requested by USFWS, the top 3-4 inches of soil in vernal habitats that would be destroyed or filled would be removed and stored in the project area until ready for placement in vernal pool habitat to be restored. The topsoil will be kept covered with tarps or other appropriate material until restored pools are ready to be inoculated. Orange construction barrier fencing will be installed around the covered topsoil. The biological monitor will be onsite to monitor the removal of the topsoil and will check to make sure that the soil is properly covered during periodic monitoring visits to the project site. When restored pools are completed, the stored topsoil would be spread over the bottom of restored pools prior to the start of the winter rainy season.

4.7. Compensation

1. Preservation component. For every acre of habitat directly or indirectly affected, two vernal pool credits will be dedicated to Caltrans owned Cottonwood Conservation Area. Because a total of 0.44 direct and indirect impacts are anticipated, 0.9 preservation credits will be purchased (Table 6).
2. Creation component. For every acre of habitat directly affected, one vernal pool creation credit will be dedicated within the Meridian Ranch Mitigation Bank. The 530-acre Meridian Ranch Mitigation Bank is in Butte County with a service area that covers the proposed project area. Because a total of 0.44 direct and indirect impacts are anticipated, 0.4 creation credits will be purchased.

Table 6. Compensation for Direct and Indirect Effects on Vernal Pool Branchiopod Habitat

Compensation Type	Acres of Impact	Ratio	Total Acres	Preservation Credits	Creation Credits
Preservation	0.44	2:1	0.88	0.9	0
Creation	0.44	1:1	0.44	0	0.4

4.8 Determination

4.8.1 Species and critical habitat determination

1) No Effect

Slender orcutt grass (*Orcuttia tenuis*) – Threatened.

Hairy orcutt grass (*Orcuttia pilosa*) – Endangered.

Greene’s tuctoria (*Tuctoria greenei*) – Endangered.

Hoover’s spurge (*Chamaesyce hooveri*) – Threatened.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) – Threatened.

Delta smelt (*Hypomesus transpacificus*) – Threatened.

California red-legged frog (*Rana draytonii*) – Threatened.

Giant gartersnake (*Thamnophis gigas*) – Threatened.

Yellow-billed cuckoo (Western U.S. DPS) (*Coccyzus americanus*) – Threatened.

2) May Affect-Not Likely to Adversely Affect

A may affect-likely to adversely affect determination has not been made for any of the listed species.

3) May Affect-Likely to Adversely Affect

Caltrans has determined that the proposed action may affect and is likely to adversely affect conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. This determination was made because the proposed action will directly affect 0.43 acres of marginal habitat that is presumed to be occupied.

Other direct effects on vernal pool branchiopods include crushing, burying, or moving cysts to unsuitable habitat during ground disturbing activities; temporary effects from light grading, driving through pools, or other short-term ground disturbance. Indirect effects on vernal pool branchiopods from the proposed action consist of changes in hydrology, which could change the inundation period of habitat. Effects of the proposed action will be avoided, minimized, and compensated through BMPs and conservation measures.

A may affect-likely to adversely affect determination was made for the following species and designated critical habitat. Formal consultation is required.

- Conservancy fairy shrimp (*Branchinecta conservatio*) – Endangered.
- Vernal pool fairy shrimp (*Branchinecta lynchi*) – Threatened.
- Vernal pool tadpole shrimp (*Lepidurus packardii*) – Endangered.

Chapter 5 References

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Appendix 1. Rare Species Lists



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:
Consultation Code: 08ESMF00-2020-SLI-2183
Event Code: 08ESMF00-2021-E-02408
Project Name: South Avenue Roundabout

January 27, 2021

Subject: Updated 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, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

<http://>

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

Attachment(s):

- Official Species List
-

Official Species List

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

This species list is provided by:

Sacramento Fish And Wildlife Office

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

This project's location is within the jurisdiction of offices which do not participate in IPaC's automated species list delivery. Please contact the following offices directly for more information:

Red Bluff Fish And Wildlife Office

10950 Tyler Road
Red Bluff, CA 96080-7762
(530) 527-3043

Project Summary

Consultation Code: 08ESMF00-2020-SLI-2183

Event Code: 08ESMF00-2021-E-02408

Project Name: South Avenue Roundabout

Project Type:

Project Description: Build roundabout at current intersection

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.931816838748134,-122.03334072669281,14z>



Counties: Tehama County, California

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

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

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

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

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

Birds

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> 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
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> 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/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> 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
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> 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/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> 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/2246	Endangered

Flowering Plants

NAME	STATUS
Greene's Tuctoria <i>Tuctoria greenei</i> 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/1573	Endangered
Hairy Orcutt Grass <i>Orcuttia pilosa</i> 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/2262	Endangered
Hoover's Spurge <i>Chamaesyce hooveri</i> 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/3019	Threatened
Slender Orcutt Grass <i>Orcuttia tenuis</i> 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.

Appendix 2. Botanical Reports

FIELD STUDY

*Making Conservation
a California Way of Life.*

To: File

Date: May 20, 2020

File: South Avenue Roundabout
02/THE/99/PM 4.2/4.8
02-0J010 / 0219000044

From: ERIC L. RULISON
District 2 – North Region
Associate Environmental Planner/ Biologist

Subject: **BOTANICAL SURVEY FOR SOUTH AVENUE**

Introduction

The California Department of Transportation, using state and federal funding, proposes to reconfigure the existing intersection of State Route (SR) 99 and South Avenue in Tehama County by replacing the existing minor leg stop-controlled only intersection with a roundabout; the limits of work on State Route 99 are from post mile 4.20 to 4.80. The purpose of the project is to reduce the frequency and severity of collisions by at least 50 percent. The project is needed because there were 17 collisions along this section of roadway between July 1, 2010 and June 30, 2015. As standard practice, rare plant species that have the potential to be located on site were quarried from different sources. Field surveys were performed to identify plant species on the site and locate possible rare plants.

Study Area

The survey was performed at the South Avenue roundabout project near Vina in Tehama County, California. The site is pasture land that is heavily grazed. It is in the North Valley Alluvium subsection consists of the northern part of the geologically recent alluvial plain in the Sacramento Valley, which is mainly floodplains and very gently sloping alluvial fans. The subsection elevation range is 150-300 feet. Local topographic relief at the project limits is flat to very gently sloping. The pasture is convex with the high point in the northwest. Topography gently slopes out in a fan to all directions including SR 99 and South Ave. The project is in the Big Chico Creek-Sacramento River Subbasin. Hoag Slough flows through the project site, south of South Avenue. The climate of the valley floor at this location is hot and subhumid. The area is mapped has having low distribution of Vernal Pool complexes.

Methods

Preliminary investigation included review of information obtained from literature searches, examinations of habitat as discernible from aerial photographs, and database searches including;

- United States Fish and Wildlife Service (USFWS) Species List;
- The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB); and

- The California Native Plant Society Inventory (CNPS) Electronic Inventory of Rare Plants, Eighth Edition (2017).

On May 15, 2020 Caltrans mitigation specialist Emily Harmon and revegetation specialist Mikayla Loucks and myself performed extensive searches in all vernal pools and performed a walking transect of 500 feet to determine vegetation at the site. Additionally, on May 19, 2020 senior biologist Robert Meade and biologist Brendan Barney joined me to delineate vernal pools in the project limits.

Plants, especially those at risk at being directly disturbed by the project, that were focused on were:

- Greene’s Tuctoria (*Tuctoria greenei*);
- Slender Orcutt grass (*Orcuttia tenuis*)
- Hairy Orcutt grass (*Orcuttia pilosa*);
- Hoover’s spurge (*Euphorbia hooveri*);
- Boggs Lake Hedge-hyssop (*Gratiola heterosepala*); and
- Dwarf Downingia (*Downingia pusilla*).

Results

No rare species were identified on site. The site is extremely over-browsed leaving much of the vegetation unable to be identified and bare soil. However, much of this was in upland areas where these species would not grow. The hydric areas fit into the Fremont’s goldfields-Downingia vernal pool community alliance. Characteristic Species of this community include *Downingia* spp. and/or *Lasthenia fremontii*, *Castilleja campestris*, *Cuscuta howelliana*, *Eryngium castrense*, *Eryngium vaseyi*, *Gratiola ebracteata*, *Lilaea scilloides*, *Limnanthes douglasii*, *Plagiobothrys stipitatus* var. *micranthus*, *Plagiobothrys undulatus*, *Psilocarphus brevissimus* var. *brevissimus* and *Ranunculus bonariensis* var. *trisepalus*. Other common species include *Briza minor*, *Bromus hordeaceus*, *Centromadia fitchii*, *Croton setigerus*, *Erodium* spp., *Hordeum* spp., *Hypochaeris glabra*, *Leontodon saxatilis*, *Lolium perenne* or *Lythrum hyssopifolia*.

The following species were identified:

<u>Name</u>	<u>Wetland Indicator</u>	<u>Vernal Pool Indicator</u>
<i>Achyrrachaena mollis</i> (soft blow-wives)	FAC	gen
<i>Aegilops triuncialis</i> (goat grass)	NI	--
<i>Alopecurus saccatus</i> (Pacific meadow fox-tail)	FACW	VPI?
<i>Amaranthus albus</i> (prostrate pigweed)	FACU	--
<i>Avena occidentalis</i> (wild oat)	NI	--
<i>Brodiaea elegans</i> (harvest brodiaea)	FACU	--
<i>Bromus diandrus</i> (ripcut brome)	NI	--
<i>Calystegia</i> spp. (bindweed)	FAC	--
<i>Centaurea solstitialis</i> (yellow star thistle)	NI	--
<i>Centromadia fitchii</i> (spikeweed)	FACU	--
<i>Cyperus eragrostis</i> (tall flat sedge)	FACW	gen
<i>Deschampsia cespitosa</i> (hair grass)	FACW	--
<i>Downingia bicornuta</i> (bristled downingia)	OBL	VPA
<i>Eleocharis macrostachya</i> (spreading spike rush)	OBL	VPI?
<i>Elymus caput-medusae</i> (medusahead)	NI	--
<i>Eryngium vaseyi</i> (coyote thistle)	FACW	VPI/VPA
<i>Festuca perennis</i> (Italian ryegrass)	NI	--
<i>Fraxinus latifolia</i> (Oregon ash)	FACW	--

<i>Juncus balticus</i> (baltic rush)	FACW	--
<i>Navarretia leucocephala</i> (white headed navarretia)	OBL	VPI?
<i>Plagiobothrys stipitatus</i> (popcornflower)	FACW	VPA
<i>Polypogon monspeliensis</i> (rabbitsfoot grass)	FACW	VPA?
<i>Populus fremontii</i> (cottonwood)	NI	--
<i>Portulaca oleracea</i> (purslane)	FAC	--
<i>Psilocarphus brevissimus</i> (woolly marbles)	FACW	VPI?
<i>Rubus armeniacus</i> (Himalayan blackberry)	FAC	--
<i>Salix lasiolepis</i> (Arroyo willow)	FACW	--
<i>Schinus terebinthifolius</i> (Brazilian peppertree)	NI	--
<i>Trifolium depauperatum</i> (cow bag clover)	FAC	gen
<i>Trifolium hirtum</i> (rose clover)	NI	--
<i>Typha angustifolia</i> (cat-tail)	OBL	--

Blennosperma nanum (FACW; VPI?) or *Lasthenia californica* (UPL;VPA?) (Yellow carpet or goldfields) potentially – Specimens to decomposed.

Plant Species Associated With Vernal Pools

Vernal pool indicators (vpi) = species that are restricted to vernal pools and are not known from other habitats

Vernal pool associates (vpa) = species that regularly occur in vernal pools but are not restricted to them, also occurring in other similar wetland habitats

Generalists (gen) = species that can occur in more than one habitat, either wetland or upland, or sometimes both, including vernal pools, pool margins, disturbed areas, and grasslands.

vpi? = a species that is a vpi in certain region(s) only, and can be a vpa or gen in other regions

vpa? = a species that is a vpa in certain region(s), and is gen in other regions

vpi/vpa = a species that is a vpi in some regions and a vpa in other regions, yet not known to be a gen

Conclusion

No rare plants were identified during this survey.

FIELD STUDY

*Making Conservation
a California Way of Life.*

To: File

Date: July 13, 2020

File: South Avenue Roundabout
02/THE/99/PM 4.2/4.8
02-0J010 / 0219000044

From: ERIC L. RULISON
District 2 – North Region
Associate Environmental Planner/ Biologist

Subject: **BOTANICAL SURVEY FOR SOUTH AVENUE**

Introduction

The California Department of Transportation, using state and federal funding, proposes to reconfigure the existing intersection of State Route (SR) 99 and South Avenue in Tehama County by replacing the existing minor leg stop-controlled only intersection with a roundabout; the limits of work on State Route 99 are from post mile 4.20 to 4.80. The purpose of the project is to reduce the frequency and severity of collisions by at least 50 percent. The project is needed because there were 17 collisions along this section of roadway between July 1, 2010 and June 30, 2015. As standard practice, rare plant species that have the potential to be located on site were quarried from different sources. Field surveys were performed to identify plant species on the site and locate possible rare plants.

Study Area

The survey was performed at the South Avenue roundabout project near Vina in Tehama County, California. The site is pasture land that is heavily grazed. It is in the North Valley Alluvium subsection consists of the northern part of the geologically recent alluvial plain in the Sacramento Valley, which is mainly floodplains and very gently sloping alluvial fans. The subsection elevation range is 150-300 feet. Local topographic relief at the project limits is flat to very gently sloping. The pasture is convex with the high point in the northwest. Topography gently slopes out in a fan to all directions including SR 99 and South Ave. The project is in the Big Chico Creek-Sacramento River Subbasin. Hoag Slough flows through the project site, south of South Avenue. The climate of the valley floor at this location is hot and subhumid. The area is mapped has having low distribution of Vernal Pool complexes.

Methods

Preliminary investigation included review of information obtained from literature searches, examinations of habitat as discernible from aerial photographs, and database searches including;

- United States Fish and Wildlife Service (USFWS) Species List;
- The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB); and

- The California Native Plant Society Inventory (CNPS) Electronic Inventory of Rare Plants, Eighth Edition (2017).

On July 7, 2020 Caltrans Mitigation specialist Emily Harmon and myself performed extensive searches in all vernal pools proposed to be disturbed and performed.

Plants, especially those at risk at being directly disturbed by the project, that were focused on were:

- Greene's Tuctoria (*Tuctoria greenei*);
- Slender Orcutt grass (*Orcuttia tenuis*)
- Hairy Orcutt grass (*Orcuttia pilosa*);
- Hoover's spurge (*Euphorbia hooveri*);
- Boggs Lake Hedge-hyssop (*Gratiola heterosepala*); and
- Dwarf Downingia (*Downingia pusilla*).

Results

No rare species were identified on site.

The following species were identified in the ESL:

Species	Wetland Indicator Status	Vernal Pool indicator Status
Spanish clover (<i>Acmispon americanus</i>)	NI	--
goat grass (<i>Aegilops triuncialis</i>)	NI	--
Prostrate pigweed (<i>Amaranthus albus</i>)	FACU	--
wild oat (<i>Avena occidentalis</i>)	NI	--
Ripcut brome (<i>Bromus diandrus</i>)	NI	--
Soft brome (<i>Bromus hordeaceus</i>)	FACU	--
Yellow star thistle (<i>Centaurea solstitialis</i>)	NI	--
Spikeweed (<i>Centromadia fitchii</i>)	FACU	--
Turkey mullein (<i>Croton setiger</i>)	NI	--
Tall flat sedge (<i>Cyperus eragrostis</i>)	FACW	--
Hair grass (<i>Deschampsia cespitosa</i>)	FACW	--
Jungle rice (<i>Echinochloa colona</i>)	FAC	--
Spreading spikerush (<i>Eleocharis macrostachya</i>) (dead)	OBL	VPI?
Medusahead (<i>Elymus caput-medusae</i>)	NI	--
Willow herb (<i>Epilobium brachycarpum</i>)	NI	--
Coyote thistle (<i>Eryngium vaseyi</i>) (dead)	FACW	VPI/VPA
Spotted spurge (<i>Euphorbia maculate</i>)	UPL	--
Contura creek spurge (<i>Euphorbia ocellata</i>)	NI	--
Italian ryegrass (<i>Festuca perennis</i>)	NI	--
Oregon ash (<i>Fraxinus latifolia</i>)	FACW	--
European Heliotrope (<i>Heliotropium europaeum</i>)	NI	--
Sprangletop (<i>Leptochloa fusca</i>)	NI	--
Little lessingia (<i>Lessingia nana</i>)	NI	--
Hyssop loosestrife (<i>Lythrum hyssopifolia</i>) (dead)	OBL	VPA?
Dallis grass (<i>Paspalum dilatatum</i>)	FAC	--
Rabbitsfoot grass (<i>Polypogon monspeliensis</i>)	FACW	VPA?
cottonwood (<i>Populus fremontii</i>)	FAC	--
Rams horn (<i>Proboscidea louisianica</i>)	FACU	--
Woolly marbles (<i>Psilocarphus brevissimus</i>) (dead)	FACW	VPI?
Himalayan blackberry (<i>Rubus armeniacus</i>)	FAC	--

Curly dock (<i>Rumex crispus</i>)	FAC	gen
Arroyo willow (<i>Salix lasiolepis</i>)	FACW	--
Russian thistle (<i>Salsola tragus</i>)	FACU	--
peppertree (<i>Schinus terebinthifolius</i>)	NI	--
Vinegarweed (<i>Trichostema lanceolatum</i>)	FACU	gen
cat-tail (<i>Typha angustifolia</i>) (dead)	OBL	--
Cocklebur (<i>Xanthium strumarium</i>)	FAC	gen
Spiny cocklebur (<i>Xanthium spinosum</i>)	FACU	--

Plant Species Associated with Vernal Pools

Vernal pool indicators (vpi) = species that are restricted to vernal pools and are not known from other habitats

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vpa? = a species that is a vpa in certain region(s), and is gen in other regions

vpi/vpa = a species that is a vpi in some regions and a vpa in other regions, yet not known to be a gen

Conclusion

No rare plants were identified during this survey.

Appendix 3. Representative Photographs

Vernal Habitat 1



Vernal Habitat 2



Vernal Habitat 3



Vernal Habitat 4



Vernal Habitat 5



Vernal Habitat 6



Vernal Habitat 7



Vernal Habitat 8



Vernal Habitat 9



Vernal Habitat 10



Vernal Habitat 11



Vernal Habitat 12



Vernal Habitat 13



Vernal Habitat 14



Vernal Habitat 15



Vernal Habitat 16



Vernal Habitat 17



Vernal Habitat 18



Vernal Habitat 19



Vernal Habitat 20



Vernal Habitat 21



Vernal Habitat 22



Sign indicating the shoulders of State Route 99 are managed for sensitive botanical species.



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Appendix G Avoidance, Minimization, and/or Mitigation Summary

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In order to be sure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record [ECR] which follows) would be implemented. During project design, avoidance, minimization, and/or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in this ECR are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. As the following ECR is a draft, some fields have not been completed, and will be filled out as each of the measures is implemented. Note: Some measures may apply to more than one resource area. Duplicative or redundant measures have not been included in this ECR.

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Environmental Commitments Record (ECR)

DIST-CO-RTE: 02 - TEH - 099 **PM/PM:** 4.200/4.800 **EA/Project ID:** 02-0J010_ / 0219000044

Project Description: Construct roundabout

Date (Last modification): 1/3/2022

Environmental Planner: Darrin Doyle

Phone: 530-759-3409

Construction Liaison: David Hunt

Phone: 530-759-3410

Resident Engineer:

Phone:

PERMITS

Permit	Agency	Application Submitted	Permit Received	Permit Expiration	Permit Requirements Completed by	Permit Requirements Completed on	Comments
1600	California Department of Fish & Wildlife						
401	Regional Water Quality Control Board						
404 Individual Letter of Permission (LOP)	US Army Corps of Engineers						
BO (FWS)	US Fish and Wildlife	2/9/21	8/31/21				

ENVIRONMENTAL COMMITMENTS

PS&E/BEFORE RTL

Category	Task and Brief Description	Source	Included in PS&E Package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA
Hazardous Waste	A site investigation for aerially deposited lead (ADL) shall be conducted prior to RTL to determine whether ADL is present and what actions, if any, would be required. If encountered, soil with elevated concentrations of lead as a result of ADL on the State Highway System right-of-way within the limits of the project will be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the project limits as long as all requirements of the ADL Agreement are met.	ISA		Caltrans' on-call haz-mat consultant performs task. PE/PM verify compliance.			_____ Signature	_____ Date		
Permits	Prior to working within wetlands and other waters subject to federal and state jurisdiction, the following permits shall be obtained:	NES		Caltrans Biologist obtains permits. PM			_____ Signature	_____ Date		

Environmental Commitments Record for South Ave Safety

	<ul style="list-style-type: none"> · A permit from the Army Corps of Engineers · Water Quality Certification from the Central Valley Regional Water Quality Control Board · Streambed Alteration Agreement from the California Department of Fish and Wildlife. 			verifies compliance.			
Other	The roundabout shall be designed in accordance with current seismic safety standards.	IS/EA		PE performs task. PM verifies compliance.	_____ Signature	_____ Date	
Williamson Act Lands	The permanent acquisition of land assumed to be enrolled in a Williamson Act contract would require approval from the California Department of Conservation. This will be done in the 1 Phase.	IS/EA		Caltrans Environmental Coordinator performs task. PM verifies completion.	_____ Signature	_____ Date	

Environmental Commitments Record for South Ave Safety

Category	Task and Brief Description	Source	Included in PS&E Package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA
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PRE-CONSTRUCTION

Category	Task and Brief Description	Source	Included in PS&E Package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA
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Biology	<p>Caltrans will require its contractor to avoid and minimize the introduction of new invasive plants and the spread of invasive plants previously documented in the project area. Two or more of the BMPs listed below will be written into the construction specifications and implemented during project construction.</p> <ul style="list-style-type: none"> o Retaining all fill material onsite to prevent the spread of invasive plants to uninfected areas. o Using a weed-free source for project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1 percent weed seed). o Preventing invasive plant contamination of project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin). o Using sterile wheatgrass seed and native plant stock during revegetation. o Revegetating or mulching disturbed soils within 30 days of completion of ground-disturbing activities to reduce the likelihood of invasive plant establishment. 	BA		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		<p>_____</p> <p style="text-align: center;">Signature</p>	<p>_____</p> <p style="text-align: center;">Date</p>		
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Biology	<p>Conduct mandatory environmental awareness training for construction personnel.</p> <ul style="list-style-type: none"> o Before any work occurs in the project area, including grading and tree removal, the applicant will retain a qualified biologist (familiar with the branchiopods) to conduct a mandatory contractor/worker environmental awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid effects to sensitive biological resources (including habitat for federally listed species) adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist will inform all construction personnel about the 	BA		A contractor-supplied Biologist performs task. RE/ECL verifies compliance.	Include in contract.		<p>_____</p> <p style="text-align: center;">Signature</p>	<p>_____</p> <p style="text-align: center;">Date</p>		
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life history and habitat requirements of federally listed species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of permits. Proof of this instruction will be submitted to the Service.

o The environmental training also will cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction. General restrictions and guidelines that must be followed by construction personnel are:

i. Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 10-mile-per-hour speed limit on unpaved roads or access areas during travel within the project limits.

ii. Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.

iii. Vegetation clearing and construction operations will be limited to the minimum necessary in areas of temporary access work areas and staging.

iv. All food-related trash will be disposed of in closed containers and removed from the project site at least once a week during the construction period. Construction personnel will not feed or otherwise attract wildlife to the

Biology

Install fencing and/or flagging to avoid and protect sensitive biological resources. BA

Contractor performs task. RE/ECL verifies compliance. Include in contract.

Signature

Date

o Where habitat for vernal pool branchiopods is present, orange construction fencing or flagging and signs will be installed to ensure that all construction activities are confined. Barrier fencing will be installed as one of the first orders of work and prior to equipment staging, maintained throughout the construction period, and removed after completion of construction. Before construction begins, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the orange construction. The protected areas will be designated as environmentally sensitive areas and clearly identified on the construction plans and described in the specifications. To minimize the potential for snakes and other ground-dwelling animals from being caught in the

orange construction fencing, the fencing will be placed with at least a 1-foot gap between the ground and the bottom of the orange construction fencing.

Biology	<p>Proposed Compensation</p> <p>o Preservation component. For every acre of habitat directly or indirectly affected, two vernal pool credits will be dedicated to Caltrans owned Cottonwood Conservation Area. Because a total of 0.44 acres of direct and indirect impacts are anticipated, 0.9 preservation credits will be purchased (Table 8).</p> <p>Creation component. For every acre of habitat directly affected, one vernal pool creation credit will be dedicated within the Meridian Ranch Mitigation Bank. The 530-acre Meridian Ranch Mitigation Bank is in Butte County with a service area that covers the proposed project area. Because a total of 0.44 acres of direct and indirect impacts are anticipated, 0.4 creation credits will be purchased.</p>	BA	Caltrans Stewardship performs task. RE/ECL verifies compliance.	<p>_____</p> <p>Signature</p>	<p>_____</p> <p>Date</p>
Biology	<p>o All off-road construction equipment will be cleaned of potential noxious weed sources (mud, vegetation) before entering the project area, and after entering a potentially infested area before moving on to another area, to help ensure noxious weeds are not introduced into the project area. The contractor shall employ whatever cleaning methods (typically with the use of a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required. Equipment washing stations shall be placed in areas that afford easy containment and monitoring and that do not drain into sensitive (riparian, streams, wetlands, etc.) areas.</p>	NES	Contractor performs task. RE/ECL verifies compliance. Include in contract.	<p>_____</p> <p>Signature</p>	<p>_____</p> <p>Date</p>
Biology	<p>· In accordance with Caltrans Non-Standard Specification 14-6.05, prior to beginning work, the contractor shall prepare an invasive species control plan that identifies measures to be implemented to prevent the introduction and/or spread of invasive species (e.g., noxious weeds). The invasive species control plan shall be subject to approval by Caltrans and implemented prior to beginning work.</p>	IS/EA	Contractor performs task. RE/ECL verifies compliance. Include in contract.	<p>_____</p> <p>Signature</p>	<p>_____</p> <p>Date</p>

Environmental Commitments Record for South Ave Safety

Category	Task and Brief Description	Source	Included in PS&E Package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA
Biology	To avoid disturbing nesting birds, tree and shrub removal shall be restricted to the period between October 1 and January 31. If this is not practicable, a contractor-supplied biologist shall conduct a pre-construction survey for nesting birds within 7 days prior to removing trees and shrubs. If an active nest is discovered, the project engineer shall be notified immediately and all work within 100 feet of the nest shall cease. Work within the buffer zone may proceed only after a contractor-supplied biologist has determined that the nest is no longer active.	IS/ES		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		_____ Signature	_____ Date		
Biology	<p>All conservation measures, as described in the Biological Assessment and restated in the Description of The Proposed Action section of the Biological Opinion, shall be fully implemented and adhered to. Further, this reasonable and prudent measure shall be supplemented by the terms and conditions below.</p> <p>o Caltrans will include full implementation and adherence to the conservation measures as a condition of any permit or contract issued for the project.</p> <p>o Prior to construction, Caltrans will provide a copy of the completed bill of sale and payment receipt to the Service upon the applicant's purchase of vernal pool branchiopod species preservation and creation credits at a Service-approved vernal pool conservation bank.</p> <p>o In order to monitor whether the amount or extent of incidental take anticipated from implementation of the proposed project is approached or exceeded, Caltrans will adhere to the following reporting requirement. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must immediately reinstate formal consultation, as per 50 CFR §402.16.</p> <p>§ For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Caltrans will provide a precise accounting of the total acreage of habitat impacted to the Service after completion of construction.</p>	BO		Caltrans Biologist/Stewardship performs task. RE/ECL verifies compliance.			_____ Signature	_____ Date		
Biology	Before any work occurs in the proposed project area, including grading and tree removal, Caltrans will retain a Service-approved biologist (familiar with the vernal pool branchiopods) to conduct a mandatory contractor/worker	BO		Contractor-supplied biologist performs task. RE/ECL verifies	Include in contract.		_____ Signature	_____ Date		

Environmental Commitments Record for South Ave Safety

environmental awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid effects to sensitive biological resources (including habitat for federally listed species) adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist will inform all construction personnel about the life history and habitat requirements of federally listed species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of permits. Proof of this instruction will be submitted to the Service.

compliance.

Biology	To offset direct effects to approximately 0.44 acres of wetlands assumed to be occupied by Threatened/Endangered vernal pool branchiopods (e.g., tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp), suitable habitat will be preserved at a ratio of 2:1 and will be created at a ratio of 1:1, as depicted in Table 9. A total of 1.3 acres of vernal pool branchiopod species credits will be purchased at a Service-approved conservation bank with a service area that covers the proposed project.	BO	Caltrans Stewardship performs task. RE/ECL verifies compliance.	Include in contract.	_____ Signature	_____ Date
Biology	Where habitat for vernal pool branchiopods is present, orange construction fencing or flagging and signs will be installed to ensure that all construction activities are confined.	BO	Contractor performs task. RE/ECL verifies compliance.	Include in contract.	_____ Signature	_____ Date
Water Quality	<p>Prior to construction, the contractor shall prepare a Storm Water Pollution Prevention Plan in accordance with the 2018 Caltrans Standard Specifications that identifies measures to be implemented for erosion control, spill prevention, and construction waste containment. All construction site Best Management Practices shall follow the most current edition of the Construction Site Best Management Practices (BMPs) Manual.</p> <p>The following construction site BMPs are anticipated to be incorporated into the Storm Water Pollution Prevention Plan:</p> <ul style="list-style-type: none"> Existing vegetation shall be removed to the minimum extent necessary to facilitate the proposed work (SS-2). 	IS/EA	Contractor performs task. RE/ECL verifies compliance.	Include in contract.	_____ Signature	_____ Date

- Temporary access road entrances and exits shall be stabilized and maintained to prevent sediment erosion and transport from the work area (TC-1).
- Temporary drainage inlet protection methods such as gravel bags shall be deployed to prevent sediment and other pollutants from entering drainage systems (SC-10)
- Perimeter control devices such as fiber rolls, compost socks, and silt fences shall be utilized to prevent sediment transport from the project site (SC-6, SC-09).
- Disturbed slopes shall be stabilized with a combination of seed, biodegradable rolled erosion control products (RECP) such as fiber rolls, coir blankets, and geotextile fabrics (SS-7).
- Concrete washout facilities, re-fueling areas, as well as equipment and storage areas shall be covered and located away from drainage inlets and waterways to prevent both stormwater and non-stormwater discharges (WM-3, WM-8, NS-9).
- Dewatering operations shall be implemented to manage the discharge of pollutants from the accumulation of groundwater associated with excavations, temporary stream crossings and clear water diversions (NS-2, NS-4, NS-5).

Traffic	Public Outreach	IS/EA	PM performs some tasks. Other tasks will be completed as part of public noticing for the IS/EA		
	Prior to construction, the following public outreach efforts shall be made:			Signature	Date
	· Inform the public about the project.				
	· Notify adjacent property owners about the project.				
	· Notify the Los Molinos Unified School District about the project.				
	· Implement a public information campaign (e.g., news releases and worker safety media campaign).				
	· Coordinate with local emergency service providers to ensure that they are aware of the project and that safe passage is maintained for emergency vehicles at all times.				

Transportation	Prior to construction, the Transportation Management Plan prepared for the project will be subject to review/approval from the California Highway Patrol and CAL FIRE.	IS/EA		Contractor performs task. RE verifies compliance.	Include in contract.						
							Signature	Date			

CONSTRUCTION

Category	Task and Brief Description	Source	Included in PS&E Package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA
Air Quality	<p>The contractor shall comply with Section 10-5 "Dust Control", Section 14-9 "Air Quality", and Section 18 "Dust Palliatives" in the 2018 Caltrans Standard Specifications. Compliance with these Standard Specifications would include implementing the following dust and pollutant reduction/control measures to minimize any air quality impacts resulting from construction activities:</p> <ul style="list-style-type: none"> o Water or a dust palliative shall be applied to the site and equipment as often as necessary to control fugitive dust emissions. o Construction equipment and vehicles shall be properly tuned and maintained. All construction equipment shall use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114. o Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, shall be used. o All transported loads of soils and wet materials shall be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) shall be provided to minimize emission of dust during transportation. o Dust and mud that are deposited on paved, public roads due to construction activity and traffic shall be promptly and regularly removed to reduce PM emissions. 	IS/EA		Contractor performs task. RE verifies compliance.	Include in contract.					
							Signature	Date		

Biology	Avoid and minimize potential effects on vernal pool branchiopods	BA		Contractor performs task. RE/ECL verifies	Include in contract.					
							Signature	Date		

Environmental Commitments Record for South Ave Safety

	<p>o Ground disturbance within 250 feet of suitable habitat will be avoided during the rainy season (approximately October 15 through May 15). Partial fill of vernal pool habitats (i.e., permanent impacts) will only occur when they are completely dry.</p> <p>o If requested by USFWS, the top 3-4 inches of soil in vernal habitats that would be destroyed or filled would be removed and stored in the project area until ready for placement in vernal pool habitat to be restored. The topsoil will be kept covered with tarps or other appropriate material until restored pools are ready to be inoculated. Orange construction barrier fencing will be installed around the covered topsoil. The biological monitor will be onsite to monitor the removal of the topsoil and will check to make sure that the soil is properly covered during periodic monitoring visits to the project site. When restored pools are completed, the stored topsoil would be spread over the bottom of restored pools prior to the start of the winter rainy season.</p>			compliance.					
Biology	<p>Retain a qualified biologist to conduct monitoring during construction in sensitive habitats.</p> <p>o A qualified biologist will monitor all construction activities that involve ground disturbance (e.g., vegetation removal, grading, excavation) within or adjacent to environmentally sensitive areas. The biologist will ensure that fencing around environmentally sensitive areas remains in place during construction and that no construction personnel, equipment, or runoff/ sediment from the construction area enters environmentally sensitive areas. The monitor will complete weekly logs, and a final monitoring report will be prepared at the end of each construction season that will be submitted to the Service.</p>	BA		<p>A qualified Biologist performs task. RE/ECL verifies compliance.</p>	Include in contract.		<p>_____ Signature</p>	<p>_____ Date</p>	
Biology	<p>To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated staging areas.</p>	BA		<p>Contractor performs task. RE/ECL verifies compliance.</p>	Include in contract.		<p>_____ Signature</p>	<p>_____ Date</p>	
Biology	<p>No work shall be allowed in the flowing stream. If water is present in the channel, it will be cleanly diverted around the work area.</p>	NES		<p>Contractor performs task. RE/ECL verifies compliance.</p>	Include in contract.		<p>_____ Signature</p>	<p>_____ Date</p>	

Environmental Commitments Record for South Ave Safety

Category	Task and Brief Description	Source	Included in PS&E Package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA
Biology	o Staging and storage of equipment should only be done in weed-free areas. Hand, mechanical, or chemical eradication treatments may be needed for these areas. Additionally, areas may need to be designated as excluded from contractor's use.	NES		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		Signature	Date		
Biology	Removal of existing [riparian] vegetation shall not exceed the minimum necessary to complete operations.	NES		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		Signature	Date		
Biology	The contractor shall follow the terms and conditions of the regulatory permits to be obtained from California Department of Fish and Wildlife, Central Valley Regional Water Quality Control Board, and Army Corps of Engineers.	NES		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		Signature	Date		
Biology	The plan for emergency clean-up of any spills will be available on-site and materials for spill clean-up will be maintained on-site	NES		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		Signature	Date		
Biology	· Ground disturbance within 250 feet of suitable vernal pool branchiopod habitat will be avoided during the rainy season (approximately October 15 through May 15). Partial fill of vernal pool habitats (i.e., permanent effects) will only occur when they are completely dry.	BO		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		Signature	Date		
Cultural Resources	It is Caltrans' policy to avoid cultural resources whenever possible. Compliance with the following Caltrans Standard Specifications to protect buried cultural materials, including human remains, that may be encountered during construction would ensure that the project would have no adverse effect on historic/archaeological resources pursuant to §15064.5 or on buried human remains: · If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. If human remains are discovered, California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native	IS/EA		Contractor-suppl ied archaeologist performs work. RE/ECL verify compliance.	Include in contract.		Signature	Date		

American Heritage Commission (NAHC), who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the Caltrans District 2 Native American Coordinator so that he/she may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Hazardous Waste	Asphalt grindings associated with the removal of yellow and white road striping shall be removed and disposed of by the contractor in accordance with Caltrans Standard Special Provision 36-4, which requires the contractor to prepare a Lead Compliance Plan.	ISA	Contractor performs task. RE verifies compliance.	Include in contract.	<u>Signature</u>	<u>Date</u>
Hazardous Waste	Treated wood waste shall be disposed of by the contractor in accordance with Caltrans Standard Specification 14-11.14.	ISA	Contractor performs task. RE verifies compliance.	Include in contract.	<u>Signature</u>	<u>Date</u>
Noise	The contractor shall comply with Caltrans Standard Specification 14-8.02 "Noise Control", which includes provisions for minimizing construction-related noise and vibration. These include controlling and monitoring noise resulting from work activities and ensuring that construction-related noise levels do not exceed 86 dBA Lmax at 50 feet from the job site from 9 p.m. to 6 a.m.	Noise Study	Contractor performs task. RE verifies compliance.	Include in contract.	<u>Signature</u>	<u>Date</u>
Visual Resources	Incorporate treatments to reduce glare from new galvanized elements such as the light pole standards, mast arms and 45' steel truss tower. The substantial number of vertical elements introduced to an otherwise featureless landscape is out of character and in stark contrast with the existing visual environment. Treating these elements to reduce the shine and glare will aid in blending with the existing landscape resulting in a softened and reduced visual impact.	VIA	Contractor performs task. RE/ECL verifies compliance.	Include in contract.	<u>Signature</u>	<u>Date</u>
Greenhouse Gases	The contractor shall comply with Section 14-9 in the 2018 Caltrans Standard Specifications. Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including the Tehama County Air Pollution Control District regulations and local ordinances.	IS/EA	Contractor performs task. RE/ECL verifies compliance.	Include in contract.	<u>Signature</u>	<u>Date</u>
	Compliance with Title 13 of the California Code of Regulations, which includes idling restrictions on					

construction vehicles and equipment to no more than 5 minutes.

- Compliance with Caltrans Standard Specifications 7-1.02A and 7-1.02C "Emissions Reduction."

- Utilize a transportation management plan to minimize vehicle delays.

- To the extent feasible, construction traffic shall be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.

Traffic	Traffic Control	TMP	Contractor performs task. RE verifies compliance.	Include in contract.	Signature	Date	REPLACE THIS MEASURE WITH UPDATED MEASURES
	<ul style="list-style-type: none"> · Construction will be conducted under Staged Construction Plans and Revised Standard Plan T13 and T13B lane closure (reversing, one-way traffic control) with the Revised Standard Plan T22 for speed reduction. Most operations can be conducted during typical 12-hour work shifts. Twenty-four-hour traffic control is required if traffic is on an un-paved surface or when shown on stage construction sheets. Based on traffic volumes, lane closures with less than one lane for each direction of traffic, would normally be allowed only during nighttime hours, but because of the nature of the work and limited space available 24-hour reversing may be necessary, if management approves. 						
	Trucks						
	<ul style="list-style-type: none"> · State Route 99 is designated as a Terminal Access route for STAA trucks. It has not yet been determined if traffic control for this project will alter the requirement for STAA truck routes; therefore, truck impacts are not known. Annual permits are issued for trucks 8.5 feet to 12 feet in width. Occasionally under special approval, single trip permits are issued for trucks over 12 feet in width. This project does include the use of Type K temporary railing and a 16-foot horizontal clearance must be provided to traffic at all locations. 						
	Bicyclists and Pedestrians						
	<ul style="list-style-type: none"> · Bicycles and pedestrians are allowed within the project limits. During operations, bicyclists may travel past 						

the work zone using the open lane (the same as vehicle traffic). When pedestrians are present, they may need to be transported through the work zone.

Lane Closures

- Lane closures on two-lane conventional highways are not allowed during times when the traffic volumes are high enough to create queues too large to clear in a standard traffic control cycle, which would eliminate the use of 24-hour reversing lane closures during daytime hours. The intersection with South Avenue will further complicate

POST-CONSTRUCTION

Category	Task and Brief Description	Source	Included in PS&E Package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA
Biology	Upon project completion, Caltrans will require the contractor to restore all temporarily disturbed grassland to pre-project or better conditions. To the extent feasible, native grasses and forbs will be used to reseed disturbed areas.	BA		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		_____ Signature	_____ Date		
Biology	· The proposed re-vegetation measures for all disturbed soils, including the use of native species, soil amendments, and “weed free” mulch, reduces the risk of introducing noxious weeds. The contract specifications for permanent erosion control would require the use of California native forbs and grass species. All areas disturbed by construction would be treated with a seed mix comprised of local native grasses and forbs. Soils would be amended with compost containing long-term soil nutrients and slow-release organic fertilizers to provide nutrients over the first year. Mulches used on the project would be from source materials that would not introduce exotic species. No wheat or barley straw would be used on the project because of the potential to introduce weeds.	NES		Contractor performs task. RE/ECL verifies compliance.	Include in contract.		_____ Signature	_____ Date		
	o To further minimize the risk of introducing additional non-native species into the area, only locally adapted plant species appropriate for the project area will be used in any erosion control or revegetation seed mix or stock. No dry-farmed straw will be used, and certified weed-free straw shall be required where erosion control straw is to be used. In addition, any hydro-seed mulch used for revegetation activities must also be certified weed-free.									

Appendix H Comment Letters and Responses

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REDDING, CA 96001
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TTY 711



Making Conservation
a California Way of Life.

April 12, 2022

Anthony
dukeofurl@sonic.net

Dear Anthony:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

The bottom line is that intersection is not unsafe. I've been traveling through it 3 times a week for 10 years and have never, not once, seen a traffic problem or accident there. Because there is already an existing turn lane from Northbound 99 onto South Ave, there is never a problem. The intersection should NOT be modified. There are already too many roundabouts. The no-build option is the right thing to do.

it sounds like the decision to make a roundabout is already made, and this is just a formality

there are already too many roundabouts, how can this be the only option?

Response to Comment

Between January 1, 2013, and December 31, 2017, 17 vehicle collisions were documented at the Intersection of State Route 99 and South Avenue in Tehama County. Eleven of the vehicle collisions resulted in injuries (none were fatal). Twelve of the vehicle collisions were associated with the northbound left turn

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lane onto South Avenue. Compared to similar facility types throughout the state, the intersection has a vehicle collision rate 4.7 times higher than the state average and the fatal plus injury rate is 7.0 times higher than the state average. Collisions continue to occur at this intersection. There have been eight collisions between January 2018 to June 2021 including six injury collisions.

During early project scoping, four alternatives were considered:

- Alternative 1—Build Alternative (Roundabout)
- Alternative 2—No-Build/No-Action Alternative
- Alternative 3—Signal Control
- Alternative 4—Flyover

Of the four alternatives considered during project development, only two alternatives [i.e., Alternative 1—Build Alternative (Roundabout) and Alternative 2—No-Build/No-Action Alternative] were deemed to be viable alternatives during preparation of the environmental document. Of the two viable alternatives, the preferred alternative is Alternative 1 because it would reduce the vehicle collision rate. Alternative 2 is not preferred because it would not reduce the vehicle collision rate.

Alternative 3 – Signal

It was determined that changing the existing intersection control to a signal would reduce the total number of collisions by 20%, whereas the reduction in the total number of collisions for the roundabout alternative is 68%. Additionally, it was found that the roundabout alternative reduces the number of fatal and injury collisions by 82%.

It was concluded that a signalized intersection would perpetuate the number of conflict points within the intersection and the reduction in the number and severity of the collisions was insufficient compared to that of

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Anthony
South Avenue Safety Project
April 12, 2022
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the roundabout. Subsequently, it did not sufficiently meet the purpose or need of the project.

Alternative 4 – Flyover

This alternative consisted of a structure overcrossing. This alternative met the purpose and need of the project, but the cost considerably exceeded the programmable amount.

A final decision to construct a roundabout at the intersection of State Route 99 and South Avenue in Tehama County would be made following the public comment period after consideration of public comments received. If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes

Michael Feakes, P.E.
Project Manager
Safety Projects
Mike.Feakes@dot.ca.gov
(530) 949-7059

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April 12, 2022

Michael Pizzi
California Highway Patrol
MPizzi@chp.ca.gov

Dear Mr. Pizzi:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

Good morning,

No impact to the Red Bluff Area's local operations and/or public safety by SCH#2022020532 was identified.

Thank you,
Mike

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Michael Pizzi, California Highway Patrol
South Avenue Safety Project
April 12, 2022
Page 2

Response to Comment

Thank you for commenting on the South Avenue Safety Project.

If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes

Michael Feakes, P.E.
Project Manager
Safety Projects
Mike.Feakes@dot.ca.gov
(530) 949-7059

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April 12, 2022

Stephen J. Kimbrough
712 Stanmar Drive
Corning, CA 96021
stevek712@sbcglobal.net
stevekcorning@icloud.com

Dear Mr. Kimbrough:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

My only concern is the proposed 45-foot-high truss tower which will damage the view of the mountains and the VINA Plain. My experience in infrastructure planning makes me a supporter of the Roundabout.

The tower, if approved, should be a monopole design that minimizes its visual impact. Also, the lighting should be as low to the pavement as possible to minimize the impact on the night sky. There should be no need for the intense lighting installed on the Interstates.

Having worked with District 2 Staff and leadership many times in the past, I respect your professionalism and hope you can accommodate my concerns.

Please keep me on your notification list on this project.

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Response to Comment:

We appreciate your concern about the visual impact of the steel truss tower. Our project development team members met multiple times to consider the visual impacts of the project elements you wrote to us about, discussed whether the elements were necessary, and looked for ways to minimize those impacts as much as feasible. Caltrans has conducted a Visual Impact Assessment study and determined the visual impacts from the project to be less than significant. Tehama County General Plan does not specifically require the use of monopoles for new towers that house communications equipment. We also considered the Tehama County Planning requirements, but they are not required since there is no County permit.

The planned communication equipment requires a 45 ft tall structure. A monopole design was considered, but ruled out due to the following reasons:

- A monopole type structure of this height would require a solid pole with a diameter similar to the width at the top of the truss tower to support the equipment weight and resist wind loads.
- A steel truss tower has more slender elements which obstruct less view overall.
- A monopole would require additional view-obstructing elements at the top for mounting equipment.
- Maintenance personnel use the truss configuration to access the equipment.

To reduce visual impacts, the tower surface will be coated with a flat sheen to decrease glare.

Intersection lighting is required by current standards and has safety benefits. This project proposes to use newer lighting standards that direct light to the pavement, which reduces outward glare and uplight, minimizing the impact on the night sky.

We appreciate your feedback and support of our proposed safety improvement. If you have any questions, please contact me at your convenience.

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Stephen Kimbrough
South Avenue Safety Project
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Sincerely,

Michael Feakes

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April 12, 2022

David P. Smith
321 Mesa Verde Ct.
Chico, CA 95973

Dear Mr. Smith:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

I am writing to express my strong objection to construction of a roundabout at SR99 and South Avenue. I frequently drive between Chico and Redding, by way of either Corning or Red Bluff, and find the whole idea of shoving a 20 mph slowdown near the start of my drive incomprehensible.

Here are the issues:

1. **First and most important, it is likely that the new driver warning systems all vehicles will soon have will prevent most of the types of accidents the roundabout is intended to address.** Before any changes are made to what is already a safe intersection, Caltrans should review the 17 collisions reported between 2022 and 2017, and more recent ones, to see whether the new driver safety measures are a good fix. The intersection has good visibility in all directions, oncoming vehicles mostly already run with their headlights on for added safety, and the driver blind spot warnings and front and rear collision

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breaking that are becoming standard should sharply reduce sideswiping accidents and near misses.

By contrast, apart from perhaps Teslas, there are no vehicle warning systems that sense roundabouts or recognize their right-of-way rules, or that help drivers confused about the exit point they want. That confusion is a chronic problem when roundabout traffic is at all heavy, and I think is one of the reasons they are mostly located in light traffic areas, and where traffic speed limits are already at 35 mph or lower. I know of none on SR99, and no roundabout literature that looks to the future and asks how long we will still need them.

Caltrans needs to face the prospect that it is investing in a solution that is only marginally suited to SR99 traffic volumes and 65 mph highway speeds, and likely on its way out.

2. The intersection is a north-south through road (SR99), with a second road (South Avenue) heading off to the west and Corning. There is no fourth road, which essentially halves whatever benefit roundabouts are supposed to offer.

Well actually, it more than halves it: the intersection currently has a dedicated exit lane for southbound SR99 traffic, and dedicated entry lanes for South Avenue vehicles turning either north or south onto SR99. It is already well-designed. What the intersection does not need is a roundabout that will be expensive to build, and very likely wiser to remove than keep with the eventual widening of SR99.

3. Most of the traffic, and nearly all heavy trucks, are on SR99, not South Avenue. The roundabout forces vehicles to drop to a 20 mph crawl, pretty much in the middle of nowhere, and for large trucks it means 'burning extra diesel fuel and generating additional diesel pollution as they accelerate to get back up to highway speeds.

An important related issue is that there are often lines of cars behind heavy trucks along SR99 due to lower truck speeds in several areas; The lines introduce congestion that roundabouts don't resolve especially well.

As it is, a fair number of drivers already take risks passing trucks, and some who find themselves behind trucks when they come out of the roundabout will take more. Keep in mind: the passing attempts will be by drivers starting at

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low speeds and accelerating to pass one or more heavy trucks that are also accelerating and looking at oncoming traffic sometimes moving at 55 mph and sometimes at 65. That does not make for sound driver judgment. [Note though that this issue is specific to northbound traffic only, as the roundabout will open into the southbound SR99 passing area.]

4. **Another consequence of the roundabout may be more car and light truck drivers choosing to travel between Red Bluff and Chico by way of Corning and South Avenue.** South Avenue is an easier route than SR99 from their intersection to Red Bluff but was built only to 55 mph standards. With more vehicle traffic it will need upgrading, as its 55 mph speed limit is already widely ignored.

Why do I expect the route change? First, the roundabout is at a location where both north and southbound vehicles using South Avenue already slow or stop for those turns anyway. Plus, the roundabout will give northbound SR99 vehicles that turn west onto South Avenue full time right of way over southbound SR99 vehicles, for which they now stop. That makes the turn an attractive choice, particularly for drivers noticing one or several heavy trucks ahead of them on SR99.

For southbound South Avenue motorists, merging onto SR99 south will look much as it does now, as the roundabout will open into the existing 2 lane passing section on SR99. In effect, by coming from I-5 and Corning they wholly miss the roundabout slowdown they would have faced taking SR99 from Red Bluff.

The factor that separates cars and pickups from heavy trucks is that South Avenue adds 8 miles to the drive, costing truckers both extra time and extra fuel. The fuel cost will matter less to the rest of us, and we can usually make up the travel time in the I-5 segment. Often by more: SR99 doesn't always move as well as my Garmin expects. South Avenue and I-5 do.

In sum: new vehicle safety features may largely eliminate the accident risks roundabouts were intended to address. Their time may be about done. The one for SR99 and South Avenue in particular needs to be cancelled for its high cost and shaky value, in favor of projects that address longstanding needs. That includes finally widening SR99 to four lanes where it is still two.

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If Caltrans wants, I suggest a good fix for SR99 and South Avenue until we all have the new driver safety features that are coming would be to post slightly slower driving speeds near the intersection, and rumble strips to enforce them, if we are still seeing an accident every 4 months as we were in 2017.

Response to Comment:

Between January 1, 2013, and December 31, 2017, 17 vehicle collisions were documented at the Intersection of State Route 99 and South Avenue in Tehama County. Eleven of the vehicle collisions resulted in injuries (none were fatal). Twelve of the vehicle collisions were associated with the northbound left turn lane onto South Avenue. Compared to similar facility types throughout the state, the intersection has a vehicle collision rate 4.7 times higher than the state average and the fatal plus injury rate is 7.0 times higher than the state average. Collisions continue to occur at this intersection. There have been eight collisions between January 2018 to June 2021 including six injury collisions.

During early project scoping, four alternatives were considered:

- Alternative 1—Roundabout
- Alternative 2—No-Build/No-Action Alternative
- Alternative 3—Signal Control
- Alternative 4—Flyover

Alternative 1 –Roundabout

This preferred alternative includes constructing a roundabout on a new intersection alignment meeting National Cooperative Highway Research Program (NCHRP) 672 design guidelines in addition to standard Caltrans guidance.

According to the FHWA, changing the existing intersection to a roundabout will reduce fatal and injury collisions by 82% when compared to stop-controlled and signalized intersections. Roundabouts are not only a safer type of intersection; they are also efficient in terms of keeping people moving. Even while slowing traffic, they can reduce delay and queuing when compared to other intersection alternatives. Furthermore, the lower

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vehicular speeds and reduced conflict environment can create a more suitable environment for bicycling.

Alternative 2 – No-Build

This alternative does not meet the need and purpose of the project and collisions within the intersection will likely continue at a higher than average rate.

Alternative 3 – Signal

While this alternative meets the need and purpose of the project, it was determined that changing the existing intersection control to a signal would reduce the total number of collisions by approximately 20%. Whereas the reduction in the total number of collisions for the roundabout alternative is 68%.

Additionally, it was found that the roundabout alternative reduces the number of fatal and injury collisions by 82%.

It was concluded that a signalized intersection would perpetuate the number of conflict points within the intersection and the reduction in the number and severity of the collisions was insufficient compared to that of the roundabout. Subsequently, it did not sufficiently meet the purpose or need of the project.

Alternative 4 – Flyover

This alternative consisted of a structure overcrossing. This alternative met the purpose and need of the project, but the cost considerably exceeded the programmable amount.

Although new driver warning systems may provide increased safety benefits, not all types of accidents are eliminated with these systems. Furthermore, vehicles manufactured before this newer technology was available will continue to use

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David P. Smith
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public road systems. A roundabout has fewer conflict points than the minor stop controlled and signalized intersections.

States are increasingly turning to the modern roundabout as it is safer and more efficient than traditional traffic circles or signalized intersections for similar situations. In addition to accommodating all sizes and types of vehicles as well as nonmotorized modes of movement, compared to a signal, roundabouts reduce vehicle emissions by reducing queue lengths and idling times.

Caltrans has no evidence indicating that changing the intersection configuration will alter driver route selection. There are currently no programmed projects to widen SR99 to four lanes in the Chico to Red Bluff corridor.

If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes

Michael Feakes, P.E.
Project Manager
Safety Projects
Mike.Feakes@dot.ca.gov
(530) 949-7059

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Dennis Garton
Tehama County Public Works
9380 San Benito Avenue
Gerber, CA 96035
DGarton@co.tehama.ca.us

Dear Mr. Garton:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

The potential traffic delays may impact the Vina fire station how will this be mitigated?

Response to Comment

The nearby Vina Helitack Base primarily responds to emergencies using helicopters. In discussions between the Caltrans Design team and CAL FIRE staff at the base, CAL FIRE noted that any traffic impacts during construction of the project are not anticipated to affect operations at the base. The only major ground traffic is fuel truck deliveries, which usually are not emergency responses. Once constructed, long-term operation of the roundabout is not anticipated to result in traffic impacts that would affect operations at the base.

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Dennis Garton, Tehama County Public Works
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There are CAL FIRE stations in Los Molinos, Corning, and at the north end of Chico as well as the Tehama County Fire Department Station 16 in Vina. All are fairly close to the South Avenue/99 intersection that can respond to emergency situations. There will also be procedures in place during the construction of the project to allow emergency vehicles through the construction site when the need arises. There are two other access points to SR 99, one via Rowles Road south of South Ave and the other via Vina Road north of South Ave that can be utilized as alternative routes.

CAL FIRE is well aware of the safety issue at this location, and they are looking forward to an improvement. We will continue to coordinate with all the emergency agencies as the project nears construction.

If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes

Michael Feakes, P.E.
Project Manager
Safety Projects
Mike.Feakes@dot.ca.gov
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Donna Peterson
donnamarie59@gmail.com

Dear Ms. Peterson:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

getting signed up was a nightmare. I gave it up after 3 calls to Redding for help. in person meetings are the only way.

A roundabout is a massive mistake and dangerous. traffic there is fast especially when people have been trying to get around at the passing lane.

if three trucks in a row try to go through traffic would end up backed up and rear enders would be likely. What is there works very well. an overpass may be more money but in the long run would be cheaper.

and the millions they spent on message boards in Chico would be much better spent fixing 99.

and lastly quit the split speed limit. that messes traffic more than anything and is dangerous as people will pass when it's dangerous.

we have used that intersection

regularly for 70 years from one phase to the next. eventually it will need an overpass anyway.

Use some of the sales tax from fuel cost doubling.

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Response to Comment

We are sorry to hear that you had difficulty registering for the public meeting. The virtual public meeting format is relatively new at Caltrans and we will work to improve the registration process for future public meetings.

Between January 1, 2013, and December 31, 2017, 17 vehicle collisions were documented at the Intersection of State Route 99 and South Avenue in Tehama County. Eleven of the vehicle collisions resulted in injuries (none were fatal). Twelve of the vehicle collisions were associated with the northbound left turn lane onto South Avenue. Compared to similar facility types throughout the state, the intersection has a vehicle collision rate 4.7 times higher than the state average and the fatal plus injury rate is 7.0 times higher than the state average. Collisions continue to occur at this intersection. There have been eight collisions between January 2018 to June 2021 including six injury collisions.

During early project scoping, four alternatives were considered:

- Alternative 1—Build Alternative (Roundabout)
- Alternative 2—No-Build/No-Action Alternative
- Alternative 3—Signal Control
- Alternative 4—Flyover

Of the four alternatives considered during project development, only two alternatives [i.e., Alternative 1—Build Alternative (Roundabout) and Alternative 2—No-Build/No-Action Alternative] were deemed to be viable alternatives during preparation of the environmental document. Of the two viable alternatives, the preferred alternative is Alternative 1 because it would reduce the vehicle collision rate. Alternative 2 is not preferred because it would not reduce the vehicle collision rate.

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Alternative 3 – Signal

It was determined that changing the existing intersection control to a signal would reduce the total number of collisions by 20%, whereas the reduction in the total number of collisions for the roundabout alternative is 68%. Additionally, it was found that the roundabout alternative reduces the number of fatal and injury collisions by 82% when compared to that of a signal.

It was concluded that a signalized intersection would perpetuate the number of conflict points within the intersection and the reduction in the number and severity of the collisions was insufficient compared to that of the roundabout. Subsequently, it did not sufficiently meet the purpose or need of the project.

Alternative 4 – Flyover

This alternative consisted of a structure overcrossing. This alternative met the purpose and need of the project, but the cost considerably exceeded the programmable amount.

Properly constructed roundabouts are not dangerous to the traveling public. Construction of a new roundabout would accommodate Surface Transportation Assistance Act (STAA) trucks.

Traffic modeling performed by Caltrans does not suggest that substantial “queuing” would result as motorists approach the roundabout. While the number of roundabouts in operation in northern California is relatively small, they are becoming more common.

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If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes

Michael Feakes, P.E.
Project Manager
Safety Projects
Mike.Feakes@dot.ca.gov
(530) 949-7059

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Gayle Olsen
golsen1103@gmail.com

Dear Ms. Olsen:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

I live in north Chico where, as you probably know recently put in a (seeming still in progress) roundabout. I travel north on highway 99 and get off at Eaton Road regularly during high traffic times. This roundabout has not accomplished what it intended. Often traffic is backed up onto the highway. putting a roundabout on highway 99 and South simply means you slow all traffic. And people in the northstate don't have a clue how to use them. there has been no public education around this.

There needs to be public education on how to use roundabouts...a lot!!

Response to Comment

Installation of a roundabout at the intersection of State Route 99 and South Avenue in Tehama County would cause traffic to slow approach and enter the roundabout. However, traffic modeling performed by Caltrans does not suggest that substantial "queuing" would result as motorists approach the roundabout. While the number of roundabouts in operation in northern California is relatively small, they are becoming more common. Public

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Gayle Olsen
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education related to the proper use of roundabouts is available at the following websites:

- Caltrans website
<https://dot.ca.gov/caltrans-near-me/district-3/d3-popular-links/d3-roundabouts>
- California Department of Motor Vehicles
<https://www.dmv.ca.gov/portal/handbook/california-driver-handbook/laws-and-rules-of-the-road/>
- Federal Highways Administration
<https://safety.fhwa.dot.gov/intersection/roundabouts/>

If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes, P.E.
Project Manager
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Jeri Heiser
981 California Street
Chico, CA 95928
vancourt7027@sbcglobal.net

Dear Jeri:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

I seriously doubt that the proposed round-about at the intersection of CA HWY 99 and South Avenue in Tehama County would be a safer alternative. The speed limit, volume and type of traffic (lots large trucks) is not conducive to a round-about. I frequently use that intersection, and would be terrified to navigate a round-about. Please consider other ways to reduce collisions.

Response to Comment

Between January 1, 2013, and December 31, 2017, 17 vehicle collisions were documented at the Intersection of State Route 99 and South Avenue in Tehama County. Eleven of the vehicle collisions resulted in injuries (none were fatal). Twelve of the vehicle collisions were associated with the northbound left turn lane onto South Avenue. Compared to similar facility types throughout the state, the intersection has a vehicle collision rate 4.7 times higher than the state average and the fatal plus injury rate is 7.0 times higher than the state average.

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Collisions continue to occur at this intersection. There have been eight collisions between January 2018 to June 2021 including six injury collisions.

During early project scoping, four alternatives were considered:

- Alternative 1—Build Alternative (Roundabout)
- Alternative 2—No-Build/No-Action Alternative
- Alternative 3—Signal Control
- Alternative 4—Flyover

Of the four alternatives considered during project development, only two alternatives [i.e., Alternative 1—Build Alternative (Roundabout) and Alternative 2—No-Build/No-Action Alternative] were deemed to be viable alternatives during preparation of the environmental document. Of the two viable alternatives, the preferred alternative is Alternative 1 because it would reduce the vehicle collision rate. Alternative 2 is not preferred because it would not reduce the vehicle collision rate.

Alternative 3 – Signal

It was determined that changing the existing intersection control to a signal would reduce the total number of collisions by 20%, whereas the reduction in the total number of collisions for the roundabout alternative is 68%. Additionally, it was found that the roundabout alternative reduces the number of fatal and injury collisions by 82%.

It was concluded that a signalized intersection would perpetuate the number of conflict points within the intersection and the reduction in the number and severity of the collisions was insufficient compared to that of the roundabout. Subsequently, it did not sufficiently meet the purpose or need of the project.

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Alternative 4 – Flyover

This alternative consisted of a structure overcrossing. This alternative met the purpose and need of the project, but the cost considerably exceeded the programmable amount.

A final decision to construct a roundabout at the intersection of State Route 99 and South Avenue in Tehama County would be made following the public comment period after consideration of public comments received.

Public education related to the proper use of roundabouts is available at the following websites:

- Caltrans website
<https://dot.ca.gov/caltrans-near-me/district-3/d3-popular-links/d3-roundabouts>
- California Department of Motor Vehicles
<https://www.dmv.ca.gov/portal/handbook/california-driver-handbook/laws-and-rules-of-the-road/>
- Federal Highways Administration
<https://safety.fhwa.dot.gov/intersection/roundabouts/>

If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes

Michael Feakes, P.E.
Project Manager
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Jessica Pecha
Tehama County Public Works
9380 San Benito Avenue
Gerber, CA 96035
jpecha@tcpw.ca.gov

Dear Ms. Pecha:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

Are there any other safety projects planned for the 99 corridor? this is a deadly stretch of highway.

Response to Comment

Caltrans recognizes the importance of public safety for users of the state highway system. The South Avenue Safety Project is an example of how Caltrans is addressing public safety at the intersection of State Route 99 and South Avenue in Tehama County. The South Avenue project is the only Safety Project programmed in the SR 99 corridor between the Butte County line and Red Bluff. In addition to the South Avenue Safety Project, other projects proposed on State Route 99 in Tehama County include:

VP2 (02-3H770)
Tehama 99 PM 0/12.5

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Jessica Pecha, Tehama County Public Works
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Pavement Rehabilitation
Construction summer 2025

Champlain Slough (02-1H510)
Tehama 99 PM 9/9.3
Bridge Replacement
Construction summer 2022

If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes

Michael Feakes, P.E.
Project Manager
Safety Projects
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Shelly Hargens
shellyhargens@yahoo.com

Dear Ms. Hargens:

The California Department of Transportation (Caltrans) would like to thank you for participating in the project delivery process for the South Avenue Safety Project by providing written comments. Your comments are important to us because they help inform the project team, refine the project scope, and reveal and highlight aspects of special concern. All submitted comments and the responses provided have been incorporated into the final Initial Study/Environmental Assessment being prepared for this project. Your comment and Caltrans' response are below.

Comment:

Has a study been done on the effect this will have on towels rd

ROWLES

Short cut. Go around the roundabout

Always shortcut during and after construction

Will be a big impact!!!

People use it now... as a shortcut

It will!!!

Oh yes there will!!!

Yes!! And after. More will!!!

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Shelly Hargens
South Avenue Safety Project
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Response to Comment

Construction of the project does not require a temporary traffic detour. Therefore, traffic would not be detoured onto other local county roads during construction. If some vehicle traffic is currently using local roads (e.g., Rowles Road) to avoid the existing intersection, then it is reasonable to assume that a similar amount of vehicle traffic would continue to use local roads to avoid the roundabout. While there may be an increase in the amount of vehicle traffic using local roads during construction of the roundabout, there is no expectation that the use of local roads would increase following construction of the roundabout. Caltrans is working with Tehama County to address traffic impacts to local roads during construction.

If you have any questions, please contact me at your convenience.

Sincerely,

Michael Feakes

Michael Feakes, P.E.
Project Manager
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