State Route 29/State Route 221
Soscol Junction Improvement Project

NAPA COUNTY, CALIFORNIA
DISTRICT 4 – NAPA-29 (PM R5.6/R6.7; 221-PM 0.0/0.4)
EA 28120/ID 0400000769

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment

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 Federal Highway Administration and Caltrans.

September 2019

General Information about this Document

What's in this document:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study/Environmental Assessment (IS/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Napa County, California. Caltrans is the lead agency under the National Environmental Policy Act of 1969 and the California Environmental Quality Act. The document explains why the project is being proposed, what alternatives were 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 (all measures are listed in Appendix D). A list of abbreviations is available in Appendix E.

What you should do:

- Please read this document.
- Additional copies of this document and the related technical studies are available for review at the following locations: California Department of Transportation, District 4, 111 Grand Avenue, Oakland, CA 94612; Napa Valley Transportation Authority 625 Burnell Street Napa, CA 94559 and Napa Main Library 580 Coombs Street Napa, CA 94559. This document may be downloaded at the following website: https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs
- We'd like to hear what you think. If you have any comments about the proposed project, please attend the public meeting at Napa Valley Transportation Authority 625 Burnell Street, Napa, CA 94559 on October 8, 2019 at from 5:30 to 7:30 pm and/or send your written comments to Caltrans by the deadline. The comment period is from September 20, 2019 through October 20, 2019.
- Send comments via postal mail to:
  Cindy Fong, Associate Environmental Planner
  California Department of Transportation, District 4
  P.O. Box 23660, MS 8B, Oakland, CA 94623
- Send comments via email to: cindy.fong@dot.ca.gov.

- Be sure to send comments by the deadline: Sunday, October 20, 2019.

What happens next:

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

Alternative formats:

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 alternative formats, please call or write to the Department of Transportation, District 4, Attn: Cindy Fong, PO Box 23660, MS 8B, Oakland, CA 94623; (510) 286-5935 (voice) or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (voice) or 711.

SCH# 2009072094
04-NAPA-29- PM R5.6/R6.7; 221-PM 0.0/0.4
EA: 28120/Project ID: 0400000769

Improve traffic operation and alleviate congestion, and enhancing bicycle and pedestrian connectivity at State Route 29/State Route 221/Soscol Ferry Road in Napa County

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), 49 U.S. Code 303, and/or 23 U.S. Code 138

THE STATE OF CALIFORNIA
Department of Transportation

RESPONSIBLE AGENCIES:
Federal Highway Administration
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
California Department of Fish and Wildlife
California Transportation Commission
Regional Water Quality Control Board

Date 9/17/19

Tony Tavares
District Director
California Department of Transportation
CEQA/NEPA Lead Agency

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

California Department of Transportation
Attn: Cindy Fong, Associate Environmental Planner
P.O. Box 23660, MS 8B
Oakland, CA 94623
(510) 286-5935

Proposed Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

Caltrans, in partnership with the Napa Valley Transportation Authority (NVTA), proposes to reconfigure the existing intersection (Soscol Junction) of State Route (SR) 29 and SR 221/Soscol Ferry Road in Napa County from a signalized intersection to a full-diamond interchange, with two roundabout intersections on either side of SR 29. This proposed project is to improve traffic operations to alleviate congestion between Napa Valley and towards Interstate I-80 and SR 37. Bicycle, and pedestrian access is proposed to improve connectivity between existing bicycle and pedestrian access on SR 29 and SR 221.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public of Caltrans intent to adopt an MND for this project. This does not mean that Caltrans decision regarding the project is final. This MND is subject to change based on comments received by interested agencies and the public. Caltrans has prepared an Initial Study for this project. Pending public review, Caltrans expects to determine from this study that the proposed project would not have a significant effect on the environment for the reasons described below.

The proposed project would have no impact on agriculture and forest resources, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, recreation, utilities and service systems, noise and wildfire. In addition, the project would have less than significant impacts to aesthetics, air quality, greenhouse gas emissions, hydrology and water quality, and transportation/traffic. With the following mitigation measures incorporated, the proposed project would have less than significant effects to biological resources, cultural resources, geology and soils, and tribal cultural resources.

- To mitigate the removal of riparian trees Caltrans will plant trees offsite as compensatory mitigation for tree impacts. Additionally, Permanent impacts to California Red Legged Frog (CRLF) habitat would be at an approved mitigation bank.
- To address potential impacts to fossiliferous Pleistocene Sonoma Volcanics, a paleontological mitigation plan will be developed based on project design and construction methods.
- ESA fencing will be established as well as an Archaeological Monitoring Area Plan, and a Phase III Data Recovery Plan will be implemented to protect archaeological resources from construction activities. In addition, Caltrans is consulting with the SHPO and interested Native American groups and a Memorandum of Agreement will be developed.

Tony Tavares
District Director
District 4
California Department of Transportation

Date

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Chapter 1 Proposed Project

1.1 Introduction

Caltrans, in partnership with the Napa Valley Transportation Authority (NVTA), proposes to reconfigure the existing intersection (Soscol Junction) of State Route (SR) 29 and SR 221/Soscol Ferry Road in Napa County from a signalized intersection to a full-diamond interchange, with two roundabout intersections on either side of SR 29. This proposed project is to improve traffic operations to alleviate congestion between Napa Valley and towards Interstate I-80 and SR 37. Bicycle, and pedestrian access is proposed to improve connectivity between existing bicycle and pedestrian access on SR 29 and SR 221. This proposed project is located in Napa County at Postmile (PM) R5.6/R6.7 at SR 29 and PM 0.0/0.4 at SR 221.

Caltrans, as assigned by the FHWA, is the lead agency under NEPA and the lead agency under the California Environmental Quality Act (CEQA). SR 29 and SR 221 serve motorists traveling between Napa Valley and the Fairfield/Vallejo areas and are important interregional, recreational, commercial, agricultural and commuter routes. The proposed project also would enhance bicycle and pedestrian access at the SR 29/SR 221/Soscol Junction. The regional location and project vicinity are shown in Figures 1-1 and 1-2, respectively. Figure 1-3 show the existing right of way (ROW), project footprint, and proposed improvements to the SR 29/SR 221/Soscol Junction.

The existing intersection of SR 29/SR 221 is located within the agricultural context of rural Napa County, and provides primary access to major highways that provide circulation within Napa Valley, such as SR 121 (Silverado Trail), which merges with SR 221 north of the intersection, and SR 12, which is combined with SR 29 from the Jameson Canyon intersection to the south, to the SR 12 junction north of the subject intersection. Existing land uses in the vicinity primarily consist of agriculture watershed and open space (AWOS) northeast of SR 29 and SR 221, industrial south of Soscol Ferry Road, and public institutional south of SR 29.

Within the project limits, SR 29 is a four-lane expressway from North Kelly Road to just north of Soscol Ferry Road and a four-lane conventional highway from north of Soscol Ferry Road to just before the overpass at Napa Valley Corporate Drive. SR 29 is used as an interregional, recreational, commercial, agricultural, and commuter route. Soscol Ferry Road is a two-lane rural collector that traverses unincorporated

Napa County in the east-west direction. This roadway provides circulation within the rural unincorporated community of Thompson. Soscol Ferry Road forms the south leg of the study intersection to Devlin Road. SR 221 (the Napa-Vallejo Highway) is a four-lane conventional highway from the intersection of SR 29 and Soscol Ferry Road to south of Napa Valley Corporate Drive. SR 221 is used by commuters to and from Vallejo, Fairfield, and the San Francisco Bay Area, and by commercial traffic from SR 29 to central Napa. SR 221 is the main recreational route from Highway 29 to Lake Berryessa.

SR 29, SR 221, and Soscol Ferry Road intersect at-grade in a signalized intersection. The existing intersection of SR 29 with SR 221/Soscol Ferry Road consists of two through lanes in the northbound direction, together with a left-turn lane to Soscol Ferry Road and a two-lane, right-turn connector to SR 221 northbound. In the southbound direction, SR 29 consists of two through lanes, one left turning lane to northbound SR 221, and one right turning lane to Soscol Ferry Road. SR 221 in the southbound direction consists of one through lane to the Soscol Ferry Road, two exclusive left-turn lanes to southbound 29, and one exclusive right-turn lane to northbound 29. The Soscol Ferry Road in the northbound direction consists of one through lane to northbound SR 221, one left-turn lane to northbound SR 29, and one right-turn lane to southbound SR 29.

The proposed project footprint is within the same footprint of the formerly proposed Soscol Flyover project. From a resource perspective, the environmental setting for the proposed project has not changed since the environmental resources were last studied for the Soscol Flyover project. The proposed Build Alternative and the previous proposed project are entirely within the existing Caltrans right of way. The studied limits of the former project were considered when creating a new design for the currently proposed project. The proposed project survey area for all resources has decreased from the previous project.

Caltrans has worked together in partnership with NVTA to include input from the local community and has incorporated multimodal design elements, including bicycle and pedestrian improvements, into the proposed project.

The findings of technical studies for the formerly proposed project remain relevant for the currently proposed project and are referenced in this document. These findings remain accurate and also reflect updated database searches for various resources.

LEGEND

Project Footprint

0 2 4
Miles

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

FIGURE 1-1
Regional Location Map
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7;
221 PM 0.0/0.4
Napa County, California

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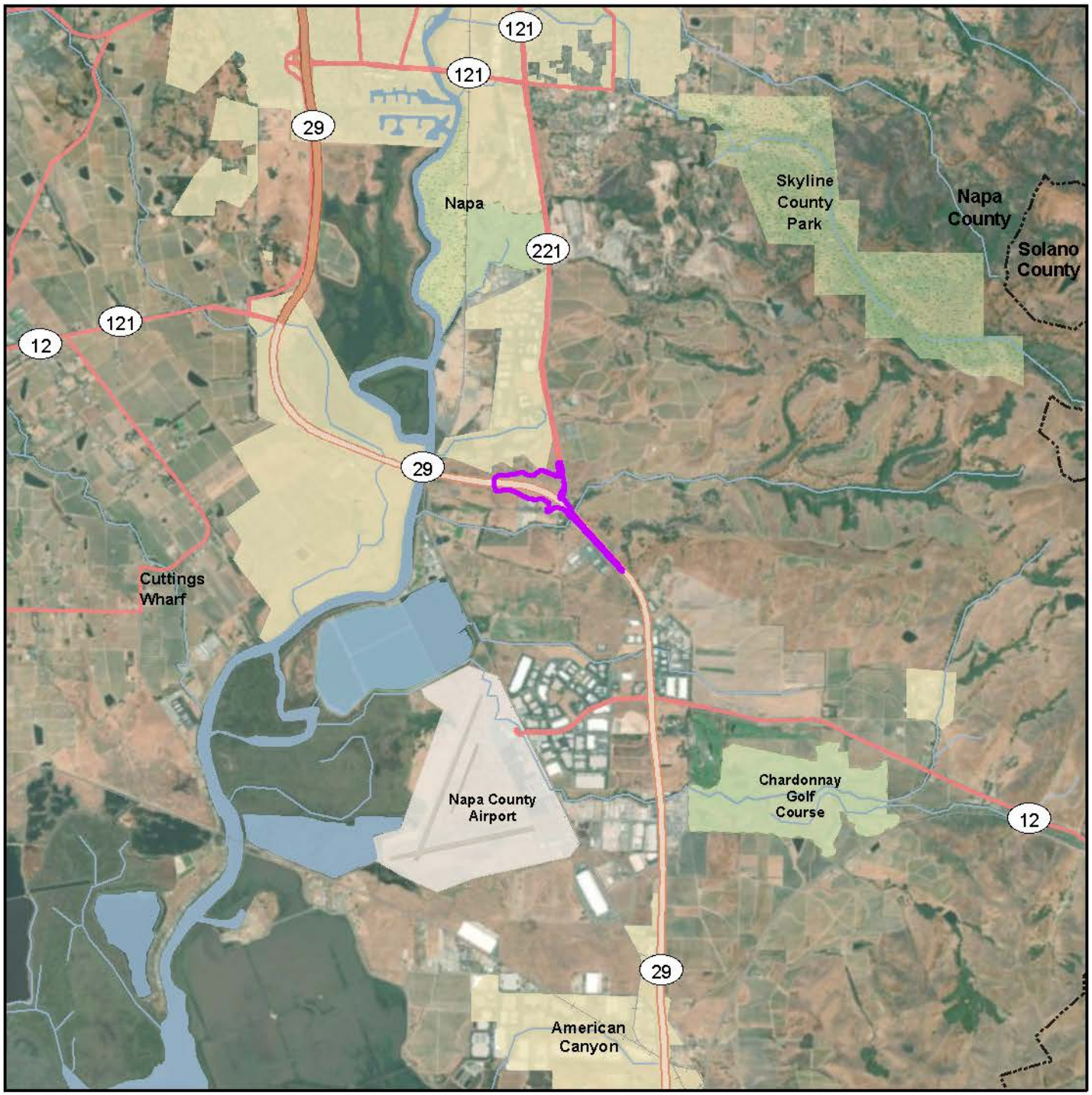
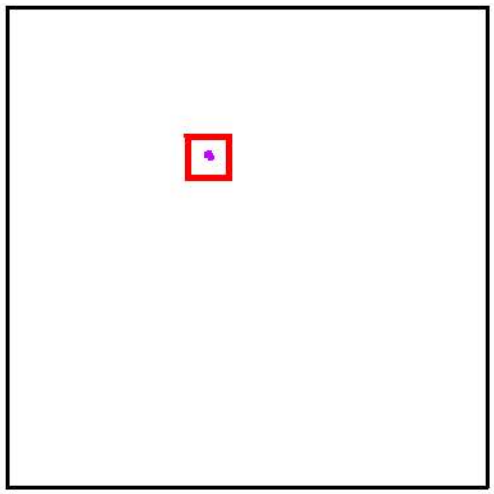




LEGEND

- Project Footprint
- Urban Areas
- Local Parks
- Major Highways
- Highways
- Major Roads
- Counties

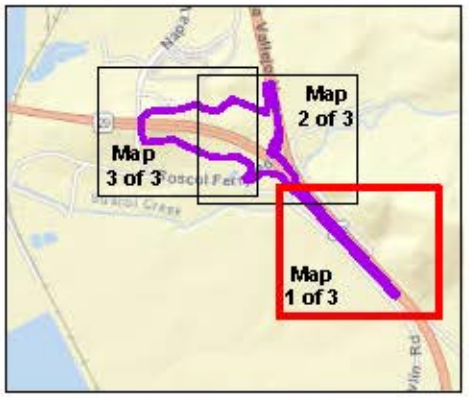
Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, USGS, NOAA
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

N

0 0.5 1
Miles

Caltrans

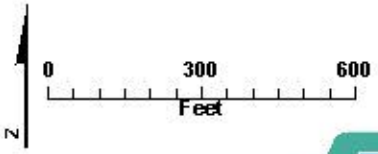
FIGURE 1-2
Project Vicinity Map
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California



LEGEND

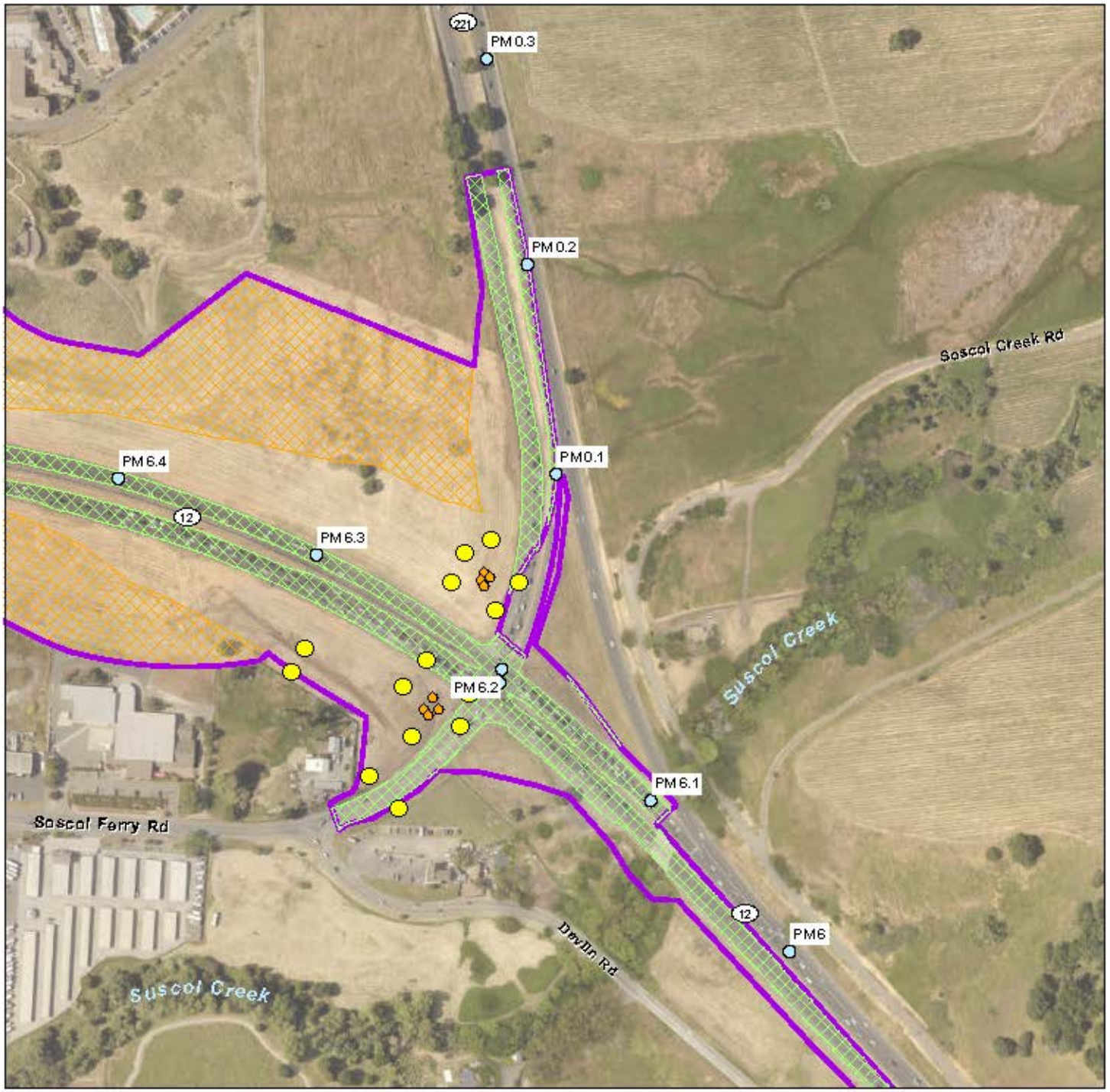
- Project Footprint
- Existing Paved Surfaces within Project Footprint
- Post Mile

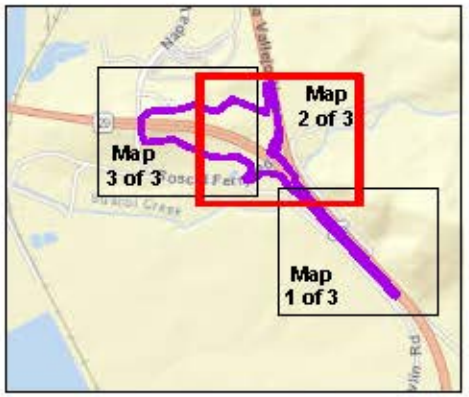
Service Layer Credits:
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Caltrans

FIGURE 1-3
Map 1 of 3
Build Alternative
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California





LEGEND

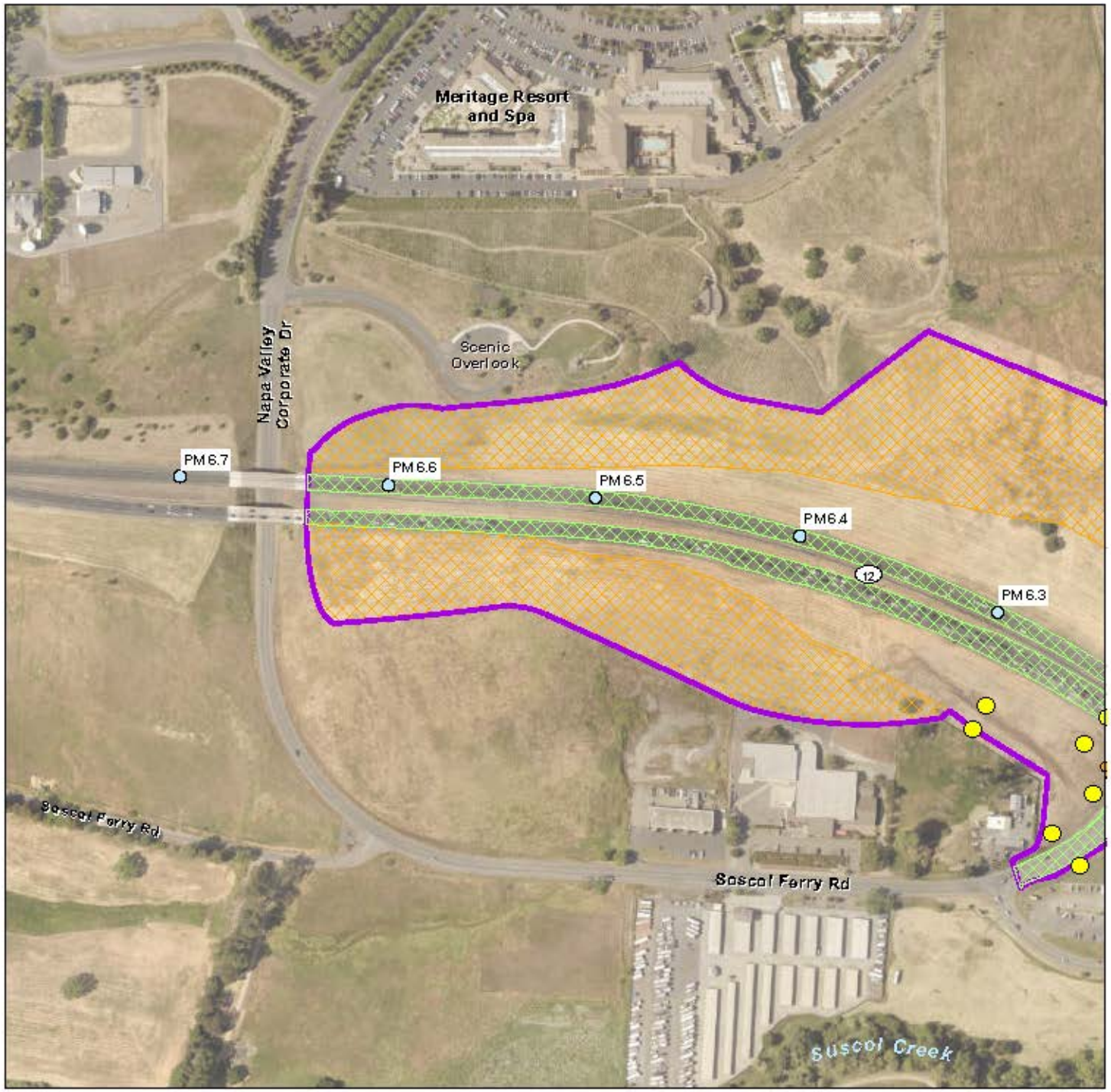
- Project Footprint
- Roadway Lighting
- Uplighting
- Existing Paved Surfaces within Project Footprint
- Staging Areas
- Post Mile

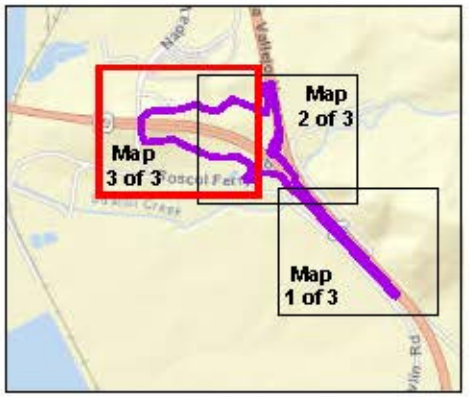
Service Layer Credits:
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N

0 300 600
Feet

FIGURE 1-3
Map 2 of 3
Build Alternative
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California





LEGEND

- Project Footprint
- Roadway Lighting
- Uplighting
- Existing Paved Surfaces within Project Footprint
- Staging Areas
- Post Mile

Service Layer Credits:
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N

0 300 600
Feet

FIGURE 1-3
Map 3 of 3
Build Alternative
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California

1.1.1 Project Funding and Programming

The project is locally funded by Caltrans partner NVTA. The funding of the technical studies for the proposed project was included in the Metropolitan Transportation Commission's (MTC) federally required Transportation Improvement Program (TIP). The project funding is included in the Plan Bay Area 2040 (RTPID # 17-04-0009) and the 2019 TIP (ID # NAP090003). The TIP listing will be revised to include project design funds before the final environmental document is approved. The total programmed cost of the project for support and capital, including construction cost, is approximately $36 million.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the proposed project is to alleviate congestion between Napa Valley and the Fairfield/Vallejo areas and improve operations. As a result of the project bicycle and pedestrian access at the SR 29/SR 221 intersection will be enhanced.

Specifically, the objectives of this project are to:

- Alleviate congestion and improve traffic flow for all transportation modes at a key intersection within a regional transportation system
- Secondarily, improve bicycle and pedestrian connectivity by providing access at a key intersection in the existing and planned regional bicycle network

1.2.2 Need

Vehicle Operations. Operational improvements to the SR 29/SR 221 intersection are necessary to alleviate existing and future congestion and improve traffic flow. In recent years, as commercial and residential developments cluster along the highways in the southern portion of Napa County and the winery and tourism industries have been expanding rapidly in the northern part of the county, congestion and delays from motorists traveling on SRs 29 and 221 have increased. Napa County attracts more than 5 million visitors a year and 1.7 million of them stay overnight. Coupled with population growth in Solano County to the east and Sonoma County to the west, both highways have become major interregional routes serving the neighboring counties. Growth of residential development in the Fairfield/Suisun Valley area of Solano County, and of industrial and commercial development in Napa County is also expected to continue.

Currently, the existing SR 29/SR 221/Soscol Ferry Road intersection experiences extensive queues and delays during a.m. and p.m. peak hours. These operational deficiencies exceed both the County of Napa and City of Napa levels of service (LOS) thresholds as established by their respective General Plans. Peak-hour traffic volumes are expected to significantly increase by 50 percent by the year 2045, contributing to higher delays and increased congestion for traveling motorists compared to existing levels. Routine rehabilitation of this intersection by Caltrans has not addressed the increased traffic volumes at this key intersection.

Table 1-1 summarizes the existing conditions LOS at the SR 29/SR 221/Soscol Ferry Road intersection. The LOS is a method used to categorize traffic flows for a given roadway segment using letters "A" through "F," with "A" being the best and "F" being the worst.

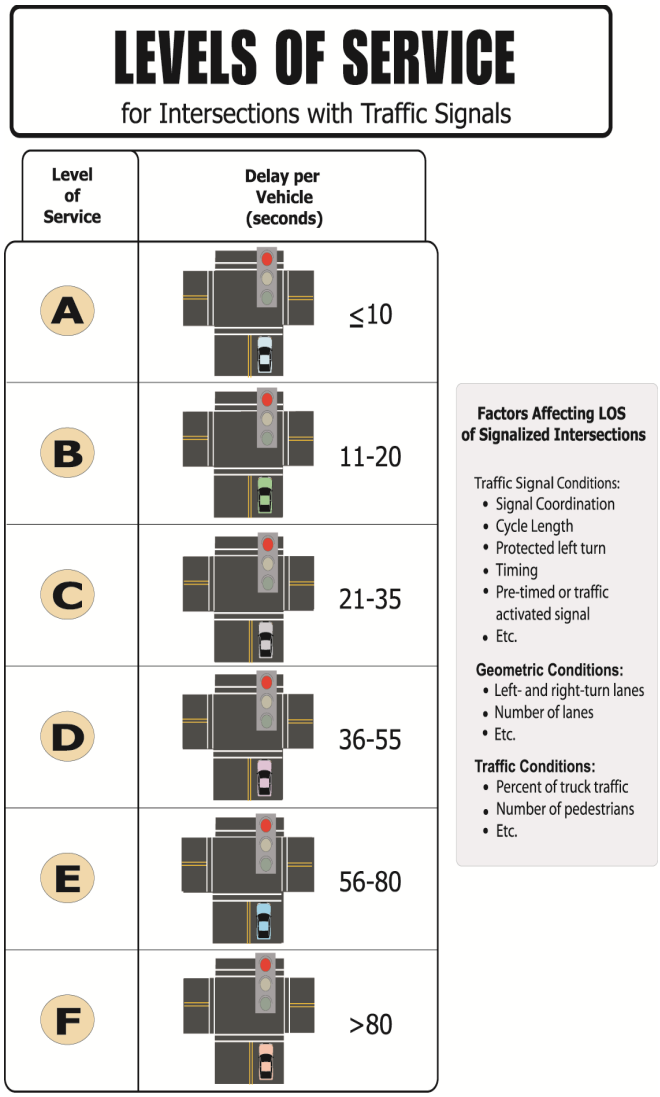
As shown in Table 1-1, the existing delays at the SR 29/SR 221/Soscol junction received "E" and "F" ratings for existing a.m. peak and p.m. peak delays, respectively. Further, under No Build conditions for the year 2025 (opening year) and year 2045 (design year), the SR 29/SR 221/Soscol Ferry Road intersection would experience LOS "F" for both the a.m. and p.m. peak hours, with significantly higher delays and longer queues for vehicles to clear the intersection. Queue lengths at this intersection are projected to exceed one mile for some vehicular movements.

To better understand the measurement system, refer to Figure 1-4 for a description of how many seconds of delay fit into each letter ranking.

Table 1-1 Existing Conditions Level of Service (Year 2018)

#	Movement	Control Type	A.M. Peak Hour				P.M. Peak Hour				Friday Peak Hour			
			Delay (sec)	LOS	95th Percentile Queue (ft)	Available Storage	Delay (sec)	LOS	95th Percentile Queue (ft)	Available Storage	Delay (sec)	LOS	95th Percentile Queue (ft)	Available Storage
1	**SR 29 Ramps/SR 221/Soscol Ferry Rd**	**SIGNAL**	**239.3**	**F**	**-**	**-**	**187.3**	**F**	**-**	**-**	**235.4**	**F**	**-**	**-**
	Northbound Left from Soscol Ferry Rd		57.3	E	144	-	183.1	F	3,058	-	180.9	F	1,197	-
	Northbound Thru-Left from Soscol Ferry Rd				166	-			3,048	-			1215	-
	Northbound Right from Soscol Ferry Rd				50	20			59	20			63	20
	Southbound Left from SR 221		98.3	F	561	-	133.4	F	2,187	-	156	F	2,005	-
	Southbound Thru from SR 221				130	-			1,022	-			1,858	-
	Southbound Right from SR 221				65	50			86	50			88	50
	Westbound Left from SR 29		432.8	F	304	400	333.7	F	288	400	364	F	278	400
	Westbound Thru from SR 29				2,947	-			3,998	-			4,660	-
	Eastbound Left from SR 29		164.1	F	656	500	66.4	E	87	500	188.6	F	481	500
	Eastbound Thru from SR 29				4,911	-			563	-			4,177	-
	Eastbound Right from SR 29				1,409	1,000			88	1,000			1,487	1,000

Source: *State Route 29/State Route 221/Soscol Ferry Road Final Traffic Operations Analysis Report* (GHD 2019a)



Source: 2000 HCM, Exhibit 16-2, Level of Service Criteria for Signalized Intersections

Figure 1-4 Levels of Service for Intersections with Traffic Signals

Under the proposed Build Alternative, the SR 29/SR 221/Soscol Junction (with intersection controls via two roundabouts as opposed to the existing signalized intersection) would operate at LOS "A" for the a.m. peak hour and LOS "B and C" or better for the p.m. peak hour for Year 2025 and Year 2045 conditions (Table 1-2). The future operations of the Build Alternative would be consistent with LOS thresholds established by the City and County of Napa. In addition, the projected vehicular queues are forecast to not exceed available lane storage or adversely affect downstream intersections through Year 2045 conditions.

Table 1-2 Intersection Operations at the SR 29/SR 221 Intersection with Build Alternative

Scenario	Peak Period	Roundabout LOS (Delay)	Ramp LOS
Year 2025	a.m.	A (7 to 8 seconds/vehicle)	B
	p.m.	B (11 to 15 seconds/vehicle)	C
Year 2045	a.m.	A (8 seconds/vehicle)	C
	p.m.	B (14 to 17 seconds/vehicle)	C

Source: *State Route 29/State Route 221/Soscol Ferry Road Final Traffic Operations Analysis Report* (GHD 2019a)

Bicycle and Pedestrian Access. Beginning at SR 29/Soscol Ferry Road, SR 221 is a four-lane conventional divided highway, open to pedestrians and bicyclists, with shoulders continuing north to SR 121 at Imola Avenue in the City of Napa. SR 29 is a part of the Freeway and Expressway System, with two lanes in each direction, except in the City of Napa where it turns into a six-lane freeway. Pedestrian and bicycle access are prohibited along SR 29 north of the existing intersection toward the George Butler Bridge. South of the intersection, pedestrians and bicyclists have access to Soscol Ferry Road and SR 29, with shoulders continuing south toward SR 12/Airport Boulevard. No dedicated pedestrian or bicycle facilities are located at the existing project intersection. High speeds and increased volumes of motorized traffic on these segments create a high level of traffic stress for pedestrians and bicyclists.

Pedestrians and bicyclists currently travelling between City of American Canyon and City of Napa may avoid most highway segments by using an alternate route via Devlin Road, Soscol Ferry Road, and Napa Valley Corporate Drive. Class II bike lanes exist on Devlin Road and a portion of Napa Valley Corporate Drive north of the SR 29 overcrossing, with shoulders of various widths existing on remaining segments. This route lacks physical separation for bicycles with vehicular and truck traffic. This existing alternate bicycle route also requires up to a mile of additional travel distance, depending on the traveler's origin and destination. The SR 29 and SR 221 intersection provides a more direct connection for bicycle users between the City of American Canyon to the south and the City of Napa to the north and the Build Alternative would enhance the quality of this connection for bicyclists.

1.2.2.1 INDEPENDENT UTILITY AND LOGICAL TERMINI

FHWA regulations (23 *Code of Federal Regulations* [CFR] 771.111 [f]) require that the action evaluated:

1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope.

2. Have independent utility or independent significance (be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made).

3. Do not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Logical termini for project development are defined as: (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. The environmental impact review frequently covers a broader geographic area than the strict limits of the transportation improvements.

The proposed project would have independent utility, which means the proposed improvements can be implemented within the project limits, and completion of other projects would not be required to gain the operational benefits of the proposed improvements. The proposed project would provide congestion relief and traffic flow improvements that are do not depend on other capacity increasing or operational improvements in the vicinity. The proposed project would not be a segment of a larger project or a commitment to a larger project with significant environmental effects. Therefore, the proposed project would have "independent need and utility."

The proposed project also would have logical termini, meaning that the project limits have been reasonably set to achieve the improvements required to meet the project's purpose and need. The proposed project would have logical starting and ending points, or termini. This proposed project would be located in Napa County, at PM R5.6/R6.7 at SR 29 and PM 0.0/0.4 at SR 221. The end points were selected to contain the extent of the intersection and the intersection approaches. All of the proposed roadway, interchange improvements, and associated upgrades under the Build Alternative are included within the project limits.

1.3 Project Description

This section describes the proposed action and the project alternatives developed to meet the purpose and need of the project, while avoiding or minimizing environmental impacts. The alternatives are the "Build Alternative" and "No Build Alternative." Photographs 1 and 2 represent existing conditions of the project site.

Photograph 1. Intersection of SR 221 at SR 29 and Soscol Ferry Road, looking northeast toward SR 29.

Photograph 2. Intersection of SR 29 at SR 221 and Soscol Ferry Road, looking southeast toward SR 29.

SR 29 is a four-lane, divided, rural throughway that traverses Napa Valley in the north-south direction between the limits of Interstate (I-) 80 (southern limit), and SR 20 in Upper Lake (northern limit) in Lake County. As a major rural highway, SR 29 provides circulation between the townships of Yountville, Oakville, Rutherford, St. Helena, and Calistoga, which are noteworthy destinations within Napa Valley's renowned Wine Country. Within the vicinity of the project intersection, SR 29 runs in the east-west direction and operates at a posted speed limit of 60 miles per hour (mph). SR 29 forms the east and west legs of the study intersection. SR 29 is a terminal access route for Surface Transportation Assistance Act (STAA) trucks.

SR 221 is a four-lane, divided, rural throughway that traverses Napa Valley in the north-south direction, between the limits of Imola Avenue (northern limit) in the City of Napa and SR 29 (southern limit). SR 221 runs parallel to SR 29, so this rural arterial provides an alternate route to obtaining direct access to the City of Napa. SR 221 forms the north leg of the study intersection and operates at a posted speed limit of 55 mph. SR 221 is a Terminal Access Route for STAA trucks.

1.3.1 Project Alternatives

1.3.1.1 BUILD ALTERNATIVE

The Build Alternative would construct a tight diamond interchange, with two multi-lane roundabouts on either side of SR 29 to reduce congestion. SR 29 would be rebuilt as an overcrossing just north of the existing intersection with SR 221, providing separation between the adjacent free-flow SR 29 to SR 221 northbound ramp and the adjacent roundabout entry (Figure 1-3). The overcrossing would ensure that no eastbound and westbound through traffic on SR 29 would be required to traverse the roundabouts. The Build Alternative would not increase the number of lanes for SR 29 and SR 221 with the proposed intersection reconfiguration. SR 29 would continue to operate with two lanes in each direction. SR 221 would include two roundabouts, with two lanes southbound and connecting to eastbound SR 29, one lane northbound traveling from Soscol Ferry Road transitioning to SR 221, and single-lane ramp connectors from southbound SR 221 to westbound SR 29, and eastbound SR 29 to southbound on Soscol Ferry Road. The existing ramp connector from westbound SR 29 to northbound SR 221 would remain in place.

The Build Alternative would include standard shoulders, curb, and gutter. Existing signage would remain in place and new signage would be located within the ROW. SR 29 and SR 221 currently have street lighting approaching the intersection and at the intersection. The proposed Build Alternative would only construct new street lighting associated with the two roundabouts and the ramps connecting from eastbound SR 29 to the roundabout and along Soscol Ferry Road just before connecting with the roundabout. Lighting is also proposed for boulders or other roundabout central island aesthetic features.

SR 29 would include two northbound lanes, with an outside shoulder width between 0 to 10 feet and an inside shoulder width of 0 to 15 feet. There would be two southbound lanes, with outside shoulder width of 0 to 13 feet and an inside shoulder width of 5 feet. A tight diamond interchange with two multi-lane roundabouts on either side of SR 29 is proposed under the Build Alternative. SR 29 would be rebuilt northwest of the existing intersection, with SR 221 as an overcrossing with a see-through barrier on the bridge, paved slope abutments and a clearance height of approximately 17 feet. Figure 1-5 illustrates the cross-section for SR 29, additional preliminary plans can be seen in Appendix C and typical cross sections can be seen in Appendix J. The proposed SR 29/SR 221 separation would be a two-span precast, prestressed I-girder structure.

The preliminary foundation is anticipated to be approximately 50 to 60 feet deep, with either spread footing or five cast-in-drilled-hole (CIDH) pile foundations. At all support locations, spread footings founded on rock are the recommended and most cost-effective foundation type. However, spread footings may require large excavations that may conflict with ROW and staged construction. This should be evaluated prior to type selection. CIDH foundations may be used as an alternative. Hard drilling in the area is expected because of shallow rock, which would make this alternative expensive relative to spread footings. However, CIDH would not create ROW or staged construction issues. The bridge foundation would be determined once the geotechnical investigation has been completed. Driven piles are not recommended because of the presence of shallow rock at the site.

The proposed width for SR 221 northbound and southbound lanes varies between 12 and 16 feet and includes a shoulder width between 2 to 11 feet and a side slope of 2 to 1 or flatter. The profile of the proposed roadway would be lower than the existing pavement as it approaches the intersection, for a maximum depth of 20 feet below the existing profile. Figure 1-6 illustrates the cross-section for SR 221 surface, additional preliminary plans can be seen in Appendix C and typical cross sections can be seen in Appendix J. No retaining walls are anticipated for the Build Alternative. A 10-foot-wide, minimum shared-use paved path would be built along the northwestern side of SR 221/Soscol Ferry Road to convey pedestrian and bicycle traffic.

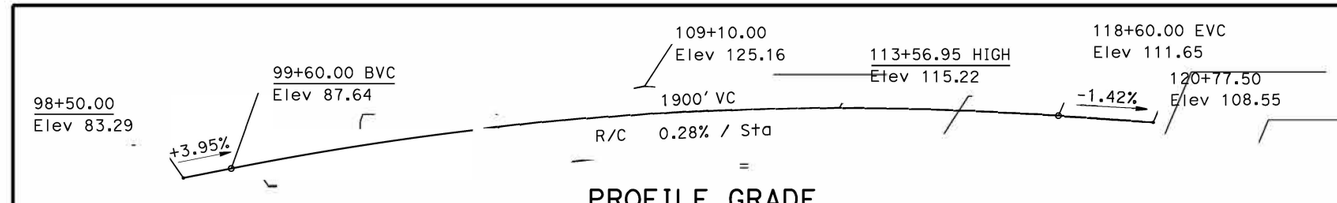
Roundabouts

As shown in Figures 1-7 and 1-8(a) through (d), the roundabouts would be located along SR 221 and provide specific access to the following:

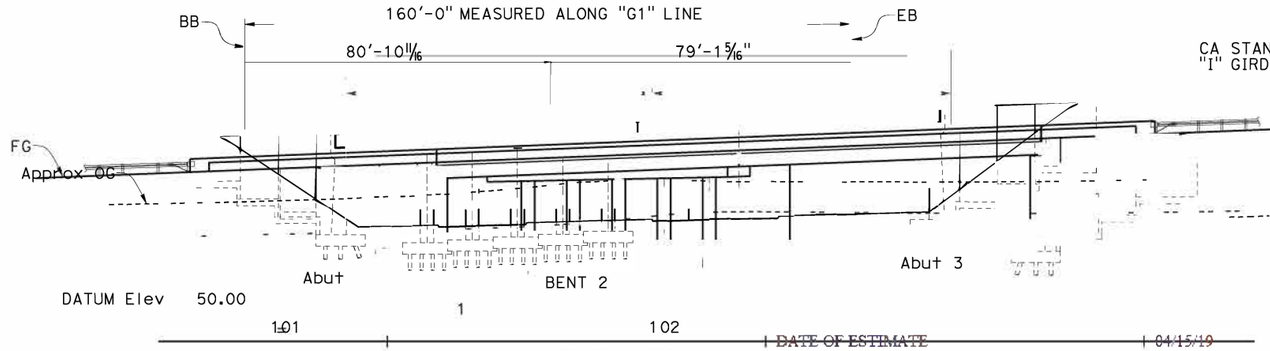
- North Roundabout – SR 221/SR 29 northbound ramps
- South Roundabout – SR 221/SR 29 ramps and Soscol Ferry Road

STATE OF CAL FORN A DEPARTMENT OF TRANSPORTAT ON D VIS ON OF ENG NEER NG SERV CES

Dist	COUNTY	ROUTE	POST MILE
04	Nap	29/221	0.0/0.7 5.0/6.7

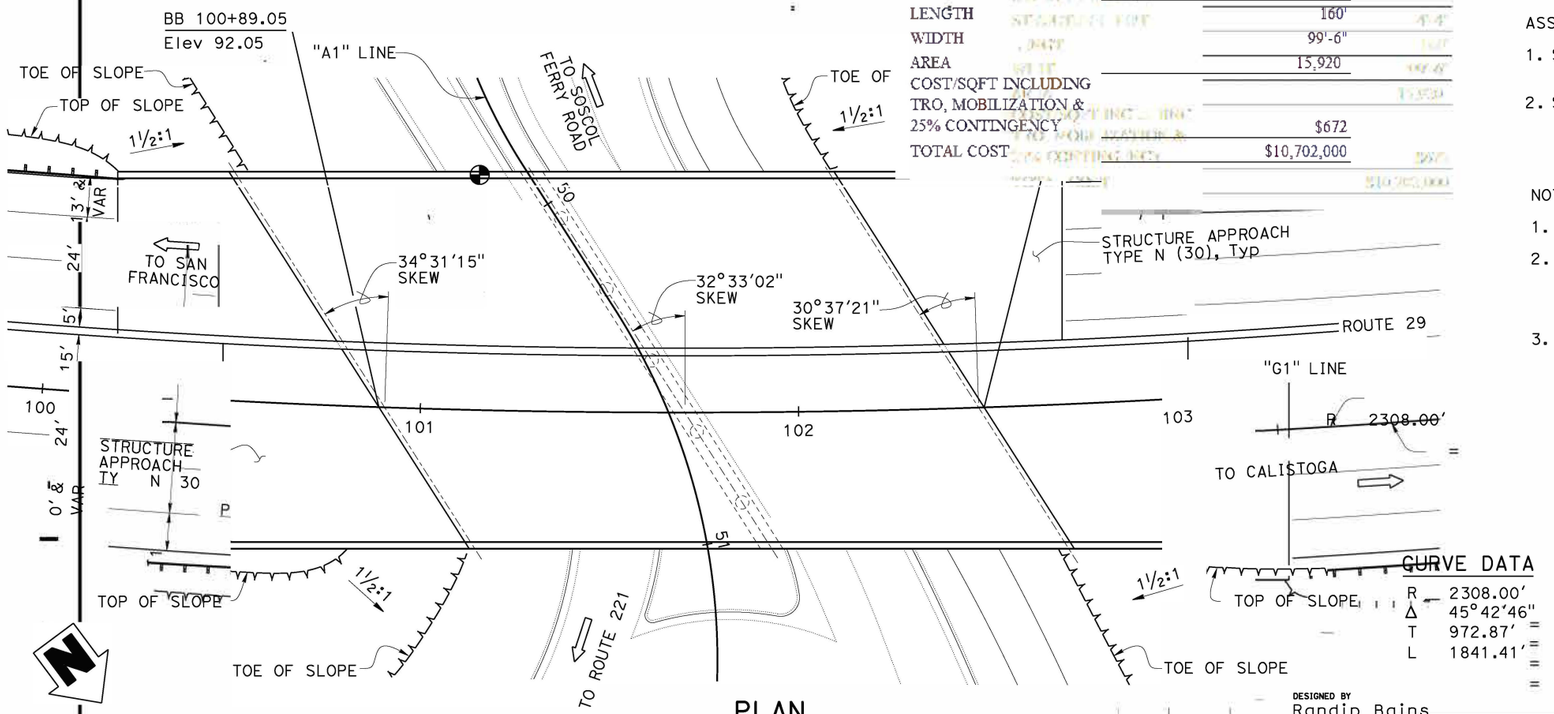


PROFILE GRADE
NO SCALE



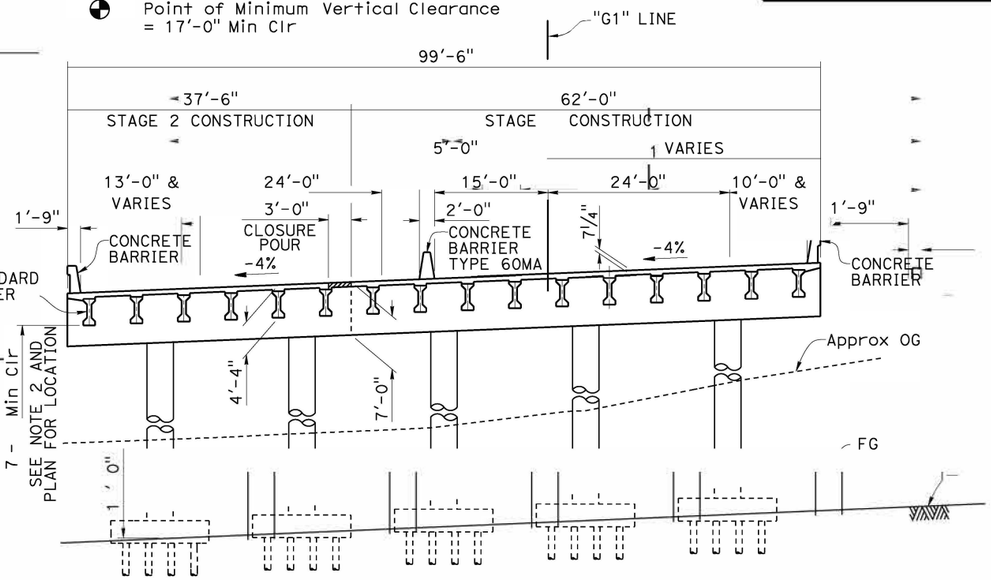
ELEVATION
1" = 20'

~~DATE OF ESTIMATE~~	~~04/15/19~~
BRIDGE REMOVAL	
STRUCTURE DEPTH	4'-4"
LENGTH	160'
WIDTH	99'-6"
AREA	15,920
COST/SQFT INCLUDING TRO, MOBILIZATION & 25% CONTINGENCY	$672
TOTAL COST	$10,702,000



PLAN
1" = 20'

LEGEND:
- Closure Pour
- Point of Minimum Vertical Clearance = 17'-0" Min Clr



TYPICAL SECTION
1" = 10'

ASSUMPTIONS:

1. Stage 1 Bridge Construction to be accomplished with shifting traffic away from Bridge Construction.
2. Stage 2 Bridge Construction to be accomplished with shifting Route 221 under new Stage 1 Bridge. Construct approach fill to Stage 1 and shifting Route 29 on to new Stage 1 Structure.

NOTES:

1. Bridge supports shall be parallel to each other.
2. A minimum vertical clearance of 17'-0" at the traveled way must be provided from the soffit of exterior girder to the finish grade at the left side of the bridge.
3. Deck closure pour must not be placed sooner than 60 days after the last deck concrete is placed.

DATE OF ESTIMATE	04/15/19
BRIDGE REMOVAL	
STRUCTURE DEPTH	4'-4"
LENGTH	160'
WIDTH	99'-6"
AREA	15,920
COST/SQFT INCLUDING TRO, MOBILIZATION & 25% CONTINGENCY	$672
TOTAL COST	$10,702,000

DESIGNED BY Randip Bains	DATE 03-21-19	STRUCTURE DESIGN	
DRAWN BY Carlo Cancino	DATE 03-21-19	DESIGN BRANCH	8
CHECKED BY X	DATE X		
APPROVED X	DATE X		

FIGURE 1-5 SR 29 Cross-Section

State Route 29/State Route 221 Soscol Junction Improvement Project

EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4

Napa County, California

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 29-MAR-2019 TIME PLOTTED => 10:35
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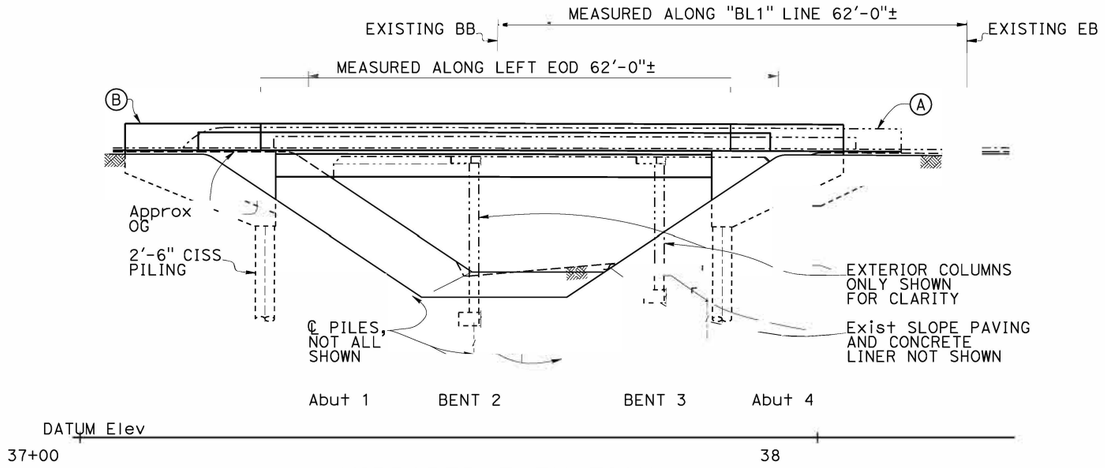
Dist	COUNTY	ROUTE	POST MILE
04	Nap	29	x



MIRRORED ELEVATION

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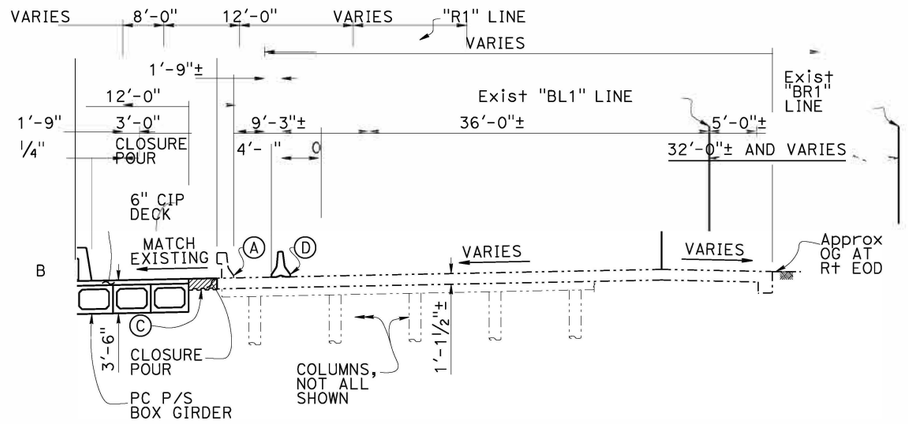

TYPICAL SECTION

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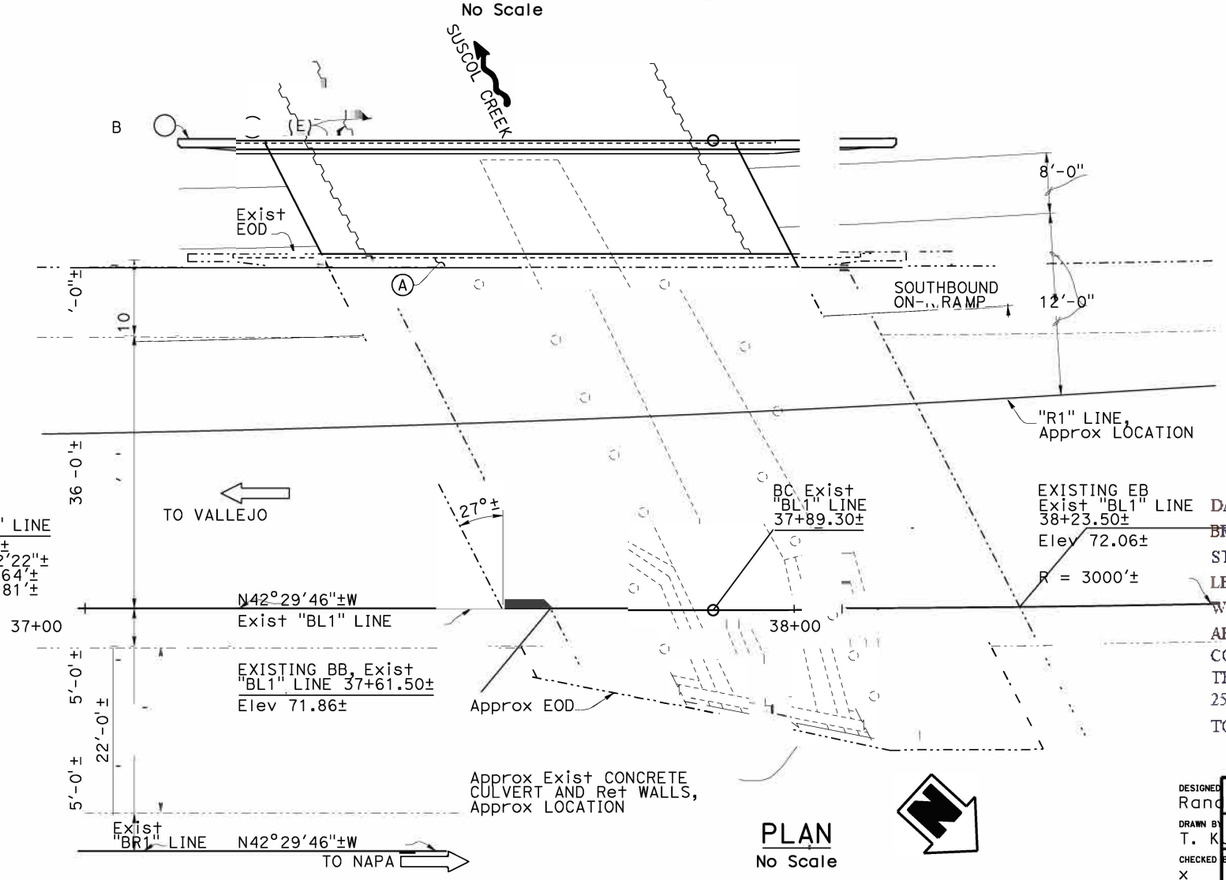

PLAN

No Scale

LEGEND:

- Indicates existing structure
- Indicates new structure
- Indicates deck closure pour
- Indicates stay-in-place metal deck form
- Indicates sheet piling

NOTES:

1. Existing MGBR not shown
2. Existing structures need to be field verified
3. Deck closure pour must not be placed sooner than 60 days after the last deck concrete is placed.
4. Exist utility info was not available.
5. Approx Exist concrete culvert and Ret walls shown at Approx locations.

(A) Existing concrete barrier Type 25 to be removed after placement of stay-in-place metal deck form

(B) Concrete barrier Type 842

(C) Stay-in-place metal deck form

(D) Temporary Railing (Type K)

(E) Temporary sheet piling to be placed prior to abutment construction. Sheet piling to be removed prior to erection of precast box beams.

DATE OF ESTIMATE	04/15/19
BRIDGE REMOVAL	
STRUCTURE DEPTH	3'-6"
LENGTH	62'
WIDTH	15'
AREA	930
COST/SQFT INCLUDING TRO, MOBILIZATION & 25% CONTINGENCY	$1,809
TOTAL COST	$1,683,000

DESIGNED BY	Ranjip Bains	DATE	03-14-17
DRAWN BY	T. Kusumi	DATE	03-14-17
CHECKED BY	x	DATE	X
APPROVED	X	DATE	X

STRUCTURE DESIGN

DESIGN BRANCH

8

FIGURE 1-6 SR 221 Cross Section

State Route 29/State Route 221 Soscol Junction Improvement Project

EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4

Napa County, California

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 3/17/2017)

DATE PLOTTED => 14-MAR-2019 TIME PLOTTED => 09:58
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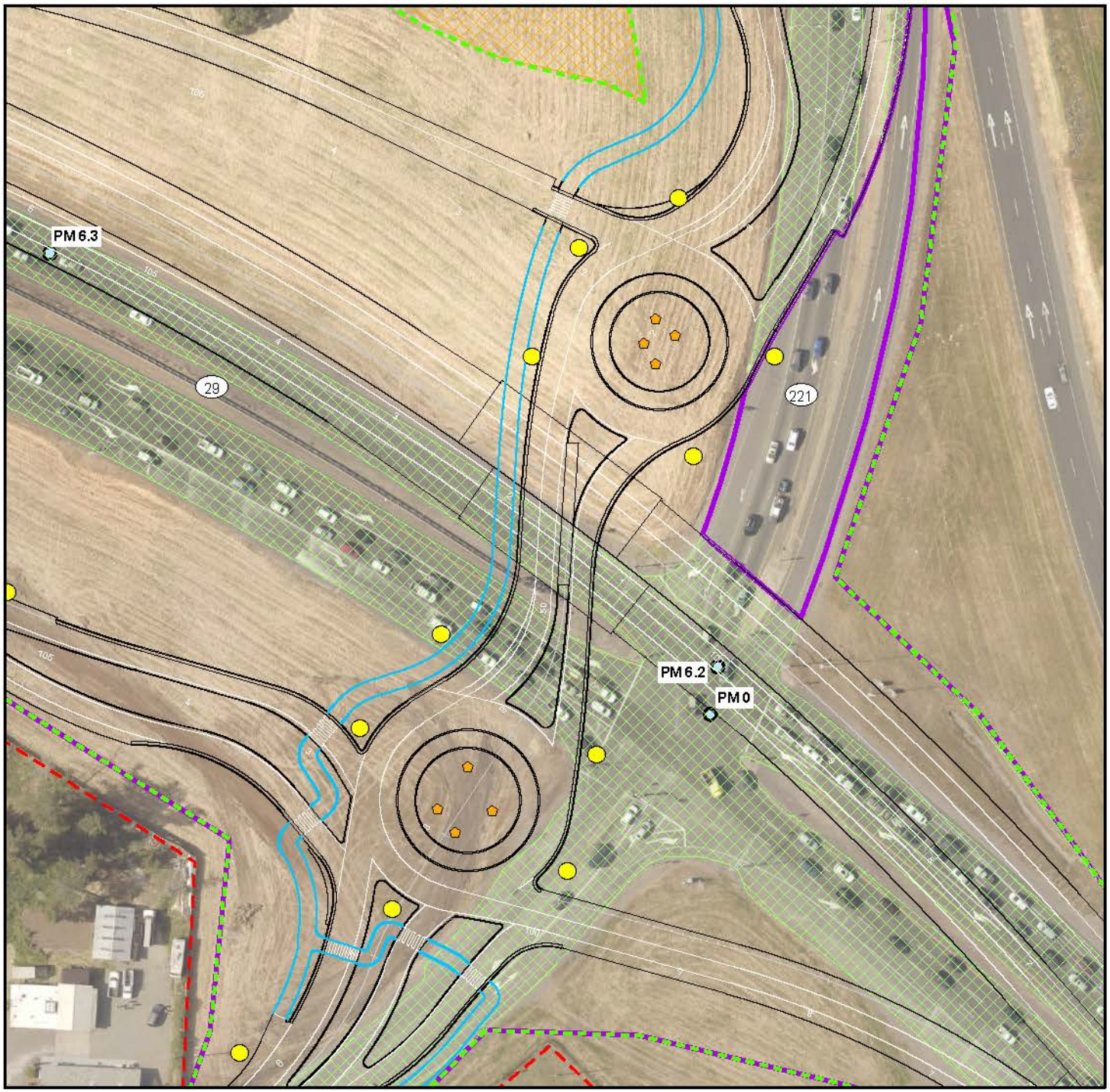
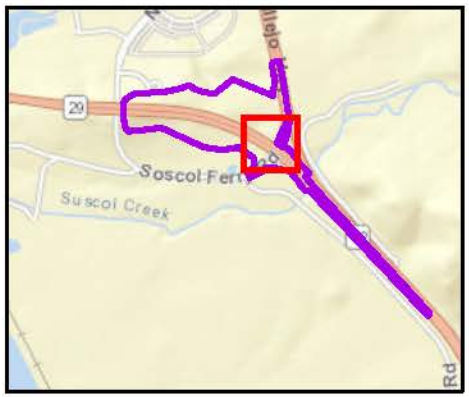
ORIGINAL SCALE IN INCHES 0 1 2 3





LEGEND

- Project Footprint
- Roadway Lighting
- Uplighting
- Existing Paved Surfaces within Project Footprint
- Staging Areas
- Post Mile
- Bike Path/Trail
- Edge of Pavement, Curb/Gutter or Bridge
- Cut and Fill
- Right of Way
- Stationing
- Pavement Marker (white line)

Service Layer Credits:
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

N

0 50 100
Feet

Caltrans

FIGURE 1-7
Roundabout Design

State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California

Figure 1.8(a) Overview of Build Alternative

Figure 1.8(b) Proposed Roundabouts

Figure 1.8(c) Southbound SR 221 Approaching the North Roundabout and Northbound Ramp to SR 29

Figure 1.8(d) South Roundabout and Soscol Ferry Road with SR 29 Ramps

Both roundabouts would include paved roadway widths of approximately 16 to 20 feet, with an inside shoulder width of approximately 4 feet. There would be signage and street lighting and fixtures. New street lighting would be associated with the two roundabouts and the ramps connecting from eastbound SR 29 to the roundabout and along Soscol Ferry Road just before connecting with the roundabout. Lighting is also proposed at the roundabouts central island landscape features.

Typically, the roundabout geometric design requires the driver to reduce speed in the intersection to 15 to 25 mph. Conversely, drivers can travel through a signalized intersection at speeds higher than posted speed limits because of the lack of geometric constraints. The roundabouts have also been designed to allow for STAA trucks to maneuver in and out of the new intersections.

A mountable truck apron around the perimeter of the central island has also been provided to accommodate the additional width needed for trailer tracking. The passage of large emergency vehicles through the roundabouts is the same as for other large vehicles and may periodically require use of the mountable apron. Fire vehicles do not require preemption to navigate the roundabouts. The additional circulating road width also provides for bypass of stopped or disabled traffic, simplifying passage by emergency vehicles.

Pedestrian and Bicycle Circulation

Given the context type and size of the proposed Soscol Junction project, Caltrans will put its best effort to implement as many measures as possible during the design and construction phase of the project to address Transportation Demand Management (TDM) Program to reduce Vehicle Miles Travels (VMT) and greenhouse gas emissions. The measures may include;

Walking, bicycling and transit access, ten percent vehicle parking reductions, charging stations and designated parking spaces for electric vehicles, carpool and clean-fuel parking spaces, designated parking spaces for a car share program, secured bicycle storage facilities, participation/formation in/of a Transportation Management Association (TMA) in partnership with other developments in the area, trip reduction targets with monitoring and enforcement. The scope of Soscol Junction project has included bike and pedestrian access to the proposed alternative successfully.

Caltrans is moving very fast in the direction of addressing VMT instead of Level of Service (LOS) for all transportation projects to promote smart mobility. Some of the measures Caltrans is considering includes; Transportation Demand Management

programs (mentioned above), reduce parking supply to encourage active forms of transportation, reduce regional VMT, and lessen future transportation impacts on State facilities. This smart growth approaches are consistent with the MTC's Regional Transportation Plan/SCS goals and would meet Caltrans Strategic Management Plan sustainability goals.

To aid pedestrian and bicycle circulation in the vicinity of the roundabouts, a 10-foot-wide minimum, Class I, shared use path would be provided along the northern side of SR 221/Soscol Ferry Road. The shared use path would be separated from vehicular traffic by placing a minimum 5-foot-wide non-traversable buffer (either planted or inert/rocks) and would be constructed to conform to a future shared use path constructed by the City of Napa with connection to Napa Valley Corporate Way along the western side of SR 221. The Soscol Junction path also would provide a future connection to the planned Napa Valley Vine Trail near Soscol Ferry Road and Devlin Road to the south. Bicyclists travelling north from SR 29 to SR 221 would continue to access the shoulder along the existing northbound slip lane.

Pedestrian crossings would be located a minimum of one car length from the circulatory roadway. The pedestrian refuges at the splitter islands would be at least 6 feet wide, which is consistent with National Cooperative Highway Research Program Report 672, entitled Roundabouts: An Information Guide, 2nd Edition. The shared-use path would convey both pedestrian and bicycle traffic through the intersection.

The path would provide the opportunity for bicyclists to exit the bicycle lane or shoulder via a bicycle ramp and navigate the intersection on the shared-use path and through the crosswalks. As an alternative to taking the shared-use path, bicyclists also would be able to exit the bicycle lane or shoulder and enter the roadway to ride with vehicle traffic through the roundabout.

At two-lane approaches, crosswalks would be split into two separate crossings through pedestrian refuges at the splitter islands. These two-stage crossings would reduce the amount of sustained time a pedestrian is in potential conflict with motorized vehicles by limiting the length of each crossing and limiting each crossing to one direction of vehicle travel at a time. All pedestrian accommodations would meet applicable standards and requirements under the Americans Disability Act. Figure 1-9 illustrates the proposed pedestrian and bicycle circulation.

Right of Way

The project is anticipated to be located within the existing Caltrans ROW and would not result in any property acquisition or the displacement of residents or businesses. Construction activity is anticipated to occur within the ROW and no temporary construction easements would be required.

Drainage Work

At the northern end of the project along SR 221, an existing culvert that runs underneath the road would be modified on the downstream end because of the proposed roadway widening. No work is anticipated on the upstream side of the culvert (east side of roadway). Erosion control protection would be included on the downstream end, with plans developed during final design.

The culvert located near the current intersection would require modifications to the existing 18-inch-diameter pipe. This existing culvert would be upgraded and improved with the Build Alternative. The culvert on southbound SR 29 would be replaced. Drainage plans would be developed during final design. Additional minor modifications to existing drainage systems would also be determined during final design. For additional details on modifications to drainage and bioretention swales, see the hydrology and water quality sections in Chapter 2.

Suscol Creek Crossing

Although the bridge crossing at Suscol[1] Creek was constructed in 1915 and extended in 1944 with the southbound direction constructed in the early 1980s, this bridge does not appear to have any structural deficiencies. Caltrans has determined the remaining life span of this structure is 50 years, so bridge replacement is not required. The Build Alternative would require the widening of the bridge crossing at Suscol Creek along SR 29 by approximately 15 feet; this crossing would involve a box girder. The bridge would include two cast-in-steel shell columns, approximately 30 to 40 feet deep, and 4 abutments.

[1] Two spellings of "Soscol" or "Suscol" are used locally, although not interchangeably. The "Suscol" spelling is used when referring to Suscol Creek. The "Soscol" spelling is used when referring to constructed place names, such as roads and bridges (this includes, Soscol Creek Bridge, Soscol Street Bridge, Soscol Ferry Road, and Soscol Road). This document will follow this conventional usage.

LEGEND

- Project Footprint
- Existing Bike Route
- Future Bike Route

N

0 0.2 0.4

Miles

Service Layer Credits:
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Caltrans

FIGURE 1-9
Pedestrian and Bicycle Circulation
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7;
221 PM 0.0/0.4
Napa County, California

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\C\CALTRANS\28120_SOSCOL_INTERCHANGE\GIS\MAPS\REPORT\2019\ISMNDEA\AUG\FIG1-9_BIKE_ROUTES_8X11_EA28120.MXD
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The SR 29 crossing at Suscol Creek is an arch culvert, extended with a box culvert and further extended with a long trapezoidal concrete channel and concrete apron on the downstream end. It varies in shape and slope along its length. Suscol Creek originates at the Napa/Solano County border and drains a portion of the hills southeast of the City of Napa and is a tributary to the Napa River. At SR 29, Suscol Creek conveys runoff from a watershed of approximately 2.8 square miles; the waterway is known to be a steelhead stream. Napa County Resource Conservation District (NRCD) has identified several fish passage barriers along the length of Suscol Creek, including the crossing at SR 29.

Based on conservative swimming capabilities and minimum depth requirements from California Department of Fish and Wildlife (CDFW) guidelines, the crossing at Suscol Creek does not meet current fish passage requirements and is not passable by steelhead at any life stage under any flow conditions. The main obstacles for fish passage are lack of water depth in the culvert and high velocities at high flows. The existing culvert at Suscol Creek is flat-bottomed and relatively wide, which promotes shallow, fast-moving water during most low to moderate flows. Based on Napa County Resource Conservation District's (NCRCD) "Highway 29 Culvert at Suscol Creek Fish Passage Assessment," dated June 2011 (NCRCD, 2011) (see Appendix K), the study recommends the following actions to improve passage conditions for upstream migration of steelhead:

1. Install concrete baffles on the existing apron to increase water depth and reduce velocities.

2. Install a series of rock weirs in the downstream channel to decrease velocities and increase depths, as well as reduce a possible jump barrier.

Given the nature of the complexity of fish movement at the Suscol Creek area, Caltrans is studying the feasibility of the fish passage solution and will formulate strategies at the plan, specifications, and estimates phase (PS&E) of the project.

Landscaping

Riparian vegetation would be replaced with species and quantities determined by biological studies as discussed in Chapter 2.3. Upland trees removed in the course of construction would be replaced where feasible with native or climatically appropriate trees. Native or climatically appropriate vegetation would be placed in a scattered layout to reduce the visual appearance of new highway facilities while preserving existing views to hills and distant trees.

Revegetation would include grasses and forbs that are climatically appropriate to the location, and vegetation would be selected to reduce wildfire risk. Fire Hazard Severity Zone mapping from CAL FIRE (CAL FIRE 2007, 2008) and Napa County (Napa County 2008) indicate that the project site is not located within a very high fire hazard severity zone.

Roundabout landscaping elements would include central island treatments to increase visibility, including lighting. Landscape buffer/strip elements that harmonize with central island features to help travelers ascertain the shape of the roundabout would include revegetation and/or inert materials and may incorporate biofiltration strips.

Context-sensitive aesthetic treatments would be applied to the roundabout, overcrossing structure and slope paving.

Lighting would be designed during PS&E to enhance bicycle and pedestrian movement.

The proposed bridge structure along SR 29 is recommended to include a context-sensitive, aesthetically treated barrier; also, the bridge structure crossing Suscol Creek would include a barrier design and aesthetic treatment that will match the proposed bridge structure along SR 29. The proposed bridge structure along SR 29 and the bridge structure crossing Suscol Creek would be confirmed during final design.

Utilities

The Build Alternative is not anticipated to require utility relocations or result in utility conflicts. The proposed lighting associated with the roundabouts would connect and use existing electrical service and not require the construction of new electrical lines or relocation of existing electrical lines.

Ground Disturbance and Earthwork

Grading and earthwork would be required to construct the roundabouts and overcrossing. Excavation would be required throughout the project to construct the new SR 221 profile (up to 16 feet lower than existing, with the profile 8 feet lower on average), as well as landscaping, utilities, and drainage facilities, which require trenching, placement of pipe, drainage structures, landscaping, irrigation, utilities, and backfill totaling up to 6 feet in depth. Construction of the SR 29 overcrossing would require an excavation depth of 50 to 60 feet for pile foundations, as well as general excavation for abutment. A maximum excavation depth of 25 feet would be required

to install overhead signing south of the bypass/SR 221 off-ramp and potentially along the roundabout approaches for better guide signing.

There would be approximately 95,000 cubic yards of cut and approximately 45,000 cubic yards of import, for a total of approximately 140,000 cubic yards of fill. Stockpiling would be located within the ROW at the staging areas, and away from any sensitive biological areas. Excavated soils would be reused as fill material as much as possible to minimize wastes and costs. Requirements for engineering controls based on regulated lead levels or the restrictions on reused soils would be determined and confirmed. To minimize and avoid runoff from the stockpiles, temporary cover/tarp would be used and anchored.

Construction

Construction activity is anticipated to occur within the ROW and no temporary construction easements would be required. It is anticipated that the Build Alternative would be built in five stages over approximately two years; however, this could change depending on the construction method chosen by the contractor. The preliminary plans in Appendix C illustrate the anticipated general construction stages for the Build Alternative and Appendix J illustrates the typical cross sections for the Build Alternative.

Stage 1. The first stage would construct temporary pavements necessary for shifting SR 29 and SR 221 traffic in later stages, construction of the southbound SR 29 off-ramp, and installation of temporary signal. Access would be maintained for all roadways and no detours are anticipated for this stage.

Stage 2a. The first part of the second stage would include a temporary signal and shift the existing SR 29 slightly to the south, SR 221 slightly to the east, and Soscol Ferry Road to the east to allow for construction of the easterly portion of the new SR 29 alignment and a large portion of the new roundabout intersections. Access would be maintained for all roadways and no detours are anticipated for this stage.

Stage 2b. The second part of the second stage would complete the south bound structure approach, including abutment and tie-back wall for SR 221. SR 221 would be closed in both directions and detours would be in place, particularly using Napa Valley Corporate Drive to connect southbound SR 221 to southbound SR 29 (Figure 1-10, Proposed Detour 1).

Stage 3. The third stage would include grading and construction between the two roundabouts and the southbound SR 29 ramp and shift SR 29 traffic slightly to the north to its ultimate alignment. SR 221 would continue to be closed and the existing detour would remain. Soscol Ferry Road would be closed, and the associated detours would use Devlin Road and Napa Valley Corporate Drive (Figure 1-11, Proposed Detour 2).

Stage 4. The fourth stage would include final grading and landscaping and construct northbound SR 221 access from the northerly roundabout. Curb, gutter, sidewalk, and islands for temporary roundabout control would be constructed. Access for SR 29 and closure of northbound SR 221 would continue to be maintained. Soscol Ferry Road and southbound SR 221 would be shifted to roundabout control; the detour to northbound SR 221 from Soscol Ferry Road would use Napa Valley Corporate Drive (Figure 1-12, Proposed Detour 3).

Stage 5. The last stage would shift SR 29 traffic to the newly constructed easterly portion of SR 29 to complete the westerly construction of SR 29. The roundabout intersections would be open and southbound SR 29 would be accessible from SR 221.

Generally, during all stages of construction, the existing number of lanes on SR 29 and SR 221 would be maintained where feasible and detours would be provided for any closures. A transportation management plan (TMP) would be prepared and implemented during the design phase of the project to minimize or prevent delays and inconveniences to the traveling public, and address traffic impacts from stage construction and specific handling concerns during construction. The TMP may include press releases to notify and inform multi-modal travelers, businesses, community groups, local entities, emergency services, and local officials of upcoming closures or detours. Construction activities would take place during both daytime and nighttime hours. The specific details for nighttime and/or weekend lane closures would be identified during the design phase. Measures to minimize impacts from lighting during nighttime construction would be implemented. Traffic control measures also would be implemented to reduce vehicle idling.

Pedestrian and bicycle access would be maintained during construction either through the project site or detoured using local streets. Detour routes may add approximately 10 to 20 minutes of travel time for bicyclists, depending on the origin and destination, and longer travel times for pedestrians. If a motor traffic detour route is in place that

is not open to pedestrians or bicyclists, such as the freeway segment of SR 29, then a separate detour signed for bicyclists would be provided.

All construction activity, staging, and equipment and materials storage would be located at two areas within the Caltrans ROW on either side of SR 29, just outside of the scenic lookout and just north of Soscol Ferry Road/SR 221.

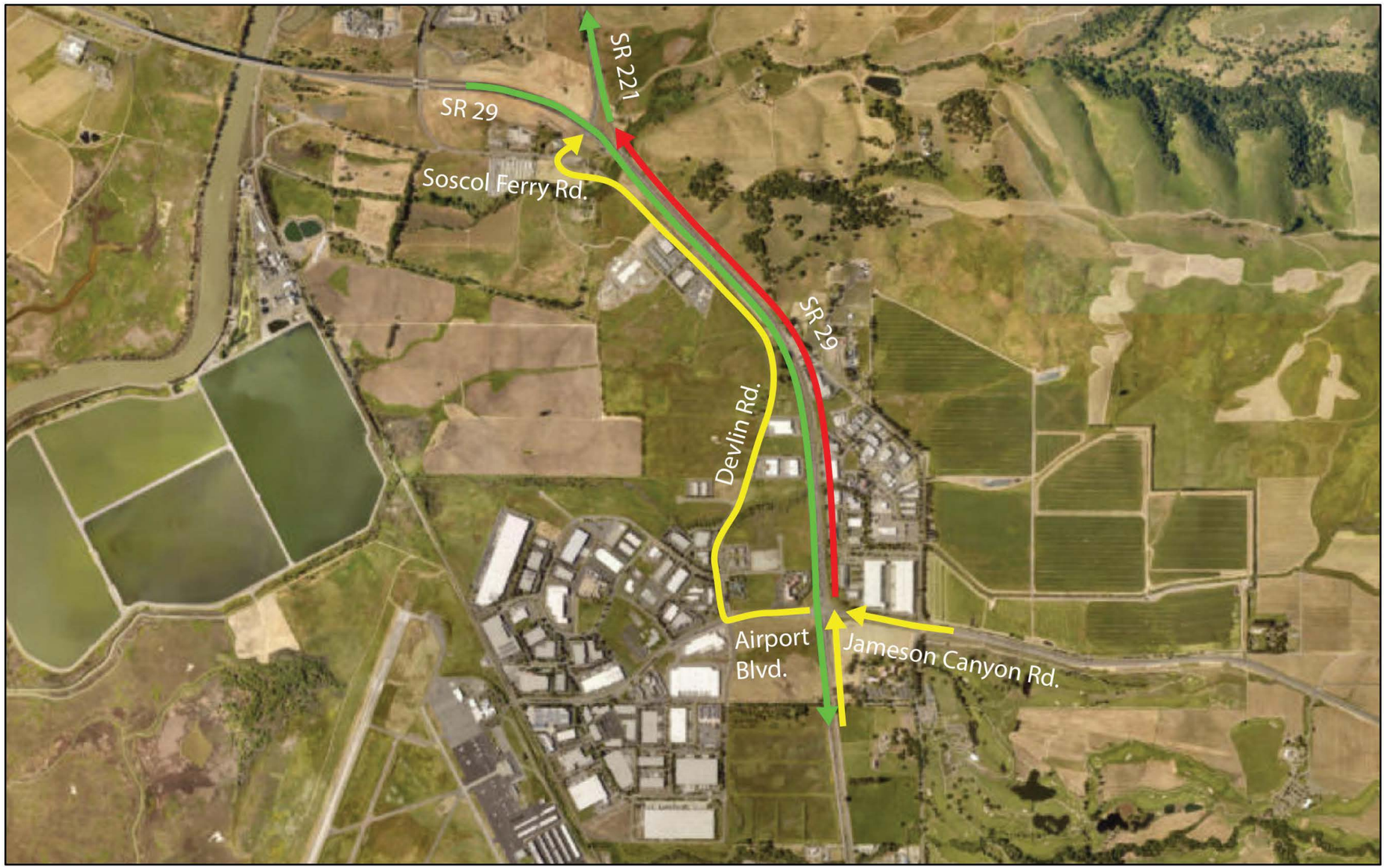
As discussed in Chapter 2.2.7, a temporary sound wall may be constructed along Soscol Ferry Road during construction and removed once construction is completed.

In addition, the construction near Suscol Creek to widen the existing SR 29 overcrossing would be limited to the dry season of June 15 to October 15, in or near aquatic habitat when drainages and wetlands would be either dry or at their lowest water level, to minimize impacts to biological resources or soil hydrology. The project also proposes to identify fish barriers and determine the feasibility of possibly removing them to make Suscol Creek a fish-friendly waterway. The details of fish passage would be developed at the design phase of the project.

Construction Equipment

The types of equipment needed to complete the construction may include, but are not limited to, the following: excavators, graders, cranes, loaders, telescoping forklifts, backhoe loaders, concrete pumps, concrete trucks, pavers, rollers, compactors, air compressors, portable generators, temporary signals, and portable lighting.

Asphalt-concrete paving would be conducted with pavers and rollers. Pavement grinding would be conducted with a grinder, and a street sweeper would be used to collect leftover grindings and debris. Clearing and grubbing would be done by hand, chainsaws, excavators, and/or loaders. Earthwork would be done by excavators, bulldozers, and graders. Equipment used to construct slopes would be excavators, bulldozers, graders, rollers, and cement pouring equipment. Equipment used for the removal of old pavement would be jackhammers, concrete saw cutters, excavators, and hand tools. Other equipment would include forklifts, front end loaders, a hydroseeding truck, and various trucks and trailers.

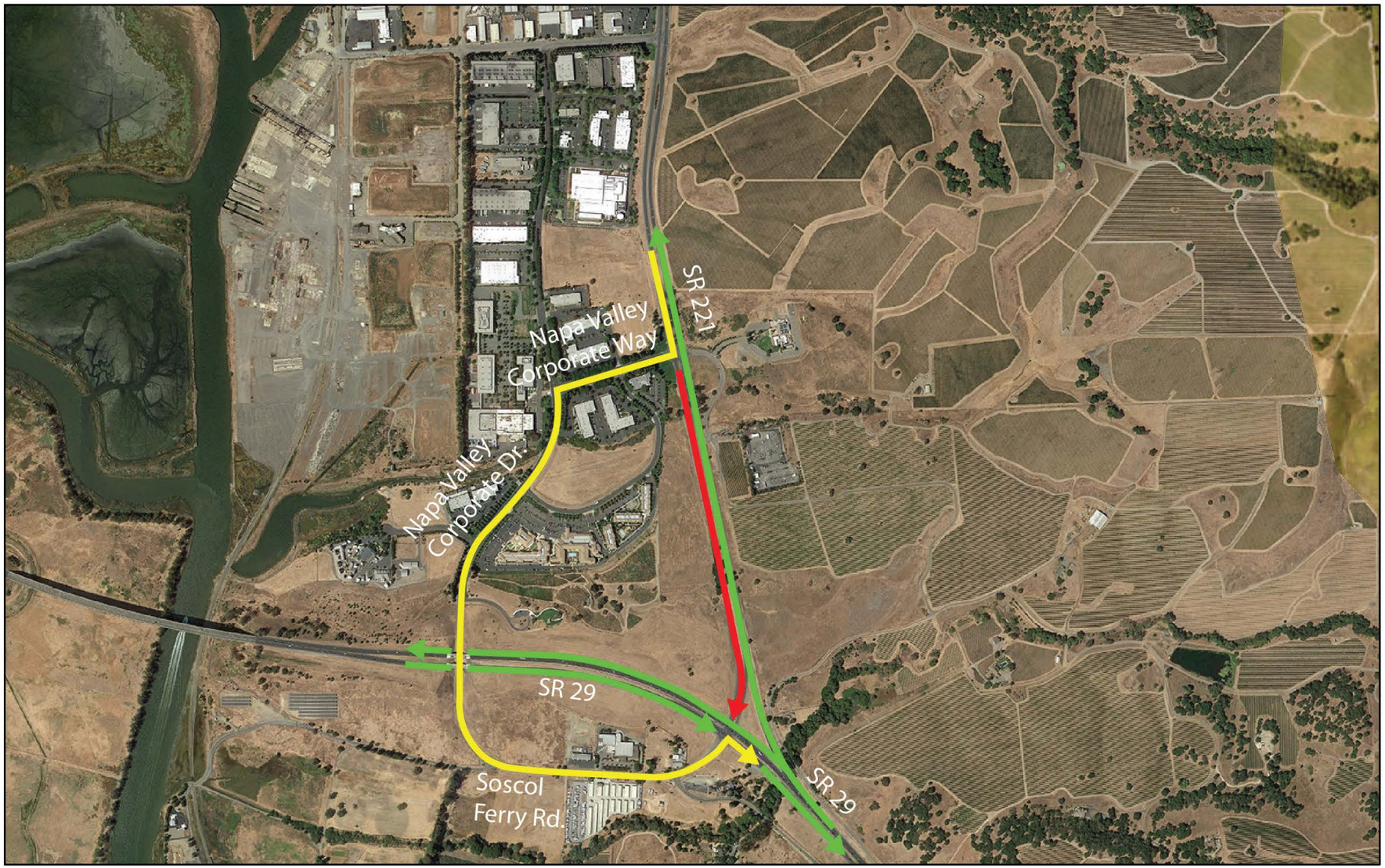


LEGEND

- Roadway Remains Open / Direction
- Roadway Closure / Direction
- Planned Detour Route / Direction

FIGURE 1-10 Detour 1

State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California

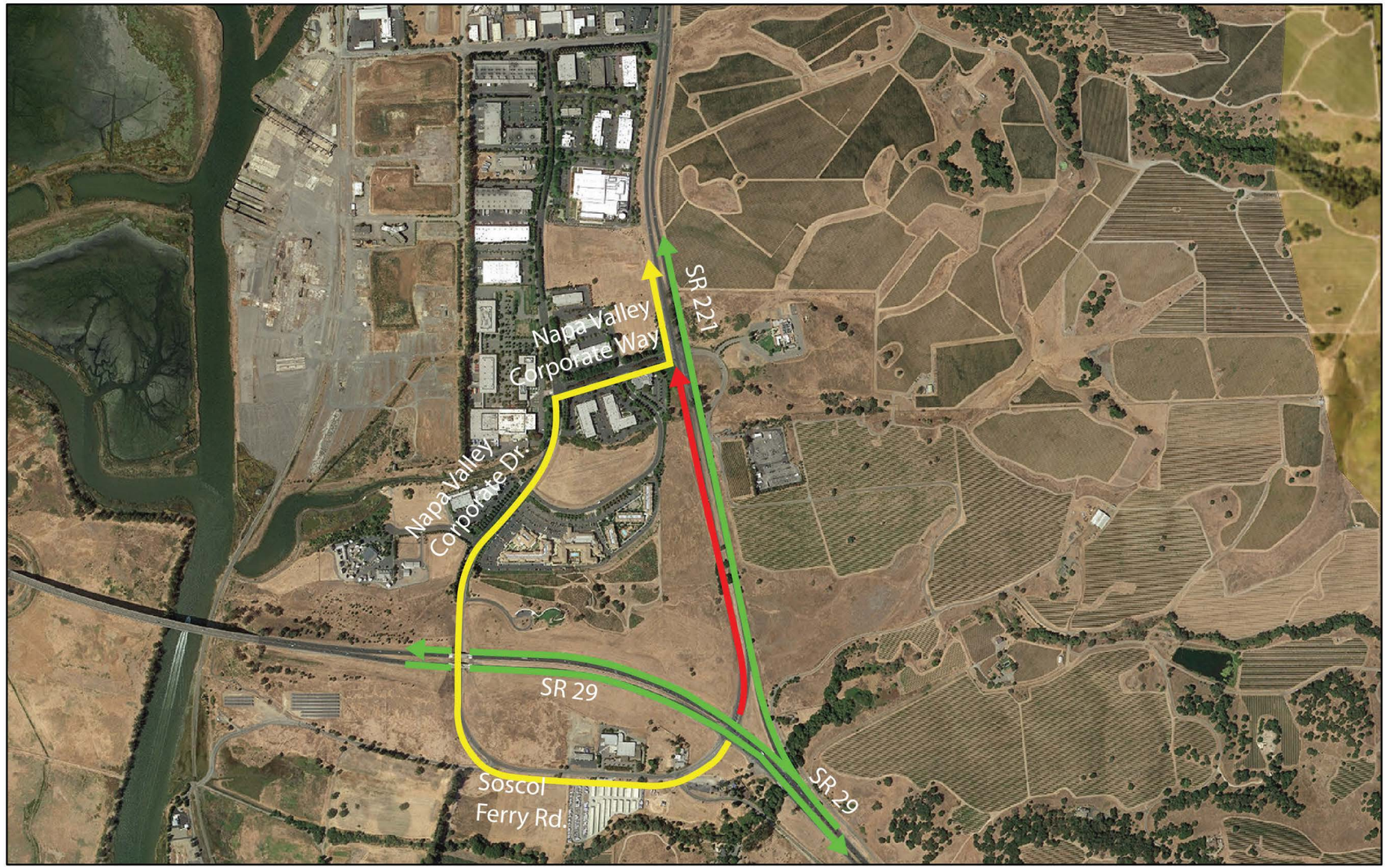


LEGEND

- Roadway Remains Open / Direction
- Roadway Closure / Direction
- Planned Detour Route / Direction

FIGURE 1-11 Detour 2

State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California



LEGEND

- Roadway Remains Open / Direction
- Roadway Closure / Direction
- Planned Detour Route / Direction

FIGURE 1-13 Detour 3

State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California

1.3.2 Project Features

This project contains a number of standardized project features 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 project features are summarized in Table 1-3 and addressed in more detail in the environmental consequences sections in Chapter 2.

Table 1-3 Project Feature Summary

Resource	Project Feature
Aesthetics	**1. Context Sensitive Features for Overcrossing Structure.** Aesthetic treatment of the overcrossing structure would use context-sensitive texture and/or color to minimize the change to visual character.
Aesthetics	**2. Context Sensitive Features.** Slope paving, and roundabouts would incorporate aesthetic treatments that use context-sensitive textures and/or colors to help minimize the impacts to visual character and support visual unity at the project site.
Aesthetics	**3. Guardrail Design.** Metal beam guardrail would be used in place of concrete barrier to the greatest extent feasible to minimize visual intrusion into the scenic corridor. Where concrete barriers are required, context-sensitive barrier texture and color would be used to reduce contrast and enhance compatibility with the visual character and unity of the setting.
Aesthetics	**4. Vegetation Control and Protection.** The removal of vegetation would be confined to the minimal area necessary to facilitate construction activities. Temporarily affected areas where vegetation is to be removed, would be revegetated with native grasses and forbs that are climatically appropriate to the location; and vegetation would be selected to reduce wildfire risk. Trees and vegetation outside of clearing and grubbing limits would be protected from the contractor's operations, equipment, and materials storage.
Aesthetics	**5. Construction Lighting.** Construction activities would limit all construction lighting to within the area of work during daytime hours and avoid light trespass through directional lighting, shielding, and other measures as needed. This would reduce and avoid light impacts on travelers, nearby residences, and nearby recreational facility users.
Aesthetics	**6. Slope Design Enhancement.** Slopes would be graded to mimic the surrounding gently rolling topography to reduce the appearance of manufactured slopes.
Aesthetics	**7. Revegetation.** Revegetation of disturbed areas and manufactured slopes would include native grasses and forbs to reduce the appearance of manufactured slopes. Native or climatically appropriate scattered vegetation would be placed to reduce the appearance of manufactured slopes and the new overcrossing.
Aesthetics	**8. Drainage**. Locate drainage modifications clear of existing upland trees and roots to the maximum extent feasible.
Aesthetics	**9. Drainage Design.** Minimize appearance of the drainage outfall into Suscol Creek by burying pipes and burying structures to the maximum extent feasible.
Aesthetics	**10. Color Treatment for Drainage.** Color treat exposed elements of the drainage outfall to blend with locally occurring soil and rock colors.

Table 1-3 Project Feature Summary

Resource	Project Feature
Aesthetics	**11. Creek and Riparian Revegetation.** Replace upland trees adjacent to the creek and riparian vegetation with the types and quantities determined by biological studies to the maximum extent feasible.
Aesthetics	**12. Tree Pruning.** Prune existing trees, where required for bridge work, under the direction of a licensed arborist.
Aesthetics	**13. Fish Passage Design.** Select materials used in fish passage work to be visually compatible with the existing creek, and if engineered structures are used, aesthetically treat them to minimize their appearance.
Air Quality	**14. Dust Control**. A dust control measure would be in the SWPPP and implemented to minimize construction impacts to existing communities. The plan would incorporate sprinkling, temporary paving, speed limits, transport of materials, and timely revegetation of disturbed slopes as needed, as well as posting a publicly visible sign, with the telephone number and person to contact at the lead agency regarding dust complaints and at the BAAQMD regarding compliance with applicable regulations. Water or dust palliative would be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a “no visible dust” criterion either at the point of emissions or at the ROW line, depending on air pollution control district and air quality management district regulations and local ordinances.
Air Quality	**15. Construction Traffic.** To the extent feasible, construction traffic would be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads and within 100 feet of residences during peak travel times.
Air Quality	**16. Track-Out Reduction Measures.** All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping will be prohibited. Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used.
Air Quality	**17. Unpaved Road Speed Limits.** All vehicle speeds on unpaved roads will be limited to 15 mph.
Air Quality	**18. Paving and Building Pads.** All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
Air Quality	**19. Idling and Access Points.** Idling times will be minimized either by shutting off equipment when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage will be provided for construction workers at all access points. Construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible, at portions of the construction area near sensitive receptors.
Air Quality	**20. Maintaining Construction Equipment and Vehicles.** All construction equipment and vehicles will be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment will be checked by a certified mechanic and determined to be running in proper condition prior to operation.
Air Quality	**21. Contractor Air Quality Compliance.** The construction contractor must comply with the Caltrans Standard Specifications in Section 14-9, which require contractor compliance with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.

Table 1-3 Project Feature Summary

Resource	Project Feature
Biological Resources – Natural Communities	**22. Vegetation and Tree Removal**. Vegetation and tree removal would be minimized as much as practicable to construct the project. In the project area, vegetation would only be removed as needed to provide access and necessary workspace. Where possible, vegetation would be cut above the soil level to promote the regrowth of existing plants following construction. This would limit the amount of vegetation removed, particularly the number of trees removed, allowing the possibility of cut trees to resprout, and supporting native species in the region.
Biological Resources – Natural Communities	**23. Vegetation Removal**. Vegetation will be removed and grubbed in locations where permanent structures will be constructed and earthwork will occur. Vegetation will be cleared only where necessary and will be cut above soil level, except in areas that will be permanently impacted or excavated. This will allow plants that reproduce vegetatively to resprout after construction. Clearing and grubbing of woody vegetation will occur by hand or using construction equipment, such as mowers, backhoes, and excavators. Cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site.
Biological Resources – Natural Communities	**24. Work Window for Creeks**. Construction within Suscol Creek will not occur during the wet season. Except for limited vegetation clearing (necessary to minimize impacts to nesting birds), work in the creek will be limited to the period from June 1 to October 31.
Biological Resources – Natural Communities	**25. Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage Sites**. Caltrans would delineate construction areas and ESAs (defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed) on the final construction plans. The approved biological monitor would be onsite to direct the installation of high-visibility, orange ESA fencing to prevent encroachment of construction personnel and equipment onto sensitive areas during construction activities, as needed. Staging, storage, and parking areas would be located on paved or graveled surfaces within the ROW and away from any designated ESAs, as specified by the project biologist, to avoid construction impacts to natural communities. Equipment and materials storage sites would be located as far away from residential and park uses as practicable. At the discretion of the Caltrans biologist, ESA fencing may be removed at times when construction is no longer active in the area.
Biological Resources – Natural Communities	**26. Wildlife Exclusion Fencing (WEF)**. Before starting construction, at the discretion of the Caltrans biologist, WEF will be installed along the project footprint perimeter in the areas where wildlife could enter the project site. The WEF will be removed following completion of construction activities. At the discretion of the Caltrans biologist, WEF may be removed at times when construction is no longer active in the area.
Biological Resources – Wetlands and Other Waters	**27. Maintenance**. All equipment would be properly maintained and free of leaks. Servicing of vehicles and construction equipment, including fueling, cleaning, and maintenance, would occur at least 50 feet from any hydrologic features, unless service area is isolated from the hydrologic feature.

Table 1-3 Project Feature Summary

Resource	Project Feature
Biological Resources – Animal and Plant Species	**28. Worker Environmental Awareness Training**. Construction personnel would attend a mandatory environmental education program, to be delivered by a qualified biological monitor, prior to beginning construction. This program would provide information on special-status species and the employees' personal responsibility in avoiding impacts to species during construction. At a minimum, the training will include: a description of California red-legged frog (CRLF), Contra goldfields (CCGF), Swainson's hawk (SWHA), bats, and migratory birds and their habitats; a discussion of the potential occurrence of these species within the project footprint; an explanation of the status of these species and protection under FESA and CESA; the description of measures to be implemented to conserve listed species and their habitats as they relate to the work site. Information will be provided on protected species to construction personnel, along with compliance reminders and relevant contact information. Documentation of the training and sign-in sheets will be kept on file and available on request.
Biological Resources – Animal and Plant Species	**29. Pre-Construction Surveys**. A CDFW- and USFWS-approved biologist would conduct pre-construction surveys for federally and state-listed plant and animal species. The biologist would be present during construction activities, including vegetation clearing and grubbing, when special-status species have the highest likelihood of being harmed or harassed. If, at any point, any listed species is discovered within the project limits, a 50-foot-wide work restriction buffer would be applied until the animal moves out of the area or the animal is relocated out of harm's way; the USFWS and CDFW would be contacted on how best to proceed. Alternately, other action may be taken as authorized in project permits.
Biological Resources – Animal and Plant Species	**30. Handling of Listed Species**. If, at any time, a listed species is discovered, the resident engineer and the agency-approved biologist would be immediately informed. The agency-approved biologist would determine whether relocating the species is necessary and would work with the corresponding agency (USFWS or CDFW) prior to handling or relocating, unless otherwise authorized.
Biological Resources – Animal and Plant Species	**31. Pre-construction Surveys for Nesting Birds**. If clearing and grubbing occurs between February 1 and September 30, the biological monitor will survey for nesting birds within the areas to be disturbed, before clearing activities begin. The survey area will include a perimeter buffer of 50 feet for passerines/non-raptor migratory birds and 300 feet for raptors. All nest avoidance requirements of the MBTA and Fish and Game Code (FGC) will be observed, for example, establishing appropriate protection buffers around active nests until young have fledged. USFWS and CDFW will be contacted if a special status species is discovered within the project limits within no less than 72 hours.
Biological Resources – Animal and Plant Species	**32. Avoidance of Entrapment**. To prevent inadvertent entrapment of animals during construction, excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day using plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. Pipes, culverts, or similar structures stored in the project footprint overnight will be inspected before they are subsequently moved, capped, and/or buried.
Biological Resources – Animal and Plant Species	**33. Biologist Authority to Stop Construction**. The biological monitor will stop work if any protected species are discovered. Work would not begin again until the individual species is either relocated by the monitor or moves out of the project area by itself, or as otherwise authorized in the project permits.

Table 1-3 Project Feature Summary

Resource	Project Feature
Biological Resources – Animal and Plant Species	**34. Construction Site Management Practices**. The following site restrictions will be implemented to avoid or minimize potential effects on listed species and their habitats: **a.** Enforce a speed limit of 15 mph on unpaved areas within the project footprint to reduce dust and soil disturbance. **b.** Locate construction access, staging, storage, and parking areas within the project ROW outside any designated ESA. Access routes, staging and storage areas, and contractor parking will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked before initiating construction or grading. **c.** Certify, to the maximum extent practicable, borrow material is non-toxic and weed free. **d.** Enclose food and food-related trash items in sealed trash containers and remove them from the site at the end of each day. **e.** Prohibit pets from entering the project footprint area during construction. **f.** Prohibit firearms within the project site, except for those carried by authorized security personnel or local, state, or federal law enforcement officials. **g.** Maintain equipment to prevent the leakage of vehicle fluids, such as gasoline, oils, or solvents and developing a spill response plan. Hazardous materials, such as fuels, oils, and solvents, will be stored in sealable containers in a designated location that is at least 50 feet from aquatic habitats.
Biological Resources – Animal and Plant Species	**35. Nighttime Lighting Restrictions**. If night work is necessary, lighting will be directed towards the roadway to the greatest extent practicable to avoid exposing nocturnal wildlife and their habitats to excessive glare.
Biological Resources – Invasive Species	**36. Landscaping and Erosion Control Plan**. A landscaping and erosion control plan will be prepared and not use invasive species. The project will incorporate native planting throughout the site to the extent practicable.
Biological Resources – Invasive Species	**37. Cleaning of Equipment**. All earthmoving equipment and seeding equipment would be thoroughly cleaned before arriving on the project site to prevent the spread of noxious weeds from other locations.
Biological Resources – Invasive Species	**38. Reduce Spread of Invasive Species**. To reduce the spread of invasive, non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with EO 13112. This order is provided to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health effects. In the event that noxious weeds are disturbed or removed during construction-related activities, the contractor will be required to contain the plant material associated with these noxious weeds and dispose of them in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted.
Biological Resources – Threatened and Endangered Species	**39. Special-Status Species Handling**. A USFWS and/or CDFW-approved biologist will handle threatened and endangered species using USFWS-approved handling techniques. Standard species-handling protocols will be used if individuals are discovered within the project area, or as otherwise authorized in the permits.

Table 1-3 Project Feature Summary

Resource	Project Feature
Biological Resources – Threatened and Endangered Species	**40. Consultation with USFWS and CDFW**. Coordination with the USFWS and CDFW would occur if individuals of species under federal and/or state jurisdiction are found within the project area during construction or as otherwise authorized in permits.
Cultural Resources	**41. Discovery of Historic and Archaeological Resources.** While Caltrans has made every effort to identify historic and archaeologic resources, if cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area would be halted until a qualified archaeologist can assess the nature and significance of the find.
Hazards and Hazardous Materials	**42. Hazardous Materials Incident Contingency Plan.** A hazardous materials incident contingency plan would be prepared to report, contain, and mitigate roadway spills. The plan would designate a chain of command for notification, evacuation, response, and cleanup of roadway spills.
Noise	**43. Best Management Practices to reduce Noise and Vibration.** Best management practices (BMPs), such as properly maintaining equipment, using quiet air compressors and other quiet equipment where such technology exists, and restricting hours of vibration-intensive equipment or activities to between 7:00 a.m. and 7:00 p.m. on weekdays, with no construction occurring on weekends or holidays, would be used to reduce noise and vibration impacts. If work is necessary outside of these hours, Caltrans will require the contractor to implement a construction noise monitoring program and provide additional mitigation where practical and feasible.
Noise	**44. Delivery and Disposal Schedules**. Delivery of materials/equipment and disposal of debris will be scheduled during daytime, from 7:00 a.m. to 7:00 p.m.
Tribal Cultural Resources	**45. Discovery of Tribal Cultural Resources.** If remains are discovered during excavation, all work within 60 feet of the discovery will halt and Caltrans' Cultural Resource Studies office will be called. Caltrans' Cultural Resources Studies Office Staff will assess the remains and, if determined human, will contact the County Coroner as per Public Resources Code Sections 5097.98, 5097.99, and 7050.5 of the California Health and Safety Code. If the Coroner determines the remains to be native American, the Coroner will contact the Native American heritage Commission who will assign a Most Likely Descendant. Caltrans will consult with the Most Likely Descendant on treatment and reburial of the remains.
Utilities and Service Systems	**46. Trash Management.** All food-related trash items, such as wrappers, cans, bottles, and food scraps, would be disposed of in closed containers and removed from the entire project site at the end of each workday.
Water Quality and Stormwater Runoff	**47. Stormwater Pollution Prevention Plan (SWPPP).** A SWPPP would be developed and implemented for the project and would comply with the Caltrans SWMP, which includes measures to protect sensitive areas and prevent and minimize stormwater and non-stormwater discharges. The temporary construction site BMPs specified in the SWPPP would be implemented throughout the duration of construction activities to reduce pollutant loads in potential stormwater/non-stormwater discharges. Construction site BMP strategies applicable to this project may include soil stabilization, sediment control, tracking control practices, non-stormwater management, and waste management and materials pollution control.

Table 1-3 Project Feature Summary

Resource	Project Feature
Water Quality and Stormwater Runoff	**48. Erosion Control and Water Quality Protection Measures.** Permanent erosion control measures would be incorporated into the project design in order to minimize runoff, to reduce windblown particulate, and to achieve final slope stabilization. Graded areas would be protected from erosion using a combination of silt fences, biodegradable fiber rolls along the toe of slopes or along edges of designated staging areas, and erosion-control biodegradable netting as appropriate. Drainage features would be considered at drainage outfalls to reduce the velocity and dissipate flows as they discharge from the culvert. Rock slope protection would be placed at culvert outfalls and within drainage ditches and swales where velocities may result in scouring. Given the site and design limitations, other conventional-type treatment measures that capture and treat stormwater runoff may need to be considered for this project. In coordination with Caltrans and County of Napa, nonstandard treatment measures would also be considered. The final drainage design, selection of treatment BMP types and locations, and determination of impervious area treated would be refined during the design phase when detailed design information is developed.
Water Quality and Stormwater Runoff	**49. Stormwater Multiple Application and Report Tracking System.** Prior to any soil disturbance, a Notice of Intent would be filed with the State Water Resources Control Board's (SWRCB's) Storm Water Multiple Application and Report Tracking System. Additionally, permit registration documents, Notice of Termination, changes of information, sampling and monitoring information, annual reporting, and other required compliance documents through the SWRCB's Storm Water Multiple Application and Report Tracking System would be electronically filed.
Water Quality and Stormwater Runoff	**50. Stormwater BMPs**. In accordance with Regional Water Quality Control Board (RWQCB) requirements, a SWPPP will be developed and erosion control BMPs will be implemented to minimize wind- or water-related erosion. The Caltrans BMP Guidance Handbook provides guidance for the inclusion of provisions in all construction contracts to protect sensitive areas and prevent and minimize stormwater and non-stormwater discharges. At a minimum, protective measures will include: **a.** Prohibit discharge of pollutants from vehicle and equipment cleaning into storm drains or watercourses. **b.** Service vehicles and construction equipment, including fueling, cleaning, and maintenance, at least 50 feet from aquatic habitat unless separated by topographic or engineered drainage barrier. **c.** Collect and dispose of concrete wastes and water from curing operations in appropriate washouts, located at least 50 feet from watercourses. **d.** Maintain spill containment kits onsite at all times during construction operations and/or staging or fueling of equipment. **e.** Use water trucks and dust palliatives to control dust in unvegetated areas and covering of temporary stockpiles when weather conditions require. **f.** Install coir rolls or straw wattles along or at the base of slopes during construction to capture sediment. To prevent wildlife from becoming entangled or trapped in erosion control materials, plastic monofilament netting (that is, erosion control matting) or similar material will not be used. Acceptable substitutes will include coconut coir matting or tackifying hydroseeding compounds.

Table 1-3 Project Feature Summary

Resource	Project Feature
	g. Protect graded areas from erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (jute or coir) as appropriate on sloped areas. **h.** Establish permanent erosion control measures, such as bio-filtration strips and swales to receive stormwater discharges from the highway or other impervious surfaces to the maximum extent practicable.
Water Quality and Stormwater Runoff	**51. Dewatering Activities and Clean Water Diversions**. Dewatering activities and the clean water diversion will comply with the Caltrans Standard Specifications and Field Guide to Construction Site Dewatering, and, if required, a separate dewatering permit will be obtained prior to the start of construction.
Water Quality and Stormwater Runoff	**52. Low-Impact Development Controls**. The proposed added impervious area is minimal; therefore, the potential increase in sediment-laden flows is expected to be minimal. Existing drainage facilities are expected to be modified or removed and new drainage features installed to convey runoff. The Municipal Regional Permit prioritizes the use of low-impact development measures for stormwater treatment controls. These measures are harvesting and use, infiltration, evapotranspiration, and biotreatment. Other conventional treatment measures (such as, basins and vaults) are allowable under special conditions outlined in the permit. Caltrans has an approved list of treatment BMPs that have been studied and verified to provide pollutant removal from stormwater. All BMPs would be installed with impermeable liners to reduce potential groundwater contamination. The goal of the proposed project is to treat the 15 acres of impervious surface within Caltrans ROW. There are existing treatment BMPs within the limits of the project that will need to be protected during construction and the impervious watershed flowing to these BMPs must be maintained.

1.3.2.1 NO BUILD ALTERNATIVE

The No Build Alternative compares project conditions if the proposed improvements are not constructed and existing intersection conditions remain unchanged. Existing travel lanes, shoulders, medians, utilities, and elevations/slopes would remain. The intersection would remain as a four-way traffic signal, connecting SR 29, SR 221, and Soscol Ferry Road and continue to operate with congestion during peak a.m. and p.m. hours. The intersection would continue to provide only vehicle access and no bicycle and pedestrian access, and connection would be available.

1.3.2.2 COMPARISON OF ALTERNATIVES

After the public circulation period, all comments would be considered, and Caltrans would select a preferred alternative and make the final determination of the project's effect on the environment. Under CEQA, Caltrans would prepare a Negative Declaration or Mitigated Negative Declaration if no unmitigable significant impacts are identified. Similarly, if Caltrans as assigned by FHWA, determines the action does not adversely affect the environment, Caltrans would issue a Finding of No Significant Impact in accordance with NEPA.

1.4 Project Background

A project study report (PSR)/project development support of EA 28120K was approved on September 29, 2000. The PSR/ Project Development Support proposed four alternatives with cost estimates ranging from $18.8 million to $26.5 million. It proposed a 2-lane connector to provide continuous traffic flow from southbound SR 221 to southbound SR 29 to over pass the signalized, at-grade SR 29/SR 221 intersection. All of these four alternatives were found to be inadequate because of potential environmental impacts and non-standard freeway entrance and exit designs.

In January 2002, a new alternative (Alternative 5) was developed to bring the design to standard while minimizing the environmental impacts. The scope of the project, which was constructing a two-lane connector from southbound SR 221 to southbound SR 29 while maintaining the signal at the existing intersection, remained the same. In January 2004, a value analysis (VA) study was conducted between Caltrans and the Napa County Transportation and Planning Agency (NVTA). As result of this study, a new alternative (Alternative 6) was proposed and set to be further studied. This alternative closed the Soscol Ferry Road, eliminated the left-turn on southbound SR 29 to northbound SR 221, and removed the northbound SR 221 lane and signals at the existing intersection, shortened the flyover structure, and included a diamond interchange at the undercrossing of Napa Valley Corporate Drive/Vista Point Drive.

According to this VA study, eliminating the existing movements of Soscol Ferry Road to northbound SR 221, northbound SR 29 to northbound SR 221, and the southbound SR 29 to northbound SR 221 would shorten the flyover structure by approximately 548 feet and save $2 million; the $2 million could be better spent building four ramps at Napa Valley Corporate Drive/Vista Point Drive undercrossing to form a full diamond interchange. The diamond interchange would provide locals with better access to the state facility. Further design study indicated that at least four new retaining walls were required for the four ramps because of site restriction and widening of the local road was necessary to accommodate the 2035 traffic for the proposed interchange. With these new requirements, the cost estimate for the proposed interchange alone was revised to be approximately $35 million. The cost estimate for the overall VA alternative, Alternative 6, increased to approximately $65 million. Also, the proposed interchange at Napa Valley Corporate Drive/Vista Point Drive did not meet the interchange spacing of 2-mile requirement stipulated in the Caltrans Highway Design Manual.

In January 2008, Caltrans presented the NVTA Technical Advisory Committee with two variations, Option 2 and Option 3, to Alternative 5. Alternative 5 was renamed as Alternative 5, Option 1. In June 2008, NVTA expressed concerns of the high cost for Alternative 6 and revisited the three options for Alternative 5. Alternative 5, Option 1 is the original alternative that proposed to build a flyover, realign a portion of southbound SR 221 to SR 29 connection, and keep the existing signals at the intersection. Alternative 5, Option 2 includes a shorter flyover structure, right-turn lane connector from southbound SR 221 to northbound SR 29, closure of the SR 29 median, and removal of northbound SR 221 leg and the existing signals at the intersection. Alternative 5, Option 3 proposes a similar flyover structure, right-turn lane connector, and elimination of signals to Option 2, but with complete removal of Soscol Ferry Road and SR 221 at the intersection.

In the summer of 2008, the County of Napa locally approved a new development, the Napa Pipe Project, near the proposed project area. The Napa Pipe Project proposes to construct 3,200 dwelling units of various sizes and characteristics, 40,000 square feet of neighborhood serving retail/restaurant uses, and 55,000 square feet business park with 150 rooms.

In 2009, Caltrans, NVTA, Napa officials (City and County) held workshop meetings and evaluated Alternative 5 options and the potential traffic demand of the Napa Pipe Project. They concluded that Alternative 5, Option 1 was a viable alternative for the project. In 2010, NVTA, Napa officials (City and County) favored Alternative 5, Option 2. A Draft Environmental Document was released for public circulation from March to May 2015 and included Alternative 5, Option 1 and Option 2, with the public meeting on April 14, 2015, at NVTA Boardroom located 625 Burnell Street in Napa County. During the comment period, nearly 100 comments were received with a majority related to bicycle and pedestrian movement, including discussion on complete street policy. To address the public concerns and comments, Caltrans and NCPTA revisited potential options and coordinated with local agencies.

In February 2016, the NCTPA Board of Directors rebranded the agency as the Napa Valley Transportation Authority (NVTA). NVTA and Caltrans worked together to develop two revised alternatives of a diamond interchange with roundabout intersections. These two roundabout designs included a single roundabout option and another option with two roundabouts and both roundabout design options include bicycle and pedestrian movements. On August 16, 2018, Caltrans held a public outreach meeting with NVTA to present and solicit public input on these two

roundabout alternatives at the NVTA boardroom in Napa County. The presentation also included advantages and disadvantages of the proposed roundabout alternatives versus the previous flyover alternatives. About 30 people attended this meeting and consisted of members of the public, Mayor of City of Napa, City officials, NVTA officials, bicycle/pedestrian interest groups, Napa Valley winery owners, and the local press. A question and answer session followed the formal presentation. Caltrans distributed comment cards in two languages, English and Spanish, among the guests and encouraged them to participate in the public outreach process by submitting comment cards at the meeting or sending emails and letters to Caltrans. The majority of the comments received were in support of the roundabout designs; specifically, 30 comments were received, with 26 people in favor of the roundabout alternatives and 4 people opposed to the roundabouts. People who are opposed to the roundabout alternative suggested that SR 29 be widened by two more lanes.

The single roundabout design option was eliminated because construction staging could not be accommodated for the overcrossing. The design option with two roundabouts allowed for more staging opportunities and options for movement, as well as the ability to expand in the future; therefore, this option was carried forward as the current proposed Build Alternative.

1.4.1.1 Alternatives Considered but Eliminated from Further Discussion

As described in Section 1.2, Project Background, two additional alternatives were developed after the circulation of the 2015 Draft EIR to address the public comments regarding a multimodal component and introduce the bicycle and pedestrian access, as well as an option to the previous flyover designs. Caltrans introduced these two roundabout designs in August 2018 and presented these roundabout designs to the public. These two roundabout designs included a single roundabout option and another option with two roundabouts. The design option with two roundabouts allowed for more staging opportunities and options for movement, as well as the ability to expand in the future; therefore, this option was carried forward as the current proposed Build Alternative.

Eliminated Single Roundabout. The single roundabout design option was eliminated because construction staging could not be accommodated for the overcrossing.

The 2015 Draft EIR evaluated Alternative 5 Option 1 and Alternative 5 Option 2, which proposed flyover alternatives. The alternatives considered but rejected are as follows.

Eliminated Alternative 5, Option 1. For Option 1, a flyover would be constructed from southbound SR 221 to SR 29. The southbound SR 221 connection to SR 29 at the Soscol Ferry Road intersection would be re-aligned, and the number of traffic lanes would be reduced from three lanes to two lanes. The limits of the proposed project on SR 29 are from North Kelly Road to 0.2 mile west of the SR 221/Soscol Ferry Road intersection, and on SR 221 from the existing SR 29/Soscol Ferry Road intersection to Anderson Road.

Eliminated Alternative 5, Option 2. For Option 2, a flyover would be constructed from southbound SR 221 to SR 29. The leg of SR 221 and the existing signal at the Soscol Ferry Road intersection would be removed. It would be replaced with a single-lane connector from southbound SR 221 to northbound SR 29. The SR 29 median at the intersection would be closed, which would eliminate all left-turn movements at the Soscol Junction intersection. Through movement to Soscol Ferry Road would be eliminated. The abandoned road would be reclaimed with vegetation. The limits of the proposed project on SR 29 are from North Kelly Road to the Napa Valley Corporate Drive undercrossing and on SR 221 from the existing SR 29/Soscol Ferry Road intersection to Anderson Road intersection.

Alternatives 5 and 6 were identified and evaluated in the Preliminary Value Analysis Report, submitted February 18, 2004. In November 2008, Caltrans Design further developed Alternative 5 into three options of which Option 1 and Option 2 were carried into the Draft EIR as previously mentioned. Alternative 5, Option 3, and Alternative 6 were eliminated because of the bicycle weaving movements with high-speed motor traffic as a result of the proposed flyover connectors.

Eliminated Alternative 5, Option 3. For Option 3, a flyover structure from southbound SR 221 to southbound SR 29 would be constructed with the removal of the current left-turn movement at the SR 29/SR 221 intersection. This option is similar to Alterative 5, Option 2. A shorter structure from southbound SR 221 to southbound SR 29, and a connector from southbound SR 221 to southbound SR 29, were proposed. In addition to median closure on SR 29 and removal of the signals, complete removal of the leg of Soscol Ferry Road and SR 221 at the intersection is proposed. The traffic movements would have been as follows: left turns, right turns, and through movements on Soscol Ferry Road; and SR 221 at the intersection would all be eliminated to facilitate the traffic throughput on SR 29. This option was eliminated because through access to nearby roads is substantially reduced.

Eliminated Alternative 6. This alternative proposed to build two-lane flyover from southbound SR 221 that crosses over SR 29 and merges to southbound SR 29, and a connector from southbound SR 221 to northbound SR 29 with closure of legs of SR 221 and Soscol Ferry Road, and removal of existing signals at the existing SR 29 intersection. At Napa Valley Corporate Drive/Vista Point Drive overcrossing, the project proposed to build four ramps to tie the local road to SR 29 to form a diamond interchange. This alternative was developed during the value analysis study performed in January and February of 2004. After further studies, the cost estimate for this alternative increased to $65 million, and the proposed interchange at Napa Valley Corporate Drive/Soscol Ferry Road did not meet the interchange spacing requirement of 1 mile. This option was eliminated because of the high construction cost and lack of interchange spacing requirements.

The PSR, approved on September 29, 2000, identified and evaluated four alternatives (Alternatives 1 through 4) for a proposed flyover project, which were all eliminated as a result of nonconformance with Caltrans basic design policies and standards.

Eliminated Alternative 1. A two-lane flyover connector would be constructed from southbound SR 221 to southbound SR 29, crossing SR 29 and Soscol Ferry Road, west of the at-grade SR 29/SR 221/Soscol Ferry Road intersection.

Eliminated Alternative 2. A two-lane flyover connector would be constructed from southbound SR 221 to southbound SR 29, crossing SR 221 and SR 29, east of the at-grade SR 29/SR 221/Soscol Ferry Road intersection.

Alternatives 1 and 2 proposed to build a two-lane flyover connector from southbound SR 221 to southbound SR 29. The flyover structure passes through locations identified as having biological, historical, and prehistoric resources. The alternatives require constructing a lengthy structure (1,060 feet long) for passing over either SR 29 and Soscol Ferry Road or SR 221 and SR 29, and constructing a structure over Suscol Creek. Both alternatives proposed a southbound left exit connection to Soscol Ferry Road. Neither alternative conform to Caltrans basic design policy for freeway entrances and exits (Section 504.2, Highway Design Manual), which states, "All freeway entrances and exits, except for direct connections with median high occupancy vehicles lanes, shall connect to the right of through traffic." These alternatives were eliminated because of mandatory highway design policy requirement, significant environmental and cultural resource impacts, and high construction cost as a result of an excessively long structure.

Eliminated Alternative 3. A two-lane flyover connector would be constructed from southbound SR 221 to southbound SR 29, merging from the left on SR 29 and crossing SR 221 and northbound SR 29, east of the at-grade SR 29/SR 221/Soscol Ferry Road intersection. Southbound SR 29 would be shifted to the southwest.

Eliminated Alternative 4. A two-lane flyover connector would be constructed from southbound SR 221 to southbound SR 29, merging from the left on SR 29 and crossing SR 221 and northbound SR 29, east of the at-grade SR 29/221/Soscol Ferry Road intersection. Southbound SR 29 would be shifted to the northeast.

Alternatives 3 and 4 are similar. Both alternatives proposed to build a two-lane flyover connector from southbound SR 221 to southbound SR 29, merging from the left on SR 29. The alternatives require constructing a lengthy structure (1,060 feet) for passing over both SR 221 and northbound SR 29, and constructing a structure over the Suscol Creek. These alternatives proposed a SR 221 exit and a SR 29 entrance on the left of through traffic. They were eliminated because of Highway Design Manual restrictions (Section 504.2, Highway Design Manual), which states, "All freeway entrances and exits, except for direct connections with median high occupancy vehicles lanes, shall connect to the right of through traffic.", a significantly higher cost than the other build alternatives for construction of an excessively long structure and costs for shifting the alignment of southbound 29 to southwest or northeast with the associated new ROW requirement.

1.5 Permits and Approvals Needed

The permits, licenses, agreements, and certifications that would be required for project construction are provided in Table 1-4.

Table 1-4 Permit or Approval Document and Approving Agency

Approving Agency	Permit or Approval Document	Status
U.S. Fish and Wildlife Service (USFWS)	Section 7 Consultation for Threatened and Endangered Species; Review and Comment on 404 Permit	A Biological Assessment (BA) would be submitted by Caltrans to USFWS to provide a Biological Opinion (BO)
U.S. Army Corps of Engineers (USACE)	Clean Water Act Section 404 Nationwide Permit 14	Obtained during Plans, Specifications & Estimates (PS&E) Phase
California Department of Fish and Wildlife (CDFW)	1602 Lake and Streambed Alteration Agreement	Obtained during PS&E Phase
California Department of Fish and Wildlife (CDFW)	Initial Take Permit*	Obtained during PS&E Phase
Regional Water Quality Control Board – San Francisco Bay (RWQCB)	Clean Water Act Section 401 Water Certification Permit	Obtained during PS&E Phase
State Historic Preservation Officer	Memorandum of Agreement (MOA)	Previous MOA expired; Approved MOA expected by PA/ED.
California Transportation Commission	Funding of Project	Expected following PA/ED.
FHWA determination	Air quality conformity determination	Obtained after DED

*An Incidental Take Permit (ITP) will be required for this project for the Swainson's hawk, a State threatened species. An ITP is a permit issued by the CDFW for state listed species that allows agencies to complete projects that might result in the take of a State threatened or endangered species. The presence of Swainson's hawk is inferred due to known Swainson's hawk nests in close proximity (within 0.25 miles) of propose construction work, and observation of individuals soaring in proximity to the proposed project during reconnaissance surveys.

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

This chapter describes the environmental resources of the project areas and how the resources would be affected by the proposed Build Alternative. The chapter discusses potential environmental impacts of the proposed Build Alternative and recommended avoidance, minimization, and/or mitigation measures. The proposed avoidance, minimization, and/or mitigation measures are also summarized in Appendix D. A list of abbreviations is available in Appendix E and a list of technical resources is available in Appendix F. Chapter 2 also addresses issues of concern pursuant to CEQA and NEPA. Please see Chapter 3 for the CEQA Checklist.

The proposed project footprint is within the same footprint of the formerly proposed Soscol Flyover project. From a resource perspective, the environmental setting for the proposed project has not changed since the environmental resources were last studied for the Soscol Flyover project. The proposed Build Alternative and the previous proposed project are entirely within the existing Caltrans right of way. The studied limits of the former project were considered when creating a new design for the currently proposed project. The proposed project survey area for all resources has decreased from the previous project.

Caltrans, in partnership with NVTA, has worked together to include input from the local community and has incorporated multimodal design elements, including bicycle and pedestrian improvements into the proposed project.

The findings of technical studies for the formerly proposed project remain relevant for the currently proposed project and are referenced in this document. These findings remain accurate and also reflect updated database searches for various resources.

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 – The project site is located in Napa County outside of the coastal zone.

Wild and Scenic Rivers – There are no wild and scenic rivers that traverse the project area.

Parks and Recreation – Based on the Section 4(f) analysis, there are no publicly owned parks, recreation areas, or wildlife or waterfowl refuges that border or are near the project area. The Section 4(f) analysis is included in Appendix A.

Mineral Resources – The project does not conflict with resource recovery plans or operations in the project vicinity.

Farmlands/Timberlands – The proposed Build Alternative would not convert farmland in the project area to a non-agriculture use, or otherwise affect farmland, timberland, or land under Williamson Act Contracts.

Emergency Services – The proposed project would not result in the alteration or the need or demand for new emergency services (fire, police and medical responders) and a Traffic Management Plan (TMP) would be prepared to offset temporary disruptions during construction and ensure access is provided to emergency providers.

Relocations and Real Property Acquisitions – The proposed project would not cause the relocation and/or displacement of any households. The proposed project is to be constructed and located within Caltrans ROW.

Wildfire – The project site is not located within a very high fire hazard severity zone according to the California Department of Forestry and Fire Protection (CAL FIRE 2007, 2008).

2.1 Human Environment

2.1.1 Existing and Future Land Use

AFFECTED ENVIRONMENT

The proposed project is located in Napa County's Carneros Napa River Marshes/Jamieson/American Canyon-Unincorporated area, in the southern portion of Napa County, north and east of the Napa River Marshes (Napa County 2007). Existing land uses in the vicinity of the proposed project are primarily designated as open space, including agriculture, watershed, and open space, northeast of SR 29 and

SR 221; the area just southwest of the intersection is designated as urban: industrial and public institutional, south of SR 29 (Napa County 2007).

The adjacent properties in the southwest quadrant of the SR 29/SR 221 intersection include a small agricultural field, the Soscol House, Landmark No. 79000506 in the National Register of Historic Places (NRHP), which is currently occupied as the Villa Romano restaurant, and a single-family residence approximately 400 feet from the intersection, between SR 29, Soscol Ferry Road, and Devlin Road. In the northwestern quadrant are open agricultural fields, with a single-family residence set back about 400 feet from the intersection. In the northeastern and southeastern quadrants are agricultural fields. One single-family residence, located near the southeastern quadrant, is screened from view by vegetation along Suscol Creek. In the northwestern quadrant, the upper-elevation portion of Vista Point Park is visible at a distance of approximately 1,800 feet. No other development is visible from the intersection. The nearby Napa Valley Corporate Drive development, including resort hotels and a business park, is screened from view by topography.

Refer to Section 2.1.3, Growth, for a detailed discussion on development trends in the project vicinity and land uses in the surrounding project area.

Consistency with Regional, and Local Plans and Programs

The following paragraphs overview the plans that are applicable to the proposed project.

Regional Transportation Plan (RTP): The RTP is the regional transportation development guide for a 25-year period. The RTP is updated every 4 years and is based on projections of growth in population and travel demand coupled with financial projections. The development of an RTP is required by state and federal laws. Funding for the technical studies for the proposed project is listed in the MTC's *Plan Bay Area* as Reference Number 94073. (http://www.mtc.ca.gov/planning/plan_bay_area/). The *Plan Bay Area* recommends improvements to the SR 29/221 intersection, including a new grade-separated structure (bridge) connecting southbound SR 221 to southbound SR 29.

Transportation Improvement Program: The TIP is the primary spending plan for federal funding that is expected within the region. The TIP must be updated at least once every 4 years and covers a 4- or 5-year period. Funding for the proposed project's technical studies is listed under TIP ID NAP090003 in the 2011 TIP, which was adopted by the MTC on October 27, 2010, and by the FHWA and Federal Transit

Administration on December 14, 2010. Reference: https://mtc.ca.gov/our-work/fund-invest/transportation-improvement-program-tip.

Local Planning: The NVTA 1999 Strategic Transportation Plan states that major intersection improvements are needed at the SR 29/221 intersection, and additional capacity is recommended for southbound SR 221. Additionally, the proposed project is specifically included in Napa County's list of planned improvements in the Circulation Element of the Napa County General Plan (June 2008 http://www.countyofnapa.org/GeneralPlan/). The 1974 Freeway Agreement with Napa County for SR 29 indicates that SR 29 is to become a freeway in the future and southbound SR 221 is to be on the new alignment connecting to southbound SR 29. The proposed project is consistent with all the above-mentioned local plans.

The Napa County General Plan designates both SR 29 and SR 221 as County scenic roadways. The general plan states that scenic roadways are subject to their Viewshed Protection Program (Policy CC-8). The general plan also calls for new roadway construction or expansion to retain the current landscape characteristics of County-designated scenic roadways, including retention of existing trees to the extent feasible (Policy CC-13).

Table 2.1.1-1 provides a consistency evaluation of the proposed project with respect to state, regional, and local plans and programs.

Table 2.1.1-1 Consistency with State, Regional, and Local Plans and Programs

Document	Policy	Build Alternative	No Build Alternative
Regional Transportation Plan	Key performance objectives: • Reduce per-capita delay • Reduce fine particulate matter • Reduce carbon dioxide (CO_2) emissions	**Consistent.** The proposed project at the Soscol Junction Intersection would meet the key performance objectives by improving traffic operations at the Soscol Junction Intersection. By reducing congestion at the intersection, there would be a reduction of fine particulate matter and CO_2 emissions. Additionally, the proposed project is listed in the MTC's Transportation 2035 Plan (April 2009) as Reference Number 94073. Thus, the project is consistent with the most recent RTP– (http://www.mtc.ca.gov/planning/2035_plan/).	**Not Consistent.** The No Build Alternative would not meet the key performance objectives because traffic conditions are predicted to continually worsen at the Soscol Junction Interchange.

Table 2.1.1-1 Consistency with State, Regional, and Local Plans and Programs

Document	Policy	Build Alternative	No Build Alternative
Transportation Improvement Plan	*All projects included in the MTC-prepared TIP must be consistent with the RTP for the Bay Area.*	**Consistent.** The proposed project is listed under TIP ID NAP090003 in the 2011 TIP, which was adopted by the MTC on October 27, 2010, and by the FHWA and Federal Transit Administration on December 14, 2010. Consequently, the proposed project is consistent with the TIP.	**Not Consistent.** The No Build Alternative would not meet the key performance objectives because traffic conditions are predicted to continually worsen at the Soscol Junction Interchange. As it is not consistent with the RTP, it is not consistent with the TIP.
NVTA's 1999 Strategic Transportation Plan	*Major intersection improvements are needed at the SR 29/221 intersection and additional capacity is recommended for southbound SR 221.*	**Consistent.** The proposed project would make the recommended improvements at the SR 29/221 intersection.	**Not Consistent.** The No Build Alternative would not make the recommended improvements at the SR 29/221 intersection.
Napa County General Plan (adopted June 2008)	*Policy CIR-13 states: "The County seeks to provide a roadway system that maintains current roadway capacities in most locations and is both safe and efficient in terms of providing local access."*	**Consistent.** Intersection improvements at the Soscol Junction Intersection are listed under Policy CIR-13. The proposed project would make the recommended improvements at the SR 29/221 intersection. The proposed project would maintain the current roadway capacity by maintaining the existing 4-lane configuration and provide safe and efficient local access by reducing the queue length at the SR 29/221 intersection	**Not Consistent.** The No Build Alternative would not make the suggested improvements at the SR 29/221 intersection.
Napa County General Plan (adopted June 2008)	*Policy CC-8 states that scenic roadways are subject to their Viewshed Protection Program and Policy CC-13 calls for new roadway construction or expansion to retain the current landscape characteristics of County-designated scenic roadways, including retention of existing trees to the extent feasible.*	**Consistent.** The proposed project would make the recommended improvements at the SR 29/221 intersection and would retain existing landscape characteristics of scenic roadways and would not eliminate any trees from project construction.	**Not Applicable.** The No Build Alternative would not make the suggested improvements at the SR 29/221 intersection and no landscape changes would occur at this intersection.

Table 2.1.1-1 Consistency with State, Regional, and Local Plans and Programs

Document	Policy	Build Alternative	No Build Alternative
NVTA's Napa County Bicycle Plan (adopted January 2012) and Napa Valley Vine Trail as components of the Countywide Bicycle Plan Update	*The bicycle plan was developed to increase bicycle travel by addressing the most common reasons people do not use bicycles, including lack of convenience and perceived safety concerns. This is to reduce congestion and greenhouse gas (GHG) emissions resulting from automobile traffic.*	**Consistent.** Bicycle access is prohibited along SR 29 within the proposed project area. Under the Build Alternative, the new SR 29/221 interchange would provide direct bicycle and pedestrian access into the City of Napa.	**Not Consistent.** The No Build Alternative would not meet the key performance objectives because traffic conditions are predicted to continually worsen at the Soscol Junction Interchange. Additionally, bike connectivity would not be improved within the project area.

ENVIRONMENTAL CONSEQUENCES

Construction and Operation

No Build Alternative

As outlined in Table 2.1.1-1, the Build Alternative is not consistent with applicable state, regional, and local plans and programs.

Build Alternative

Table 2.1.1-1 outlines the policies that are applicable to the proposed project and their consistency with the Build Alternative. The Build Alternative is consistent with applicable state, regional, and local plans and programs.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES (AMMS)

Land use in the area would be unaltered by both the Build and No Build Alternatives. No land use AMMs would be required for the proposed project.

2.1.2 Utilities

AFFECTED ENVIRONMENT

This section references findings from the S*R 29/SR 221 Soscol Junction Improvement Project Draft Environmental Impact Report/Environmental Assessment* (Caltrans 2015).

Utility owners and their utilities present with the project site include the following:

- City of American Canyon Public Works water line

- Napa County Water District water line
- Pacific Gas & Electric (PG&E) underground gas main
- PG&E overhead power lines
- American Telephone & Telegraph (AT&T) telephone poles and underground telephone lines
- AT&T and Comcast fiber optic lines
- Napa Sanitation District sewer line

Utility relocations and utility conflicts are not anticipated for the proposed project; however, verification and potholing would occur during the design phase to determine the exact location for each utility in the project site. The proposed lighting associated with the roundabouts would connect and use existing electrical service and, therefore, not require the construction of new electrical lines or the relocation of existing electrical lines. Thus, the proposed project is not anticipated to impact utility services.

ENVIRONMENTAL CONSEQUENCES

Construction Phase

No Build Alternative

The proposed project would not be constructed with the No Build Alternative; therefore, there would be no construction impacts to utilities.

Build Alternative

No construction impacts to utilities are anticipated during construction of the Build Alternative.

Operation Phase

No Build Alternative

The proposed project would not operate with the No Build Alternative; therefore, there would be no project-level impacts to utilities.

Build Alternative

No project-level impacts to utilities are anticipated during operation of the Build Alternative.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No impacts would occur related to utilities; therefore, no AMMs are required.

2.1.3 Growth

The following section is based on the Growth-Inducing Impacts of the Soscol Flyover Improvement project (May 11, 2009), amended (September 2011). Updates to these technical memos are included in this section.

REGULATORY SETTING

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the NEPA, require evaluation of the potential effects of all proposed federal activities and programs. This includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as "indirect impacts." Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth. CEQA also requires the analysis of a project's potential to induce growth. The CEQA guidelines (Section 15126.2[d]), require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…"

AFFECTED ENVIRONMENT

The local economy of Napa County is historically based primarily on agriculture (ranching and orchards), and secondarily on tourism/hospitality. Napa Valley has emerged as one of the foremost winemaking regions in the world, and its fastest-growing employment sectors continue to be the wine-growing industry and related tourism. Napa Valley is now one of California's premier tourist destinations, attracting more than 5 million visitors annually, of which close to 40 percent stay overnight in local lodging.

While the industries of wine/grape growing, wine production, and tourism are expanding in the northern parts of Napa County, the southern portions of Napa are also growing from commercial and residential developments clustered along SRs 29 and 221 (refer to Table 2.4-1 for a list of approved projects in the project vicinity).

The Napa County General Plan (revised by Napa County, 2008) contains major policies for population and growth management that concentrate development within the urbanized areas, while preserving the agricultural and rural character of land

outside the urban centers. Based on population and household trends, the county has successfully focused growth in urbanized cities compared to unincorporated areas. Declines in population and the number of households in unincorporated areas contrast in comparison to increases in urbanized areas in Napa County as a whole (Napa County Housing Element Update, June 23, 2009). The Soscol Junction intersection is in an unincorporated area of the Napa Valley through which many visitors, commuters, and goods transporters pass through to reach the City of Napa and other regional destinations.

ENVIRONMENTAL CONSEQUENCES

Potentially growth-inducing transportation projects are generally those that create access to an area that was previously inaccessible or, in built-out areas, remove impediments to future growth in a community. The proposed project does not have the elements that might influence growth because it does not: (1) increase the capacity of the SR 29, SR 221, or the Soscol Junction intersection/interchange; (2) remove barriers to future growth; or (3) increase population or housing growth, or demand for new utilities and public services in the Napa County southern area.

Construction and Operation

No Build Alternative

Under the No Build Alternative, employment, population, industry, tourism, and housing would continue to grow in accordance with local and regional forecasts. Accessibility for travelers, goods movement, employees, and local residents would continue to decline because congestion and delay would increase through the SR 29/221/Soscol Junction intersection.

Build Alternative

Transportation enables the movement of individuals and goods from one location to another; as such, transportation improvements can affect both the attractiveness of potential destinations and ease of reaching them. With the purpose of the Soscol Junction Project being to reduce congestion and delay times at the intersection, the proposed project would affect the ease of reaching other destinations. Changes in accessibility to employment, residences, attractions, shopping, and other destinations can have the potential to influence growth by rendering certain areas more attractive to development (Caltrans 2016). Because of this link between transportation and land uses, Caltrans considers potential project-related changes in accessibility within the project study area to assist in the determination of whether the project could influence growth (Caltrans 2016). Caltrans determined that while the project may improve

overall access through intersections within the study area, its influence on growth would be very minor.

The Soscol Junction intersection is a transfer point for motorists traveling any direction to and from the City of Napa, or to the northern or southern part of the county. Under the Build Alternative, the Soscol Junction intersection would continue serving the same travel directions, at the same capacity, and would not favor any particular travel direction. The proposed project would not influence the location of future development through reductions in delay.

Accessibility can also influence the location of future development through increased roadway capacity at an intersecting point, such as Soscol Junction, or by providing access to areas currently lacking transportation infrastructure. Under the proposed project, transportation improvements at Soscol Junction do not propose increase capacity to the interconnecting SRs 29 or 221 under the Build Alternative. Although access through the Soscol Junction intersection would reduce congestion, the capacity of SR 29 and SR 221 would remain the same with a 2-lane configuration (that is, no new lanes would be added to these existing highways). The proposed project would neither create an alternate access route nor create a bypass to the current Soscol Junction intersection. Consequently, the proposed project would not influence accessibility in a manner that would lead to future development in either undeveloped or underdeveloped locations in Napa County.

In addition to transportation, growth is generally influenced by multiple factors, including, but not limited to: population and economic growth, desirability of certain locations, the cost and availability of developable land, physical and regulatory constraints, and the costs of sewer and water services. The cities in the County of Napa have decision-making authority over land use in terms of location, amount, type, and rate of development pursuant to their respective plans and policies.

The implementation of these policies has strongly influenced urban-centered growth, as demonstrated by declining population and average household sizes in unincorporated areas compared to the rest of the county. Furthermore, Napa County foresees that the average annual growth rate for population and average household size in unincorporated areas would continue to decrease, at a rate of -0.6 percent and -0.1 percent respectively Napa County 2009). Therefore, despite the improvements to accessibility that the Soscol Junction Project would provide, Napa County policies and land use restrictions would temper growth-inducing effects, if any, in terms of

location, amount, and type of development. Furthermore, the influence of increased accessibility that the proposed project would provide would not alter the average annual growth rates that the County has outlined.

For the above reasons, the Build Alternative is not expected to influence growth in terms of location, amount, type, or rate of development.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, mitigation, or minimization measures are proposed.

2.1.4 Traffic and Transportation

Regulatory Setting

Caltrans has jurisdiction over the construction and maintenance of state highways and freeways in the Study Area. Caltrans also coordinates several statewide transportation programs that directly affect the circulation system in the region. These include the State Transportation Improvement Program, the Congestion and Mitigation and Air Quality Program, and the Traffic Congestion Relief Program.

Caltrans, as assigned by the FHWA, directs that full consideration be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 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 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 Part 27) implementing Section 504 of the Rehabilitation Act (29 USC 794). FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act, including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the Americans with Disabilities Act requirements to federal-aid projects, including transportation enhancement activities.

NEPA does not include specific guidance or direction with respect to the evaluation of alternatives and their relative effects on traffic and the transportation system. However, applicable federal regulations and requirements were reviewed for compliance and consistency.

Guidance for the implementation of SB 743 was provided in the December 2018 updates to the CEQA guidelines. The guidance varies depending on the type of project. In general, it gives latitude to agencies in applying the appropriate procedures and measures for transportation analysis. The requirements in the December 2018 updates are not required to be fully implemented until July 2020. The California Office of Planning and Research prepared a document entitled, "Technical Advisory on Evaluating Transportation Impacts in CEQA" (Office of Planning and Research, 2018). The guidance addresses a variety of projects, with the recognition that the approach for evaluating impacts is necessarily project specific. The guidance also notes Public Resources Code section 21099, which dictates that the implementation of vehicle miles traveled (VMT) analysis "does not relieve a public agency of the requirement to analyze… any other [potentially significant] impact associated with transportation impacts."

AFFECTED ENVIRONMENT

The following section presents the traffic analysis as documented in a traffic operations analysis report (TOAR) prepared for Caltrans (GHD 2019).

Given the context type and size of the proposed Soscol Junction project, Caltrans will implement as many measures as possible during the design and construction phase of the project to address Transportation Demand Management (TDM) Program to reduce Vehicle Miles Travels (VMT) and greenhouse gas emissions. The measures may include:

Walking, bicycling and transit access, ten percent vehicle parking reductions, charging stations and designated parking spaces for electric vehicles, carpool and clean-fuel parking spaces, designated parking spaces for a car share program, secured bicycle storage facilities, participation/formation in/of a Transportation Management Association (TMA) in partnership with other developments in the area, trip reduction targets with monitoring and enforcement. The scope of Soscol Junction project has included bike and pedestrian access to the proposed alternative successfully.

Caltrans is moving very fast in the direction of addressing VMT instead of Level of Service (LOS) for all transportation projects to promote smart mobility. Some of the measures Caltrans is considering includes; TDM programs (mentioned above), reduce parking supply to encourage active forms of transportation, reduce regional VMT, and lessen future transportation impacts on State facilities. This smart growth approaches are consistent with the MTC's Regional Transportation Plan/SCS goals and would meet Caltrans Strategic Management Plan sustainability goals.

Roadway

Roadways that provide the primary vehicular circulation within the study area include SR 29, SR 221, Soscol Ferry Road, and Devlin Road.

SR 29 is a four-lane, divided, rural throughway that traverses Napa Valley in the north-south direction between the limits of I-80 (southern limit), and SR 20 in Upper Lake, Lake County (northern limit). As a major rural highway, SR 29 provides circulation between the townships of Yountville, Oakville, Rutherford, St. Helena, and Calistoga, which are noteworthy destinations within Napa Valley's renowned Wine Country. Within the vicinity of the project intersection, SR 29 runs in an east-west direction and operates at a posted speed limit of 60 mph. SR 29 forms the east and west legs of the study intersection. SR 29 is a Terminal Access Route for STAA trucks.

SR 221 is a four-lane, divided, rural throughway that traverses Napa Valley in the north-south direction, between the limits of Imola Avenue (northern limit) and SR 29 (southern limit). As SR 221 runs parallel to SR 29, this rural arterial provides an alternate route to obtaining direct access to the City of Napa. SR 221 forms the north leg of the study intersection and operates at a posted speed limit of 55 mph. SR 221 is a terminal access route for STAA trucks.

Soscol Ferry Road is a two-lane, rural collector that traverses unincorporated Napa County in the east-west direction. This roadway provides circulation within the rural unincorporated community of Thompson. Soscol Ferry Road forms the south leg of the study intersection.

Devlin Road is a two-lane, rural collector that traverses unincorporated Napa County primarily in a north-south direction. This roadway provides access to industrial and office land-use types located within the unincorporated communities of Thompson and Middleton. Devlin Road intersects Soscol Ferry Road approximately 500 feet south of the intersection of SR 29 and SR 221. Devlin Road also provides Class II bicycle facilities along both the easterly and westerly sides of the roadway, with a connection to Airport Boulevard to the south.

Figure 2.1.4-1 is a summary of traffic counts at the SR 29/SR 221 intersection for the weekday a.m. and p.m. peak hours, and the Friday peak hour (GHD 2019b).

Traffic operations are quantified through the determination of LOS, which is reported using a qualitative measure of "A" through "F." LOS "A" represents free-flow

operating conditions and LOS "F" represents over-capacity conditions. Intersection operations were assessed using the Transportation Research Board's *Highway Capacity Manual*, sixth edition, as documented in the TOAR. Tables 2.1.4-1 and Table 2.1.4-2 summarize the existing and future LOS operations at the SR 29/SR 221 Intersection under the No Build Alternative.

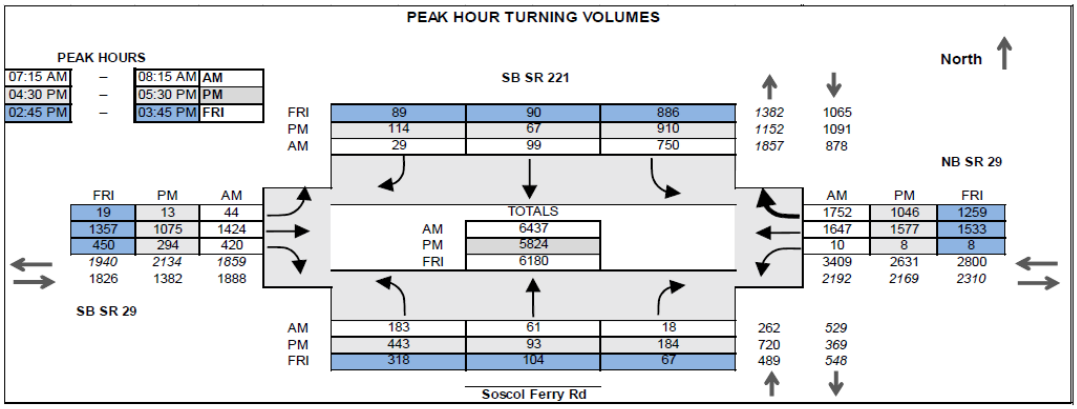


Figure 2.1.4-1 Existing Peak (Hour) Traffic Volumes at SR 29/SR 221(2018)

Table 2.1.4-1 No-Build Alternative – Intersection Level of Services

Scenario	Peak Period	LOS (Delay)
Existing Conditions	a.m.	F (239 seconds/vehicle)
	p.m.	F (187 seconds/vehicle)
2025 (No Build)	a.m.	F (334 seconds/vehicle)
	p.m.	F (307 seconds/vehicle)
2045 (No Build)	a.m.	F (436 seconds/vehicle)
	p.m.	F (372 seconds/vehicle)

Source: *State Route 29/State Route 221/Soscol Ferry Road Final Traffic Operations Analysis Report* (GHD 2019a)

Transit

The Vine, Napa Valley's fixed-route bus system under the jurisdiction of the NVTA, provides transit services along SRs 29 and 221. The routes that are located in the project vicinity are Route 11 Napa Vallejo Connector, Route 11X Napa Vallejo Express, Route 21 Napa Solano Express, and Route 29 Napa BART Express.

Bicycle/Pedestrian Access

Bicycle access is prohibited along SR 29 within the project study area. SR 221 serves as an alternative to SR 29 for motorists and bicyclists into the City of Napa. From the

City of Napa, southbound access for bicyclists is along SR 221/Kaiser Road connecting to Napa Valley Corporate Drive. This road crosses under SR 29, becoming Vista Point Drive, and connects to Soscol Ferry Road, then continuing on Devlin Road to 29/221/12 at Airport Boulevard.

The Napa County Board of Supervisors adopted the NVTA's Countywide Bicycle Plan, June 26, 2012. The plan contains a 25-year vision for a set of interconnected local bicycle networks, made up of all types of bikeways. These include "Class I" multi-use paths, physically separated from roadways, "Class II" bike lanes, designated by striping on roads, and "Class III" bike routes, which are roadways designated to be shared by bicycles and other vehicles (Whitlock & Weinberger, et al. 2012).

With regard to SR 29, the bicycle plan envisions a separate facility called the Napa Valley Vine Trail. As proposed, it would be a contiguous, 47-mile, Class I trail, spanning from the Vallejo Ferry Terminal in Solano County north through the cities of American Canyon, Napa, Yountville, St. Helena, and as far north as Calistoga. Approximately 29 miles of the Napa Vine Trail would parallel SR 29. A total of the 18.5 miles of the Class 1 facility has already been constructed. A portion of the Napa Valley Vine Trail is proposed to run along Soscol Ferry Road and Devlin Road, adjacent to SRs 12 and 29, through the proposed Soscol Junction Project area.

The NVTA prepared a draft Napa Countywide Bicycle Plan (February 2019). A bikeway network is proposed for the project area, as illustrated in Figure 2.1.4-2 (http://www.nctpa.net/sites/default/files/NCTPA%20Countywide%20Bicycle%20Plan_0.pdf). This draft plan is subject to change in the final countywide bicycle plan, which is due later in 2019.

Consistency with Regional and Local Plans and Programs

Section 2.1.1, Existing and Future Land Use, includes information on the applicable plans and programs, including the RTP, TIP, and local planning documents. At the regional planning level, these plans are equally applicable for traffic and transportation, but were further evaluated for specifics related to traffic operations.

The Napa County General Plan states, "the County shall seek to maintain a Level of Service D or better at all signalized intersections, except where the level of service already exceeds this standard (i.e., Level of Service E or F) and where increased intersection capacity is not feasible without substantial right of way."

The City of Napa General Plan, element T-2.1 states, "the City Shall ensure that traffic levels of service (LOS) will not exceed midrange LOS D at all signalized intersections on arterial and collector streets."

Caltrans *Guide for the Preparation of Traffic Impact Studies* states, "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not always be feasible.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

As outlined in Table 2.1.1-1, the No Build Alternative is not consistent with applicable state, regional, and local plans and programs. Traffic operations at the intersection would continue to operate at LOS "F," with even greater delay. Operations would be inconsistent with the Napa County General Plan, City of Napa General Plan, and Caltrans guidelines.

Build Alternative

Construction Phase

During construction, there would be the need for necessary lane closures during off-peak hours or at night. The intersection would be maintained with the existing number of lanes during peak periods, so delays would not increase for vehicles. However, construction effects on vehicular, bicycle, pedestrians, and transit would be temporary and minimal. Delays would be further reduced with the implementation of a construction TMP. The TMP would address construction elements and potential impacts and include specific strategies to reduce potential effects on the traveling public. The TMP would be developed after project approval, during the final design phases; it would be supported by construction traffic analysis.

The TMP would include outreach activities, such as press releases, to notify and inform motorists, businesses, community groups, local entities, emergency services, and elected officials of upcoming closures or detours. TMP elements, such as portable changeable message signs, or other intelligent transportation system measures, and Construction Zone Enhanced Enforcement Program may be used to alleviate and minimize delay to the traveling public. For safety purposes, temporary railing would be provided throughout the project limits during construction.

Planning Area - City of Napa Primary and Regional Routes

FIGURE 2.1.4-2

0 0.25 0.5 1 Mile

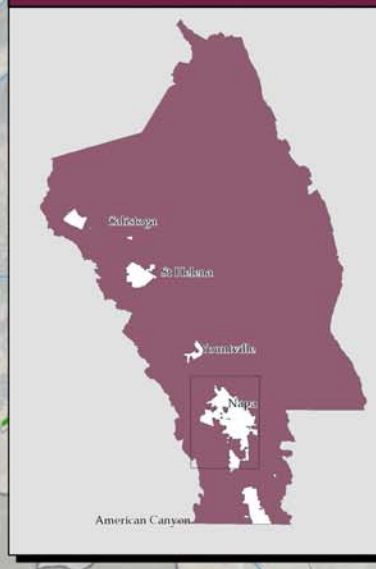
Map Legend

Napa Bike Routes
- Primary Route, Existing
- Primary Route, Proposed
- Regional Route, Existing*
- Regional Route, Proposed*

Geographic Elements
- Bike Shop
- City Boundary
- City or County Building
- Parks and Public Lands
- Post Office
- School
- Shopping Centers

Transportation Amenities & Features
- Overpass/Underpass
- Overpass/Underpass, Proposed
- Park and Ride
- Transit Center
- Bike Parking, Existing
- Bike Parking, Proposed
- Showers/Lockers, Existing
- Showers/Lockers, Proposed
- Rest Stop, Exisiting
- Rest Stop, Proposed

County Location



City of Napa

See City of Napa Municipal Maps For Detail

Sonoma

*REGIONAL ROUTE DESIGNATION ADDITIONALLY IMPLIES PRIMARY ROUTE DESIGNATION

All "Proposed" routes shown on this map are for study purposes only. Designation of a route as "Proposed" does not imply any actual plans or projects will be considered along the route.

Name: Planning_Area_City_of_Napa_Primary_Regional_Routes

Map Produced by Questa Engineering Inc. in Conjunction with Whitlock & Weinberger Transportation Inc.

Date Saved: 1/6/2012 5:16:49 PM

Operation Phase

At the planning level, the Build Alternative is consistent with applicable state, regional, and local plans and programs.

To improve traffic operations, the Build Alternative would construct a tight diamond interchange with two multi-lane roundabouts at the ramp terminal, on both sides of SR 29. Both connectors from NB SR 29 to NB 221 and SB 221 to NB 221 those movements will remain unchanged. SR 29 would be rebuilt as an overcrossing just north of the existing intersection with SR 221, minimizing ROW impacts and providing separation between the adjacent high-speed SR 29 to SR 221 northbound ramp and the adjacent roundabout entry. The overcrossing would ensure that no eastbound and westbound through traffic on SR 29 would be required to traverse the roundabout. With the Build Alternative, traffic operations are projected to markedly improve. Table 2.1.4-2 is a summary of the projected operations at the new roundabout intersections, and at the new SR-29 ramps.

Table 2.1.4-2 Intersection Operations at the SR 29/SR 221 Intersection with Build Alternative

Scenario	Peak Period	No Build Alternative LOS (Delay)	Build Alternative Roundabout LOS (Delay)	Build Alternative Ramp LOS
Year 2025	a.m.	F (334 seconds/vehicle)	A (7 to 8 seconds/vehicle)	B
	p.m.	F (307 seconds/vehicle)	B (11 to 15 seconds/vehicle)	C
Year 2045	a.m.	F (435 seconds/vehicle)	A (8 seconds/vehicle)	C
	p.m.	F (372 seconds/vehicle)	B (14 to 17 seconds/vehicle)	C

Source: *State Route 29/State Route 221/Soscol Ferry Road Final Traffic Operations Analysis Report* (GHD 2019a)

The shared-use path would be separated from vehicular traffic with a minimum five-foot-wide non-traversable buffer. It would be constructed to conform to a future shared-use path to be constructed by the City of Napa with a connection to Corporate Way along the western side of SR 221 as part of the Napa Valley Vine Trail Master Plan.

The shared-use path would serve both pedestrian and bicycle traffic through the intersection. Cyclists would be able to exit the bicycle lane via a bicycle ramp and navigate the intersection on the shared-use path and through the crosswalks. More

experienced cyclists would have the option to exit the bicycle lane and entering the roadway to ride with vehicle traffic through the roundabout.

For pedestrians, crosswalks would be split into two separate crossings with pedestrian refuges at the splitter islands. These two-stage crossings reduce the amount of sustained time a pedestrian is in potential conflict with motorized vehicles by limiting the length of each crossing and limiting each crossing to one direction of vehicle travel at a time.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Transportation for all modes would be improved with the construction of the Build Alternative. Construction effects would be minimal, and further reduced with the implementation of the following AMM:

AMM TRANSPORTATION-1 TMP: A TMP would be developed by Caltrans with input from the local community. The TMP would include elements, such as detour and haul routes, one-way traffic controls to minimize speeds and congestion, flag workers, and phasing, to reduce impacts to local residents as feasible and would maintain access to businesses in the local area. The TMP would also provide access for police, fire, and medical services in the local area. Detour routes would be planned in coordination with Caltrans and the County of Napa, and would be noticed to emergency service providers, transit operators, and the public in advance

2.1.5 Community Impacts

REGULATORY SETTING

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 USC 4331[b][2]). The FHWA in its implementation of NEPA (23 CFR 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since the proposed project would result in physical change to the environment, it is appropriate to consider

changes to community character and cohesion in assessing the significance of the proposed project's effects.

AFFECTED ENVIRONMENT

A socioeconomic profile of the area surrounding the proposed project was developed by reviewing land use plans, growth policies, and demographic statistics from the *Revised 2008 Napa County General Plan (*Napa County, 2008*)*. The project setting or "affected environment" is defined as including the immediate project area and the surrounding vicinity. For the purposes of analyzing community impacts, the study area has been defined as the two census tracts 2010.03 and 2010.05 that are immediately adjacent to the Soscol Junction Intersection, which can be viewed online at http://www2.census.gov/geo/maps/dc10map/tract/st06_ca/c06055_napa /DC10CT_C06055_002.pdf.

Additionally, Figure 2.1.5-1 depicts the community impact study area in relation to the two census tracts.

Existing ROW within the project area includes the roadway, shoulders, median, and existing roadway structures. Existing land uses in the vicinity of the proposed project are primarily AWOS, northeast of SR 29 and SR 221; industrial, south of Soscol Ferry Road; and public institutional, south of SR 29.

While 12,652 households are in the project study area (two census tracts), there are no homes immediately adjacent to the Soscol Junction Intersection. No neighborhoods, parks, community facilities, schools, or churches are located within the project study area.

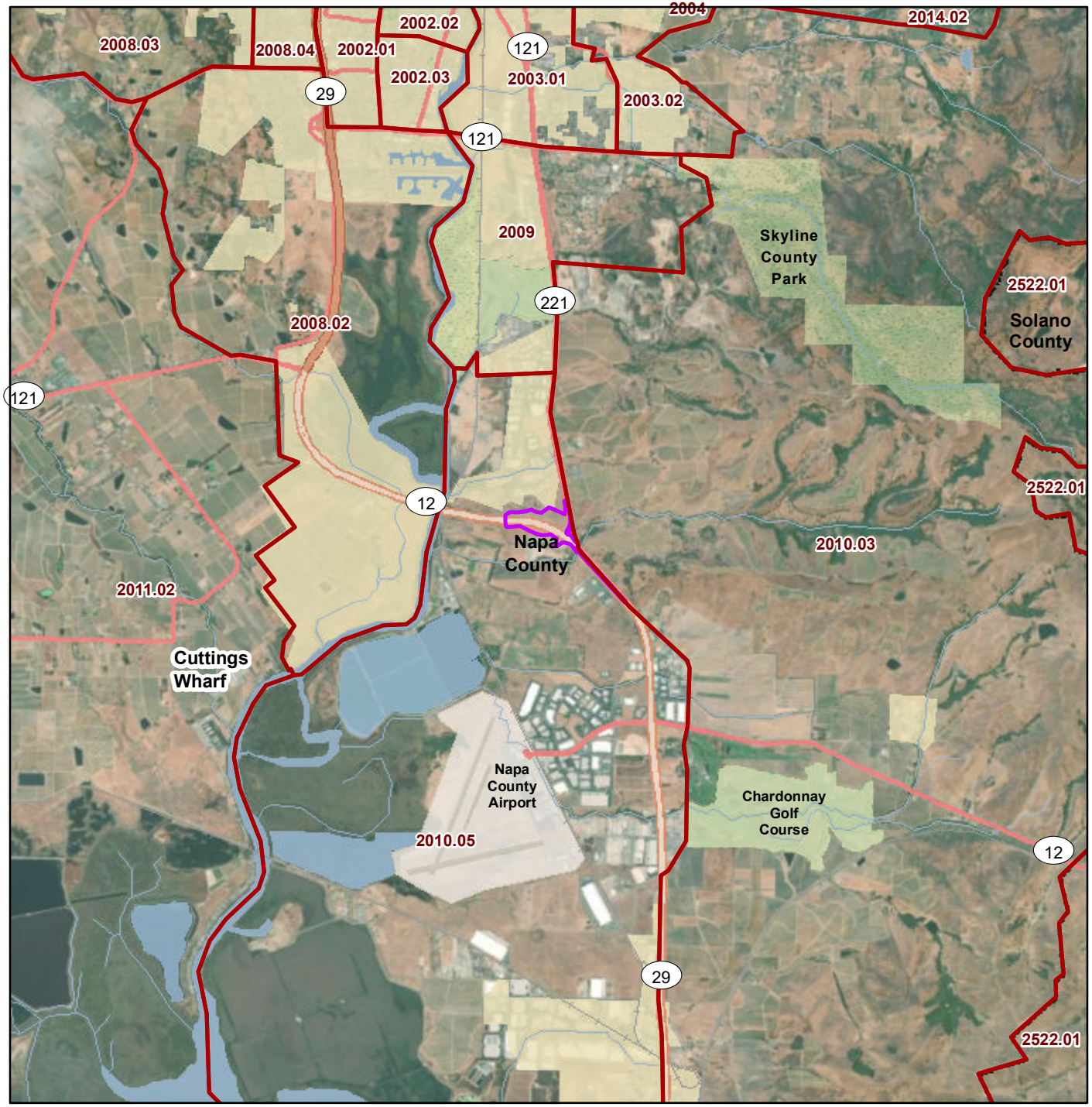
Based on the Association of the Bay Area Government's *Projections* 2009, employment in Napa County is expected to increase more rapidly than the population, with a 29.3 percent increase in jobs anticipated between 2010 and 2035 and only a 7.2 percent increase in population. This increase in employment may indicate an improvement in the jobs/housing balance within Napa County, but projections emphasize continued demand for travel to and from Napa County along SRs 29, 12, and 221.

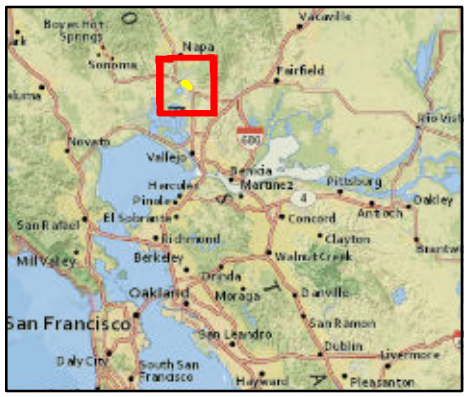
ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Construction

No construction impacts would occur under the No Build Alternative.





LEGEND

- Project Footprint
- Census Tract
- Urban Areas
- Local Parks
- Major Highways
- Highways
- Major Roads
- Counties

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, USGS, NOAA
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

N

0 0.5 1
Miles

Caltrans

FIGURE 2.1.5-1
Census Tracts
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

Operation

Under the No Build Alternative, there would be no impacts to community character and cohesion and it would not divide the local community. However, this alternative could impede accessibility to the local community traveling to points north and south by allowing increased congestion to occur without improvements at the SR 29/221 Soscol Junction.

Build Alternative

Construction

Construction of the Build Alternative would result in a visible presence of construction activities with attendant equipment (such as bulldozers, large trucks, earthmoving machinery, cranes, and temporary structures) and staging areas to store building materials. Construction would also temporarily increase noise levels and air pollutants, such as dust and particulate matter, in the immediate project vicinity. These activities could create annoyances to nearby residents and businesses.

The Build Alternative would also require detours for the duration of construction, which is anticipated lasting approximately one year. Although temporary, the detours could increase delay and pose inconvenience to local residents.

Operation

The Build Alternative would not create new or increased barriers that would physically divide the community or disrupt community cohesion. No neighborhoods, community facilities, parks, or recreation would be impacted by the proposed project. The locations of the Build Alternative elements are all within existing Caltrans ROW. No neighborhood would be divided by the Build Alternative and no neighborhood would have circulation access impeded. The Build Alternative is anticipated to improve access and reduce delay times for local and inter-regional travelers.

The proposed project would not cause any adverse effects on human-made resources, community cohesion, or the availability of public facilities and services. The proposed project would not change the feel of the neighborhood or make it more difficult for community members to access residences, businesses, or religious institutions.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No AMMs are proposed for the Build or the No Build Alternative.

To offset temporary disruptions during construction of the Build Alternative, Caltrans would develop a TMP. The TMP would include elements, such as detour routes, one-

way traffic controls, flag workers, and phasing, to reduce impacts to local residents and maintain access to businesses in the local area. The TMP would also provide access for police, fire, and medical services in the local area. Refer to the **AMM TRANSPORTATION-1 Traffic Management Plan (TMP)**.

2.1.6 Environmental Justice

REGULATORY SETTING

All projects involving a federal action, such as funding, permit, or licensing, must comply with Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal actions on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. "Low income" is defined based on the Department of Health and Human Services poverty guidelines. For 2019, this is $25,750 for a family of four (DHHS 2019).

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix B of this document.

AFFECTED ENVIRONMENT

This section describes the potential for the project to result in environmental justice impacts. *Caltrans Standard Environmental Reference Environmental Handbook Volume 4: Community Impact Assessment* (Caltrans 2011) follows the Federal Highway Administration in defining environmental justice impacts as high and adverse effects on minority and low-income populations. The impacts must be: (1) predominately borne by a minority population and/or a low-income population or (2) suffered by the minority population and/or low-income population and appreciably more severe or greater in magnitude than the adverse effect suffered by the nonminority population and/or non-low-income population.

Minority and low-income populations are defined as follows (Caltrans 2011):

- Minority individuals are defined as members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black; or Hispanic.

- Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the U.S. Census Bureau Current Population Reports, Series P-60 on Income and Poverty (U.S. Census 2010).

The project study area used for analysis of environmental justice is based on the 2010 census tracts. It encompasses the two census tracts that are immediately adjacent to the project area (tracts 2010.03 and 2010.05).

The 2010 census information was used to determine the ethnic composition and household income within the study area for this analysis because the 2020 census information is not yet available.

Ethnic Composition

The project study area includes a variety of neighborhoods and multi-ethnic populations, similar to Napa County and the City of Napa. As shown in Table 2.1.6-1, the study area contains a larger non-white population (45.8 percent) than the City or County of Napa (24.9 percent and 28.5 percent respectively). While overall the largest non-white population is Hispanic, this population in the study area is lower (25.8 percent) compared to the City of Napa (37.6 percent) and Napa County (32.2 percent).

In summary, the study area of approximately 13,518 people has a diverse ethnic composition. With 45.8 percent ethnic minorities, the study area has a higher percentage of minority populations compared to Napa County and the City of Napa.

Table 2.1.6-1 Ethnic Composition

Ethnic Population and Percentage Composition			
Ethnicity	**Project Study Area**	**City of Napa**	**County of Napa**
White	7,333	57,754	97,525
	54.2%	75.1%	71.5%
Black or African American	853	486	2,668
	0.6%	0.6%	2.0%
Hispanic	3,485	28,923	44,010
	25.8%	37.6%	32.2%
Asian	2,869	1,755	9,223
	21.2%	2.3%	6.8%
American Indian/ Alaska Native	99	637	1,058
	0.7%	0.8%	0.8%

Table 2.1.6-1 Ethnic Composition

Ethnic Population and Percentage Composition			
Ethnicity	**Project Study Area**	**City of Napa**	**County of Napa**
Native Hawaiian/ Other Pacific Islander	54	144	372
	0.4%	0.2%	0.3%
Some Other Race	1,729	13,256	20,058
	12.8%	17.2%	14.7%
Total Population	**13,518**	**76,915**	**136,484**

Source: U.S. Census Bureau 2010.

Note: Percentages may not add up to 100% because of rounding. Some entries are based upon reported data, while others are estimated.

"Hispanic" or "Latino" is not considered a race by the Census Bureau. Rather, it is a cultural/ethnic classification that overlaps with race. People who identified themselves as "Hispanic/Latino" also identified themselves with a race or combination of races.

Income

Table 2.1.6-2 summarizes information on the median income and the percentage of the population under the poverty line within the study area, Napa County, and the City of Napa. The 2007-2011 median household income in the study area was $50,104, lower than both Napa County and the City of Napa. Low-income populations in the affected area are identified with the annual statistical poverty thresholds from the Bureau of the Census Current Population Reports, Series P-60 on Income Poverty. In identifying low-income populations, Caltrans considered a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

Table 2.1.6-2 Household Income

Geographic Area	Median Household Income	% Population Below Poverty Level
Study Area	$50,104	8.8%
Napa County	$68, 641	9.8%
City of Napa	$62, 642	11.2%

* Source: U.S. Census Bureau 2010 (including Study Area.

* The 2019 poverty guideline is $25,750 for a family of four (DHHS 2019).

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Construction and Operation

Under the No Build Alternative, there would be no impacts to environmental justice populations.

Build Alternative

Construction and Operation

A minority community resides within the project study area; however, it would not be disproportionately impacted by the proposed project. As other sections of Chapter 2 indicate, there are no substantial Noise (Section 2.2.7), Air Quality (Section 2.2.6), Traffic (Section 2.1.7), or Community (Section 2.1.3) impacts to any residents in this study area. Potential noise impacts would be temporary and would not impact any noise-sensitive receptors. Air quality impacts would be temporary, minimal, and evenly dispersed throughout the project area and region. Transportation benefits of the proposed project would accrue equally to all area residents. The project would improve the existing intersection and all construction activities would be within existing Caltrans ROW.

In summary, although the study area is more diverse with minority populations of higher percentage compared to either Napa County or the City of Napa, the proposed project would not cause disproportionately high and adverse effects on any minority or low-income populations pursuant to EO 12898.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No AMMs are proposed.

2.1.7 Visual/Aesthetics

REGULATORY SETTING

NEPA, as amended, establishes that the federal government use all practicable means to ensure that all Americans have access to safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 USC 4331[b][2]). 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 and take into account adverse environmental effects, including, among other effects, the destruction or disruption of aesthetic values.

Likewise, CEQA establishes that the state's policy is to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic*, natural, scenic and

historic environmental qualities" (California Public Resources Code [PRC] Section 21001[b]).

AFFECTED ENVIRONMENT

The information presented in this section has been drawn from the visual impact assessment (VIA) prepared for this project (Caltrans 2019). The VIA was prepared in accordance with the guidelines in FHWA's *VIA for Highway Projects* (FHWA 1981). A discussion of regulatory policies that are relevant to aesthetics and visual resources is found in the Section 2.1.1, Existing and Future Land Use.

VISUAL SETTING

The project location and setting provides the context for determining the type and severity of changes to the existing visual environment. The terms "visual character" and "visual quality" are defined below and are used to further describe the visual environment. The project setting is also referred to as the corridor or project corridor, which is the area of land that is visible from, adjacent to, and outside the highway ROW, and is determined by topography, vegetation, and viewing distance.

The proposed project is located on SR 29, between PM R5.6 and R5.7, and SR 21, between PM 0.0 and 0.4 in Napa County, California. The proposed project is located east of the Napa River, approximately 1 mile away, and northeast of the Napa County Airport, approximately 2 miles away. The region includes several recreational facilities, including the Fagan Marsh State Marine Park and Kennedy Park along the Napa River, the Chardonnay Golf Club near the SR 29/SR 12 intersection, and Skyline Wilderness Park in the hills northeast of the proposed project site. None of these recreational facilities have views of the project site because of the intervening topography and development.

A scenic overlook at Vista Point Park is approximately 1,800 feet northwest of the existing SR 29/SR 221 intersection. Because of its elevated location (132 feet compared to the 77-foot elevation of the intersection) and the lack of intervening topography and development, Vista Point Park has panoramic views in all directions, including the project location. The park includes the iconic *The Grape Crusher* statue, depicting a vineyard worker with a wide-brimmed hat straining to operate a traditional grape crusher. This statue is approximately 18 feet tall and sits on the highest point in the park. The statue was installed in May 1988 and accepted as part of the Caltrans Art in Public Places program (Eberling 2018).

SR 29 is defined as eligible for official state scenic highway designation from SR 37 near Vallejo to the south to the SR 29/SR 221 intersection at the project site. SR 221 is eligible for official state scenic highway designation for its entire length (Napa County 2007).

The proposed project is located in Napa County's Carneros Napa River Marshes/Jamieson/American Canyon-Unincorporated area in the southern portion of Napa County, north and east of the Napa River Marshes (Napa County 2007). The land use within the corridor is primarily designated as "open space: agriculture, watershed, and open space," with the area just southwest of the intersection designated as "urban: industrial" (Napa County 2007).

The proposed project is set at the southern end of the Napa Valley floor, north of San Pablo Bay, and northeast of the Napa River Marshes. The Napa Valley lies within the east-central portion of the Coast Ranges. Suscol Creek crosses SR 29 at the southwestern corner of the proposed project site, draining from the hillsides to the east to the Napa River to the west.

Defining characteristics of the area immediately surrounding the proposed project are relatively flat terrain, framed by gently rolling hillsides framing the location, with moderate vegetation set well back from the highways, except along Suscol Creek.

The adjacent properties in the southwestern quadrant of the SR 29/SR 221 intersection include: a small agricultural field; the Soscol House, Landmark No. 79000506 in the NRHP, which is currently occupied as the Villa Romano restaurant; and a single-family residence approximately 400 feet from the intersection, between SR 29, Soscol Ferry Road, and Devlin Road. In the northwestern quadrant is open agricultural fields with a single-family residence set back about 400 feet from the intersection. In the northeastern and southeastern quadrants are agricultural fields. One single-family residence located near the southeastern quadrant is screened from view by vegetation along Suscol Creek. In the northwestern quadrant, the upper-elevation portion of Vista Point Park is visible at a distance of approximately 1,800 feet. No other development is visible from the intersection. The nearby Napa Valley Corporate Drive development, including resort hotels and a business park, is screened from view by topography.

ASSESSMENT METHOD

This VIA generally follows the guidance outlined in *Visual Impact Assessment for Highway Projects* (FHWA 1981).

The following steps were followed to assess the potential visual impacts of the proposed project:

- Define the project location and setting.
- Identify visual assessment units and key views (KVs).
- Analyze existing visual resources, resource change and viewer response.
- Depict (or describe) the visual appearance of project alternatives.
- Assess the visual impacts of project alternatives.
- Propose measures to offset visual impacts.

To ensure accuracy of simulations, 3D computer modeling was used, and model views were matched with field photographs.

VISUAL ASSESSMENT UNITS AND KEY VIEWS

Visual assessment units of an area are well-defined "outdoor rooms" with their own visual character and visual quality. The SR 29/SR 221 Soscol Junction Improvement project area is considered to be within a single visual assessment unit because of its size and ability to be viewed wholly within a single viewshed. For this project, the visual assessment unit is the SR 29/SR 221 intersection within south Napa Valley.

KVs are identified from publicly accessible places with representative views to the project site to capture existing visual character and assess proposed changes. Six KVs have been identified within the project limits (Figure 2.1.7-1):

- **KV 01 KV1:** Looking south toward the existing SR 29/SR 221 intersection from southbound SR 221
- **KV 02 KV2:** Looking southeast toward the SR 29/SR 221 intersection from southbound SR 29
- **KV 03 KV3:** Looking northwest toward the SR 29/SR 221 intersection from northbound SR 29
- **KV 04 KV4:** Looking northeast toward the existing SR 29/SR 221 intersection from Soscol Ferry Rd.
- **KV 05 KV5:** Looking northeast toward the existing SR 29/SR 221 from the parking lot of the Villa Romano restaurant, located in a historic house

- **KV 06 KV6:** Looking southeast toward the SR 29/SR 221 intersection from *The Grape Crusher* viewpoint in Vista Point Park

Figure 2.1.7-1 Key Views Map

VISUAL RESOURCES AND RESOURCE CHANGE

Resource change is assessed by evaluating the visual character and the visual quality of the visual resources that compose the project corridor before and after the construction of the proposed project. Resource change is one of the two major variables in the equation that determine visual impacts (the other is viewer response, discussed below in the subsection "Viewers and Viewer Response").

Visual Resources

Visual resources of the project setting are defined and identified below by assessing visual character and visual quality in the project corridor.

Visual Character

Visual character includes attributes, such as form, line, color, and texture. The term is used to describe, not evaluate areas; that is, these attributes are neither considered good nor bad. However, a change in visual character can be evaluated when it is compared with the viewer response to that change. Changes in visual character can be identified by how visually compatible a proposed project would be with the existing condition by using visual character attributes as an indicator. For this project, the following attributes were considered:

- Form: visual mass and shape
- Line: edges or linear definition
- Color: reflective brightness (light, dark) and hue (red, green)
- Texture: surface coarseness
- Scale: apparent size as it relates to the surroundings
- Continuity: uninterrupted flow of form, line, color, or textural pattern

Generally, visual character of the proposed project would be somewhat compatible with the existing visual character of the corridor.

Within the project setting as experienced by highway travelers, views are typically expansive, although in some areas slopes on either side confine the view. Views of distant mountains occur at several locations. Within the project viewshed, the gentle rolling topography is the dominating line and form. Colors vary with the season, as the predominant pastureland changes from greens to browns. The grasses and forbs along the highways, along with the few trees, create a moderately coarse texture when seen up close, but a smooth texture from a distance. The scope of the viewshed is large and expansive because the rolling topography affords distant views. The landscape has an overall continuity with few contrasting elements.

Areas identified for drainage work are grassy pasturelands that have a uniform visual character and extend throughout the project area. Drainage modification and the new drainage outfall at Suscol Creek extend into vegetative massing at the creek riparian corridor.

Riparian corridor vegetation at Suscol Creek is composed of riparian and upland trees, and associated understory vegetation that screens views to and beyond the creek. This vegetation presents a visually identifiable element that provides midground and background color, texture, and rural context, which increases foreground (pastureland and roadway) visual continuity with the rural hills beyond the project area.

Devlin Road is adjacent to the ROW where fish passage barrier removal would occur and is considered as a view to the highway. Suscol Creek is seasonally visually accessible from Devlin Road through the vegetative screening of the riparian corridor. Riparian corridor vegetation screens the view to the highway from Devlin Road at the creek crossing. The effect of this screening is momentary, and the highway and hills beyond are visible to travelers and neighbors both preceding and following the creek crossing at Devlin Road.

Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity in the project corridor. Public attitudes validate the assessed level of quality and predict how changes to the project corridor can affect these attitudes. This process helps identify specific methods for addressing each visual impact that may occur as a result of the proposed project. The three criteria for evaluating visual quality are defined below:

- Vividness: The extent to which the landscape is memorable and associated with distinctive, contrasting, and diverse visual elements
- Intactness: The integrity of visual features in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions
- Unity: The extent to which all visual elements combine to form a coherent, harmonious visual pattern

The visual quality of the existing corridors would be altered by the proposed project. SRs 29 and 221 are scenically moderately intact corridors, with a unified rural character of rolling pasturelands and long, panoramic vistas at some locations, punctuated by a few trees and small areas of development. But encroaching elements at the intersection, heavy traffic, and signs and signals reduce this unity at the project site. Because the traffic often slows or stops at the intersection, the effect of the encroaching factors is emphasized by the longer-duration views than for the corridor in general. Vividness is moderately high because the corridors are lacking in the visual variety that characterize the highest level of landscape vividness. Overall, existing visual quality of the project corridors is considered to be moderate high. The degree of impact varies by KV, as discussed in the subsection Resource Change.

RESOURCE CHANGE

Overall, the proposed SR 29 overcrossing and roundabouts would represent a notable change in the character of the corridor, although the effect would be limited to a small radius around the intersection (approximately 0.25 mile) because of intervening topography. The change in visual resources varies between KVs. KVs 01 and 04 on SR 221 would experience the greatest visual resource change as a result of the blocking and enclosing of the views by the SR 29 overcrossing. This would affect the intactness and unity of the site, and alter the visual character of the corridor, resulting in a moderate high and high levels of resource changes. Resource changes would also occur to a lesser extent for KV 03, on the northbound SR 29, where distant views of the mountains would be blocked by the higher topography of the overcrossing, and

for KV 05, from the restaurant parking lot adjacent to the intersection, where partial blocking of the hillsides would occur. KV 02, on southbound SR 29, would experience changes in the visual resource in the foreground and middle ground, with the introduction of the overcrossing and roundabouts, but the views of the distant hillsides would not be affected. At KV 06, the view from the scenic overlook, resource changes would be low because of the distance of the improvements and the preservation of the overall open and panoramic view.

VIEWERS AND VIEWER RESPONSE

The population affected by the project is composed of viewers. Viewers are people whose views of the landscape may be altered by the proposed project, either because the landscape itself has changed or the viewer's perception of the landscape has changed.

Viewers or, more specifically, the response viewers have to changes in their visual environment, are one of two variables that determine the extent of visual impacts that would be caused by the construction and operation of the proposed project. The other variable is the change to visual resources discussed in the subsection, Visual Resources and Resource Change.

Types of Viewers

There are two major types of viewer groups for highway projects: highway neighbors and highway users.

Each viewer group has their own particular level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group. These considerations help to predict their responses to visual changes.

Highway Neighbors (Views to the Road)

Highway neighbors are people who have views to the road. They can be subdivided into different viewer groups by land use. For example, residential, commercial, industrial, retail, institutional, civic, educational, recreational, and agricultural land uses may generate highway neighbors or viewer groups with distinct reasons for being in the corridor and, therefore, having distinct responses to changes in visual resources. For this project, the following highway neighbors were considered:

- Retail (restaurant) viewers
- Adjacent residents (generally screened by topography, fencing, and vegetation)
- Recreational/visitor viewers (at *The Grape Crusher* viewpoint)

Highway Users (Views from the Road)

Highway users are people who have views from the road. They can be subdivided into different viewer groups in two different ways: by mode of travel or by reason for travel. For example, subdividing highway users by mode of travel may yield pedestrians, bicyclists, transit riders, car drivers and passengers, and truck drivers. Dividing highway users or viewer groups by reason for travel creates categories like tourists, commuters, and haulers. It is also possible to use both mode and reason for travel simultaneously, creating a category like bicycling tourists, for example. For this project, the following highway users were considered:

- Commuters (vehicles and transit, bicyclists, pedestrians)
- Visitors/tourists (vehicles, bicycles, pedestrians)
- Truck drivers

VIEWER RESPONSE

Viewer response is a measure or prediction of the viewer's reaction to changes in the visual environment. Viewer response has two dimensions: viewer exposure and viewer sensitivity.

VIEWER EXPOSURE

Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. "Location" relates to the position of the viewer in relationship to the object being viewed. The closer the viewer is to the object, the more exposure. "Quantity" refers to how many people see the object. The more people who can see an object or the greater frequency an object is seen, the more exposure the object has to viewers. "Duration" refers to how long a viewer is able to keep an object in view. The longer an object can be kept in view, the greater the exposure. High viewer exposure helps predict that viewers would have a response to a visual change.

View from the Road

Viewers within this sparsely developed landscape unit consist predominantly of motorists and bicyclists on SR 29 and SR 221/Soscol Ferry Road, generally within approximately 0.25 mile from the intersection. These highway travelers typically include commuters, recreational motorists and bicyclists, and high numbers of visitors to the area's numerous parks and wineries. Also, a large number of truck drivers are making deliveries to and from the Napa Valley area and beyond. Viewer exposure within this group is considered high; the congested intersection requires slow speeds throughout most of the day.

View to the Road

Because of the open, undeveloped agriculture character of the areas within the viewshed for this project, views of the road are limited. The nearest views toward SR 29 and SR 221 are from the parking area of the Villa Romano restaurant, accessed from Devlin Road just south of its intersection with Soscol Ferry Road. Three residences are located near the SR 29/SR 221 intersection. One of these is immediately east of the Villa Romano and has a screened view over their back fence. Another residence north of SR 221, across from the Villa Romano, has outbuildings and high fences blocking views of the intersection. The third residence is located east of the ramp from northbound SR 29 to northbound SR 221, but is generally screened by topography and vegetation. A distant but important view of the intersection is from *The Grape Crusher* viewpoint in Vista Point Park. Exposure for views to the SR 29/SR 221 intersection is considered high for the restaurant parking lot because viewers are out of their cars while accessing the restaurant and the predominant middle ground view of this intersection when looking northeastward. Exposure for viewers at *The Grape Crusher* viewpoint is high because viewers are using this location for its panoramic view.

VIEWER SENSITIVITY

Viewer sensitivity is a measure of the viewer's recognition of a particular object. It has three attributes: activity, awareness, and local values. Activity relates to the preoccupation of viewers—are they preoccupied, thinking of something else, or are they truly engaged in observing their surroundings. The more they are actually observing their surroundings, the more sensitivity viewers would have of changes to visual resources. Awareness relates to the focus of view—the focus is wide and the view general or the focus is narrow and the view specific. The more specific the awareness, the more sensitive a viewer is to change. Local values and attitudes also affect viewer sensitivity. If a viewer group values aesthetics in general or if a specific visual resource has been protected by local, state, or national designation, viewers likely would be more sensitive to visible changes. High viewer sensitivity helps predict that viewers would have a high concern for any visual change.

At their intersection, both SR 29 and SR 221 are eligible for listing as state scenic highways; the eligibility for SR 29 extends from this intersection and southward only. Both SR 29 and SR 221 are designated as scenic roadways in the Napa County General Plan.

View from the Road

The heavy use of SR 29 and SR 122 by all kinds of viewers results in differing levels of viewer sensitivity. Commuters and truck drivers tend to concentrate on traffic and their destinations. Although they have high familiarity with the view, familiarity from their repeated use of the roadway tends to make them less sensitive to their surroundings. Visitors and tourists tend to be focused on the view and aware of their surroundings, but because they are not familiar with the view, they would not be as sensitive to view changes. This is somewhat tempered by the congestion that currently occurs at this intersection. Overall, these factors indicate viewers from the road would be moderately sensitive to any changes to visual resources within the project corridor, although somewhat less so in the immediate vicinity of the intersection, where the visual quality is compromised by the encroaching traffic, signs, and signals.

View to the Road

Views of the road are limited, primarily from the nearby restaurant parking lot and *The Grape Crusher* viewpoint. In both cases the activities of these viewers are focused on the views, because people are on foot, either accessing the restaurant from the parking lot or climbing the pathway to the viewpoint at *The Grape Crusher*. The restaurant parking lot viewers are concentrating on their destination, rather than the surrounding roadways. *The Grape Crusher* viewers are typically one-time or infrequent visitors, who are concentrating on the extensive panoramic view in all directions, rather than focusing on the project site exclusively. Viewers at these locations are expected to be moderately sensitive to changes to the existing visual resources.

Group Viewer Response

The narrative descriptions of viewer exposure and viewer sensitivity for each viewer group were merged to establish the overall viewer response of each group.

The proposed changes of the Build Alternative for the SR 29/SR 221 Soscol Junction intersection would have an effect on visual character and quality. Viewer exposure and sensitivity for viewers to the road and viewers from the road are anticipated to be moderate; therefore, viewer response is expected to be moderate.

ENVIRONMENTAL CONSEQUENCES

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. These impacts can be beneficial or detrimental. A generalized VIA process is illustrated in the following diagram.

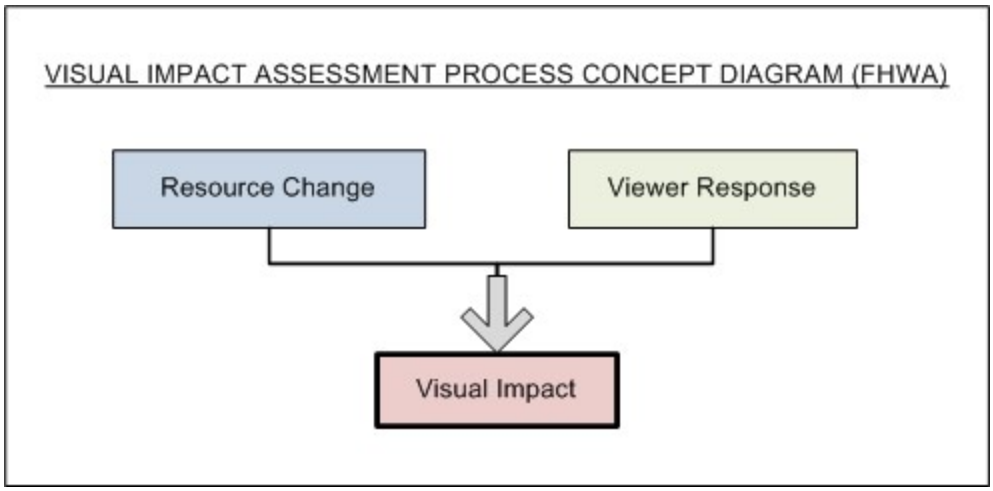


Table 2.1.7-1 provides a reference for determining levels of visual impact by combining resource change and viewer response.

Table 2.1.7-1 Visual Impact Ratings Using Viewer Response and Resource Change

		Viewer Response (VR)				
Resource Change (RC)		Low (L)	Moderate-Low (ML)	Moderate (M)	Moderate-High (MH)	High (H)
	Low (L)	L	ML	ML	M	M
	Moderate-Low (ML)	ML	ML	M	M	MH
	Moderate (M)	ML	M	M	MH	MH
	Moderate-High (MH)	M	M	MH	MH	H
	High (H)	M	MH	MH	H	H

No Build Alternative

Under the No Build Alternative, the SR 29/SR 221/Soscol Ferry Road intersection would not be improved or changed. The existing visual characteristics immediately adjacent to the proposed project area would remain unaltered.

Build Alternative

Construction Phase

Construction of the SR 29/SR 221 intersection improvements are anticipated to occur in 7 stages, over a period of approximately 2 years. Construction would include temporary pavement to allow shifting of lanes during construction, and construction

of ramps, roundabouts, and the SR 29 overcrossing. Temporary detours would be required on existing paved roadways, including Devlin Road and Napa Valley Corporate Way. Substantial grading would be required, with the profile of SR 221 lowered up to 16 feet (8 feet average) below existing levels and the construction of embankments for the SR 29 overcrossing up to approximately 12 feet above existing levels. Excavations for column placements for the SR 29 overcrossing would also be required.

Construction activities, lighting, equipment, and staging where visible within the highway corridor, could represent an adverse visual intrusion to motorists, bicyclists, and nearby highway neighbors for the duration of construction. The types of equipment needed to complete the construction may include, but are not limited to, the following: excavators, graders, cranes, loaders, telescoping forklifts, backhoe loaders, concrete pumps, concrete trucks, pavers, rollers, compactors, air compressors, portable generators, temporary signals, and portable lighting. Visual impacts during construction are temporary and, therefore, are considered minimal.

Operation Phase

The following section uses the KVs to describe the visual effects of the Build Alternative, compares existing conditions to the Build Alternative, and includes the predicted viewer response during the project's operational phase. KVs also represent the viewer groups that have the highest potential to be affected by the project, considering exposure and sensitivity.

KV 01 – Southbound SR 221

KV 01 Existing Condition

The open, rural character of this location has diminished visual unity because of the expanse of roadway asphalt in the foreground and middle ground, as seen in Figure 2.1.7-2. The line of trees in the background encloses the view, with disturbed roadside edges flanked by gentle hillsides of grasses on either side of the roadway. Light poles, highways signs, and traffic intermittently disrupt background rural elements. Glimpses of more distant hills are briefly available, but are mostly screened by trees and closer topography.

Figure 2.1.7-2 KV 01 Existing Condition

KV 01 Viewer Response: Moderate

Most viewers are traveling this route to commute to work, home, or other activities; there is a large office park and hotel complex behind the viewer at this location. Viewers are mostly local residents and workers on their regular commute, and truck drivers making pick-ups or deliveries, although some viewers may be tourists or visitors. Viewers also include bicyclists using the roadway for commuting or recreational biking. At the location of this KV, see Figure 2.1.7-3, highway motorists and bicyclists are slowing down as they approach the intersection with SR 29. Traffic is often slowed here by congestion at this intersection. SR 221 is eligible for designation as State Scenic Highway and is a Napa County scenic roadway. Because of this and the often-low travel speeds, viewers are anticipated to have moderate sensitivity to any changes in the visual character and quality of the surroundings. Thus, viewer response to visual changes is expected to be moderate.

KV 01 Build Alternative Proposed Condition

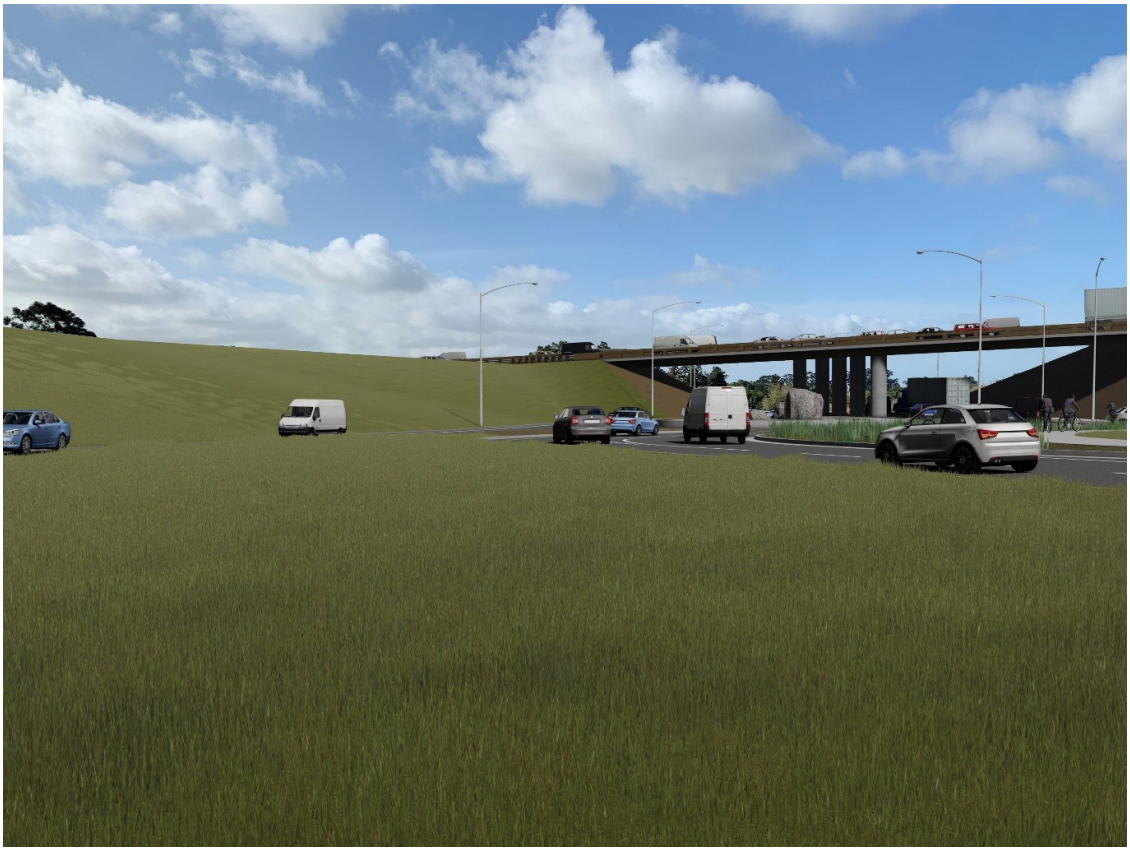


Figure 2.1.7-3 KV 01. Build Alternative Proposed Condition

KV 01 Resource Change: Moderate-High

The project includes reconfiguration of the SR 29/SR 221 signalized intersection into a full diamond interchange with two roundabout intersections. The enclosed view of gentle hillsides framed with distant trees would be replaced by views of the graded embankments and the SR 29 overcrossing structure. (Note: Because of the realignment of SR 221 as part of the project, the southbound SR 221 traveler would be shifted slightly westward.)

The new grassy embankments would mimic the existing grassy hillsides on either side of the roadway, but the overcrossing would add a new contrasting element to the view. The view would be shortened by the overcrossing; rather than a fairly open view enclosed by distant trees, the view is enclosed by the structure. The sense of openness in existing conditions would be noticeably diminished. The light poles represent a small amount of visual clutter, similar to the existing condition.

Overall, the proposed project would result in a moderate-high level of resource change, with adverse impacts to visual character and visual quality from this KV.

KV 01 Visual Impact: Moderate-High

The proposed project at KV 01 is anticipated to have a moderate level of viewer response and a moderate-high level of resource change, resulting in a moderate-high level of visual impact.

KV 02 – Southbound SR 29

KV 02 Existing Condition

Because viewers on southbound SR 29 are traveling downhill, they have a wide and panoramic view at KV 02. The rural view includes grassy hillsides, the tree-lined Suscol Creek, and the tree-covered hillsides in the background. The rural character and visual unity of the existing conditions is evident from this KV. The maturity of the trees and the grassy hillside convey an intact landscape, interrupted slightly by the traffic, highway signs, and guardrails. These elements help to maintain the experience of traveling the scenic route.

Figure 2.1.7-4 KV 02. Existing Condition

KV 02 Viewer Response: Moderate

Many viewers are traveling this route to commute to work, home, or other activities. In addition, a large number of trucks use this route. Some viewers along this route are

tourists or visitors. Viewers also include bicyclists using the roadway for commuting or recreational biking. At the location of this KV, highway motorists and bicyclists may be slowing down as they approach the intersection with SR 221. Traffic is often slowed here by congestion at this intersection. At this location, SR 29 is a Napa County scenic roadway, and is eligible for designation as State Scenic Highway in the distance, past the SR 221 intersection. Because of the large number of workers, residents, and other commuters and truck drivers, and the fact that tours and visitors are leaving the Napa Valley in this direction, viewers are anticipated to be moderately sensitive to any changes in the visual character and quality of the surroundings. Thus, viewer response to visual changes is expected to be moderate.

KV 02 Proposed Condition

Figure 2.1.7-5 KV 02. Build Alternative Proposed Condition

KV 02 Resource Change: Moderate

At this KV, SR 29 is shifted to the north and carried on an overcrossing structure over the double roundabout intersections for SR 29 and SR 221. In the photograph, the overcrossing can be seen on the left in this view, and one of the roundabouts can be seen on the right. For the viewer on the southbound SR 29, the roadway would no longer slope downward to intersect with SR 221. Instead, the roadway would remain

fairly level, on a grassy embankment as it approaches the overcrossing structure, with the hillsides on either side sloping downward. The traffic speeds would increase with the new design.

The new grassy embankments would mimic the existing grassy hillsides on either side of the roadway, and the panoramic character of the view would remain, although the view of the intersection's foreground and middle ground elements changed by introducing new highway facilities. The light poles represent a small amount of visual clutter, similar to the existing condition.

Overall, the proposed project would result in a moderate level of resource change with some adverse impacts to visual character and visual quality from this KV, predominantly related to the increase in highway facilities.

KV 02 Visual Impact: Moderate

The proposed project at KV 02 is anticipated to have a moderate level of viewer response and a moderate level of resource change, resulting in a moderate level of visual impact.

KV 03 – Northbound SR 29

KV 03 Existing Condition

The northbound SR 29 view from this location is dominated by overhead highway signs, the traffic light, and often heavy traffic. Slightly rising grass- and tree-covered hillsides enclose the view on the right and left sides, but long distant views are available straight ahead, including mountains in the distance, especially on clear days. However, congestion, including many large trucks, often reduces views from this location. The rural character of the view is compromised by the distractions of the highway signs and congestion.

Figure 2.1.7-6 KV 03. Existing Condition

KV 03 Viewer Response: Moderate

Many viewers are traveling this route to commute to work, home, or other activities, but a large number of visitors and tourists use this route to access Napa. Viewers also include truck drivers making pick-ups or deliveries and bicyclists using the roadway for commuting or recreational biking. At the location of this KV, highway motorists and bicyclists are slowing down as they approach the intersection with SR 221. Traffic is often slowed here by congestion at this intersection. SR 29 is eligible for designation as State Scenic Highway (terminating at the intersection with SR 221) and is a Napa County scenic roadway. Because of this and the often-low travel speeds, viewers are anticipated to be moderately sensitive to any changes in the visual character and quality of the surroundings. Thus, viewer response to visual changes is expected to be moderate.

KV 03 Build Alternative Proposed Condition

Figure 2.1.7-7 KV 03. Build Alternative Proposed Condition

KV 03 Resource Change: Moderate

At KV 03, travelers on SR 29 would no longer approach a traffic signal, but instead would approach an overcrossing structure over the double roundabout intersections for SR 29 and SR 221. The foreground view would be similar to the existing view, but the rising overcrossing and one of the roundabouts would be visible in the middle ground, and the mountains would no longer be visible in the background.

The new grassy embankments would mimic the existing grassy hillsides around the intersection. Traffic congestion would likely be reduced.

Overall, the proposed project would result in a moderate level of resource change with adverse impacts to visual character and visual quality from this KV, mostly related to the elimination of the views of the mountains.

KV 03 Visual Impact: Moderate

The proposed project at KV 03 is anticipated to have a moderate level of viewer response and a moderate level of resource change, resulting in a moderate level of visual impact.

KV 04 – Northbound SR 221

KV 04 Existing Condition

At KV 04, the existing view is wide and panoramic. With no intervening topography, structures, or vegetation, this rural view includes grassy pasture areas in the foreground, the SR 29/SR 221 intersection in the middle ground and rolling grass- and tree-covered hills in the background. The rural character and visual unity of the existing conditions is evident from this KV. The maturity of the trees and the grassy hillside convey an intact landscape, interrupted slightly by the traffic, highway signs, utility poles, and fence posts. These natural elements help to maintain the experience of traveling the scenic route.

Figure 2.1.7-8 KV 04. Existing Condition

KV 04 Viewer Response: Moderate

On this relatively low-volume roadway, most viewers are traveling this route to commute to work, home, or other activities. Viewers also include bicyclists using the roadway for commuting or recreational biking. At the location of this KV, highway motorists and bicyclists may be slowing down as they approach the intersection with SR 29. SR 221 is a Napa County scenic roadway and is eligible for designation as State Scenic Highway. Because of the panoramic view and the often-low travel speeds, viewers are anticipated to be moderately sensitive to any changes in the visual character and quality of the surroundings. Thus, viewer response to visual changes is expected to be moderate.

KV 04 Build Alternative Proposed Condition

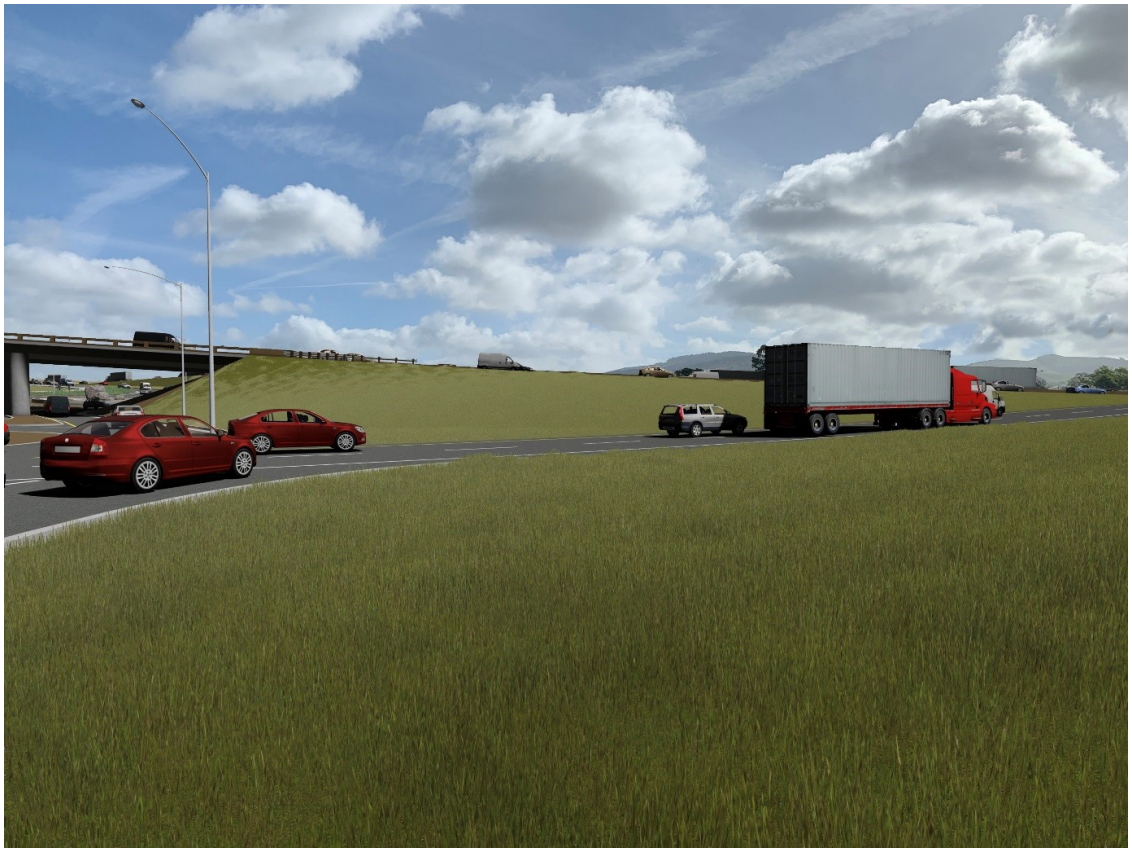


Figure 2.1.7-9 KV 04. Build Alternative Proposed Condition

KV 04 Resource Change: High

At KV 04, the proposed SR 221 route would be shifted north. The view would still have a rural character because of the pasture grasses used for landscaping, but the new overcrossing and roundabout would shorten the view, and obscure most of the views of the mountains. The SR 29 overcrossing and its embankments would now dominate the view. Congestion would likely be reduced because of the replacement

of the traffic light with the double roundabout intersection. The light poles represent a small amount of visual clutter, similar to the existing condition.

Overall, this alternative would result in a high level of resource change, with adverse impacts to visual character and visual quality from this KV.

KV 04 Visual Impact: Moderate-High

The project at KV 04 is anticipated to have a moderate level of viewer response and a high level of resource change, resulting in a moderate-high level of visual impact.

KV 05 – Villa Romano Parking

KV 05 Existing Condition

KV 05 is similar to KV 04, but from slightly south of the previous viewpoint, from the parking lot of the Rilla Romano restaurant. Viewers at this location would be walking to the restaurant or returning after their meal. Viewers would be outside their cars with unobstructed views of the existing intersection. With no intervening topography, structures, or vegetation, this rural view includes grassy pasture areas in the foreground, the SR 29/SR 221 intersection in the middle ground and rolling grass- and tree-covered hills in the background. The rural character and visual unity of the existing conditions is evident from this KV. The maturity of the trees and the grassy hillside convey an intact landscape, interrupted slightly by the traffic, highway signs, traffic signals, highway lighting, utility poles, and fence posts.

Figure 2.1.7-10 KV 05. Existing Condition

KV 05 Viewer Response: Moderate

At the location of this KV, viewers would be walking and participating in a leisure activity (going to a restaurant). The view is open and extended because of the lack of intervening topography or vegetation. Because they are focused on their destination, viewers are anticipated to be moderately sensitive to any changes in the visual character and quality of the surroundings. Thus, viewer response to visual changes is expected to be moderate.

KV 05 Build Alternative Proposed Condition

Figure 2.1.7-11 KV 05. Build Alternative Proposed Condition

KV 05 Resource Change: Moderate

At KV 05, the view would still have a rural character because of the pasture grasses used for landscaping, but the new overcrossing and roundabout would shorten the view, and obscure most of the views of the mountains. The foreground pasture area would be extended into the middleground because of the similar grassy landscaping of the overcrossing embankment. The SR 29 overcrossing and its embankments would enclose the view. Views of stopped traffic and highway signage would be reduced. The light poles represent a small amount of visual clutter, similar to the existing condition.

Overall, this alternative would result in a moderate level of resource change, with some adverse impacts to visual character and visual quality from this KV because of the reduction in views of the hills.

KV 05 Visual Impact: Moderate

The project at KV 05 is anticipated to have a moderate level of viewer response and a moderate level of resource change, resulting in a moderate level of visual impact.

KV 06 – The Grape Crusher *Viewpoint*

KV 06 Existing Condition

At KV 06, the existing view is wide and panoramic because it is located at a scenic viewpoint, overlooking the intersection and the surrounding hillsides. With no intervening topography, structures, or vegetation, this rural view includes grassy pasture areas in the foreground, the SR 29/SR 221 intersection in the middle ground and rolling grass- and tree-covered hills and more distant mountains in the background. The rural character and visual unity of the existing conditions is evident from this KV. The maturity of the trees and the grassy hillside convey an intact landscape, interrupted slightly by the SR 221 and SR 29 visible in the distance.

Figure 2.1.7-12 KV 06. Existing Condition

KV 06 Viewer Response: Moderate

Most viewers at this location are visitors and tourists, and most of them are unfamiliar with the view. However, because this is a scenic overlook, there is a high expectation of high visual character. Viewers are on foot because the viewpoint is only visible if they climb the hill to the viewing location. With the combination of unfamiliarity of the view and high expectations of the viewers, viewer response to visual changes is expected to be moderate.

KV 06 Build Alternative Proposed Condition

Figure 2.1.7-13 KV 06. Build Alternative Proposed Condition

KV 06 Resource Change: Low

Views of the proposed intersection would be relatively unchanged because of the distance of the viewers from the intersection improvements. The topography of the intersection would appear slightly elevated, but the details of the overcrossing would not be evident, and the elevated SR 29 roadway would block views of the double roundabouts. The intersection improvements would not change the panoramic views of the grass- and tree-covered hillsides and the mountains in the distance. The foreground views of pastureland would remain unchanged, and this landscaping would be carried onto the embankments of the roadway.

Overall, this project would result in a low level of resource change, with neutral impacts to visual character and visual quality from this KV.

KV 06 Visual Impact: Moderate-Low

The project at KV 06 is anticipated to have a moderate level of viewer response and a low level of resource change, resulting in a moderate-low level of visual impact.

PROJECT VISUAL IMPACT SUMMARY

Summary of Visual Impacts by KV

Table 2.1.7-4 summarizes the narrative ratings for visual impacts for each KV.

Table 2.1.7-4 Summary of Key View Narrative Ratings

KEY VIEW	Resource Change	Viewer Response	Visual Impact
01	MH	M	MH
02	M	M	M
03	M	M	M
04	H	M	MH
05	M	M	M
06	L	M	ML

As shown in the table, the Build Alternative would result in visual impacts, ranging from moderate-low to moderate-high.

Visual impacts of project elements are discussed in the following paragraphs. The elements include modification of drainage with a new outfall into Suscol Creek, widening of the Suscol Creek Bridge at SR 29, and fish passage barrier removal within the right of way between the Suscol Creek Bridge and Devlin Road, southwest of the highway.

Drainage modifications would require trenching and installation of a drain line, terminating in a drainage outfall structure at Suscol Creek. Trenching work is expected to occur within existing grassy areas that can be revegetated to have a visual character similar to existing conditions. The creek outfall location and design is not yet determined but can be minimized visually with aesthetic measures and revegetation. Implementing Project Features Revegetation, Drainage Design, Color Treatment for Drainage, and Creek and Riparian Revegetation, as described in Table 1-3 of Section 1.3.2, Project Features, should reduce visual impacts of these project elements to “no permanent impact on visual quality” and “low temporary impact on visual quality.”

Drainage modification and outfall work is expected to require some riparian and adjacent upland vegetation removal. Widening of the Suscol Creek Bridge will require vegetation removal and may require pruning or removal of trees within and

adjacent to the creek. A fish passage study will be undertaken to determine the feasibility of the fish barrier removal. It is unknown how any potential barrier removal activities will impact visual resources.

Riparian corridor vegetation is visible from the project area, including KVs 02, 03, and 06. In these KVs, the vegetation provides a finely textured pattern and consistent color, with a tree canopy that strikes a variable height horizon line. These pattern elements increase continuity between foreground roadway and pasture elements, and background rural hills elements, in turn, increasing the vividness and unity of these views. Implementing Project Features Creek and Riparian Revegetation and Tree Pruning, as described in Table 1-3 of Section 1.3.2, Project Features, should reduce this to a low permanent impact on visual quality. Initial temporary visual impact would be expected to be moderate but should reduce to a low visual impact over a 5-year period as a result of the fast growth anticipated from riparian species.

Vegetation removal would open views from Devlin Road to the highway, as well as to pasturelands and hills beyond the highway. This would present a visual character consistent with views preceding and following the Suscol Creek crossing at Devlin Road; consequently, this removal would not be expected to cause more than a low response from visitors. Local travelers are the likely majority users of Devlin Road and are anticipated to have a higher sensitivity to this visual change to the riparian corridor. Implementing Project Features Creek and Riparian Revegetation, Tree Pruning, and Fish Passage Design, as described in Table 1-3 of Section 1.3.2, Project Features, should reduce this to a low permanent impact on visual quality. Initial temporary visual impact would be expected to be moderate but should reduce to a low impact on visual quality over a 10-year period. A longer temporary period is considered because of the close proximity of the vegetation to the viewer and the considerable screening that exists currently, which fills much of the view to the highway.

A new concrete barrier rail would be placed at the widened portion of the Suscol Creek Bridge. Implementation of Project Feature Context Sensitive Features for Overcrossing Structure, as described in Table 1-3 of Section 1.3.2, Project Features, at this barrier rail would maintain corridor consistency and reduce visual clutter.

The main factor in the proposed project’s moderate or moderate-high visual impacts would be the reduction in the sense of openness and the blocking of views of hillsides, trees, and mountains. This would occur at KVs 01 and 04, where the

proposed SR 29 embankments and overcrossing block or screen the existing view of trees, hillsides, and mountains, and to a lesser extent at KVs 03 and 05.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Caltrans and the FHWA mandate that a qualitative/aesthetic approach should be taken to address visual quality loss in the project area. This approach fulfills the letter and the spirit of FHWA requirements because it addresses the actual cumulative loss of visual quality resulting from a project. The Project Features Context Sensitive Features for Overcrossing Structure, Context Sensitive Features, Guardrail Design, Vegetation Control and Protection, Construction Lighting, Slope Design Enhancement, Revegetation, Drainage, Drainage Design, Color Treatment for Drainage, Creek and Riparian Revegetation, and Tree Pruning as described in Table 1-3 of Section 1.3.2, Project Features, would minimize specific visual impacts and be designed and implemented with concurrence of the District Landscape Architect into the project.

2.1.8 Cultural Resources

REGULATORY SETTING

The term "cultural resources," as used in this document, refers to the "built environment" (including structures, bridges, railroads, and water conveyance systems), 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 those described below.

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 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 CFR 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the FHWA, the ACHP, the California State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the ACHP's regulations, 36 CFR 800, streamlining the Section 106

process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 USC 327).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties (in Section 4(f) terminology—historic sites). See Appendix A for specific information about Section 4(f).

CEQA requires the consideration of cultural resources that are historic resources and tribal cultural resources, as well as "unique" archaeological resources. California 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 historic resource. Historic resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill (AB) 52 added the term "tribal cultural resources" to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process for identifying 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 that has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historic 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 Caltrans to inventory state-owned structures in its ROWs. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the 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 between Caltrans and SHPO, effective January 1, 2015. For most federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

AFFECTED ENVIRONMENT

The studies for this undertaking were carried out in a manner consistent with Caltrans regulatory responsibilities under Section 106 of the NHPA (36 CFR Part 800) and

pursuant to the January 2014 First Amended Programmatic Agreement Among the FHWA, the ACHP, the California SHPO, and Caltrans regarding compliance with Section 106 of the NHPA, as it pertains to the Administration of the Federal Aid Highway Program in California.

Cultural studies have been undertaken by the Office of Cultural Resource Studies (OCRS) for the SR 29/SR 221/Soscol Junction Improvement Project in Napa County, California. OCRS prepared the required Historic Property Survey Report and Archaeological Survey Report in 2019 and determined that a Finding of Adverse Effect is anticipated for the Build Alternative.

A cultural resources records search was conducted using multiple resources, including the NRHP, CRHR, National Historic Landmark, California Historical Landmarks, California Points of Historical Interest, Caltrans Historic Bridge Inventory, Caltrans Cultural Resources Database, and data from the California Historical Resources Information System. The Native American Heritage Commission (NAHC) was contacted on January 22, 2019, requesting that they conduct a search of their Sacred Land Files to determine if there were known historically significant sites within or near the APE for the proposed project. The NAHC responded on January 29, 2019, with a list of Native American parties and a positive result from the Sacred Land File search. The NAHC indicated that Caltrans should contact the Mishewal-Wappo Tribe of Alexander Valley with regard to the positive Sacred Land File search results. On February 5, 2019, a letter initiating Section 106 and CEQA consultation were sent to the Chairpersons for Cortina Rancheria, Middletown Rancheria, the Mishewal-Wappo Tribe of Alexander Valley, and Yocha Dehe Wintun Nation. Contact letters were sent to local government agencies and historical societies on February 26, 2019, inquiring if they had any pertinent information regarding built resources within the project APE or any concerns regarding the proposed project. The City of Napa Cultural Heritage Commission, the County of Napa Planning, Building and Environmental Services Department, Napa County Historical Society, and Napa County Landmarks all responded that they had no comments or concerns. A follow-up email was sent to all parties in April 2019 and consultation remains on-going.

The files at the Northwest Information Center indicate that one historic property, which includes two resources independently listed or determined eligible for the NRHP, are within the project's APE. These resources are: CA-NAP-15/H (P-28-000028), which includes the Soscol House, listed on the NRHP on February 28, 1979;

and a dual-component archaeological site determined eligible by consensus through the Section 106 process in 1974.

The APE for the project was established by Caltrans Professionally Qualified Staff Archaeologist Kristina Montgomery (Co-Principal Investigator, Historical Archaeology), Architectural Historian Frances Schierenbeck (Principal Architectural Historian and Caltrans Project Manager Kelly Hirschberg on April 2, 2019. In accordance with Section 106 PA Stipulation VIII.A, the APE was established as the entire project footprint and all areas where there is a potential for direct and indirect effects; the APE includes the Soscol House and the entire known boundary of one prehistoric archaeological site. The current APE was previously surveyed entirely in June 2004 and June 2005, with subsequent visits in 2007, and the condition of the archaeological site has not changed. No new pedestrian surveys have been conducted.

Archaeology

The archaeological site contains a prehistoric component and historic component. The prehistoric component consists of a Native American habitation site, while the historic component consists of the Soscol House and a Mexican rancho era stone foundation. While the foundation itself is reported to have been removed, deposits associated with historic Mexican and Native American use are likely still present in the site.

The archaeological site has been determined eligible for the NRHP because it has been demonstrated that the site has the potential to yield data important in history or prehistory.

Architectural History

The Soscol House was built as a roadhouse in 1856. A substantial rear wing was added in 1875. The house is a simple, two-story, L-shaped, wood-frame building with minimal elements of Greek revival style. In 1977, the land on which the Soscol House originally stood was purchased by the State of California for the site of a new highway interchange project. That same year a private party purchased the building; and, in 1979, the house was moved approximately 500 feet west of its original location. The new owners nominated the Soscol House as a historic property, and it was listed on the NRHP on February 28, 1979. The Soscol House is currently used as a restaurant.

The Soscol House was reevaluated and determined to have retained its eligibility. The original evaluation stated that the property was determined eligible for the NRHP for

its architectural significance and its historical significance in the areas of transportation and commerce. The reevaluation, however, found the property to no longer be eligible for its architectural significance because of the substantial loss of original fabric. The property was found to still be eligible in the areas of transportation and commerce, despite the fact that it was relocated prior to listing on the NRHP. The rural qualities of the setting of low grasslands along the Napa River have been retained, as well as the property's orientation toward Soscol Ferry Road. The building is a rare example of an early roadhouse, and the only commercial structure remaining of the now-vanished Suscol settlement; as such, the Soscol House retains adequate integrity to be historically significant in the broad patterns of our history in the areas of transportation and commerce. The State Office of Historic Preservation concurred with the finding of the reevaluation of Soscol House, in a letter dated June 8, 2006.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, there would be no impacts to cultural resources.

Build Alternative

Construction and Operation

Any construction noise would be temporary and minimal in nature; such minimal noise increase would not affect the continued use of Soscol House, nor diminish the integrity of the significant historic features of the property. Additionally, the proposed project would not affect the property as a result of vibration generated during construction. The closest piles that would be driven for the proposed project would be approximately 500 feet away from Soscol House. At this distance, any vibrations would have abated far below the levels that could produce damage to the structure.

The Build Alternative would require ground disturbance activities and modifications to the existing intersection and Suscol Creek Bridge, which would result in impacts to cultural resources. Construction activities are anticipated to cause permanent impacts to the archaeological site. Implementation of Project Features Discovery of Historic and Archaeological Resources and Discovery of Tribal Cultural Resources, as described in Table 1-3 of Section 1.3.2, Project Features, would address potential impacts to additional or undiscovered cultural resources associated with ground-disturbing activities during construction.

Archaeological Resources

The Build Alternative is anticipated to have a Finding of Adverse Effect on the archaeological site. As of September 2019, Caltrans is consulting with the SHPO on an adverse effect determination and developing a Memorandum of Agreement (MOA) to the resolution of effects and treatment of the archaeological site. Caltrans is also continuing consultation with Native American tribes in the area regarding the treatment of the archaeological site.

Architectural History

The Build Alternative would cause no physical destruction or damage to the Soscol House. The building would not be altered, nor would the proposed project cause the ownership of the Soscol House to change. Although the Soscol House is no longer in its original location (it was moved from its original location to avoid demolition during a 1977/1978 highway project) the Build Alternative would not cause it to be moved again. All project activities would take place within Caltrans ROW with no direct impacts to the Soscol House property.

The introduction of visual elements within Caltrans ROW would not affect the integrity of the historic property. The roundabouts and bridge structure would be new visual elements but would not create a visual intrusion on the Soscol House because the setting, feeling. and association of the historic property have already been compromised as a result of previous changes to the project area. As a moved property, Soscol House has already lost integrity of location. Because the Soscol House is oriented away from the project area, the Build Alternative would not diminish the integrity of the property's historic features. No tree removal that would visually impact the property is anticipated. However, when possible, new and replacement trees would be planted in select locations to screen the view from the vista point and the rear of the Soscol House. Access to the Soscol House would remain the same; traffic would still be directed from SR 29 onto Soscol Ferry Road. The changes to the connector roads would have no impact on the Soscol House.

Although the proposed project may introduce some new audible elements, any increase in traffic noise is expected to be well below the federal noise abatement criteria of 67 A-weighted decibels (dBA) at the Soscol House (see Section 2.2.7, Noise).

In summary, the Build Alternative would not further erode the integrity of the setting. Because the historic Soscol House is oriented away from the project area, the Build Alternative would not introduce a new visual element that is significant enough to

diminish the integrity of the property's significant historic features. Therefore, the Build Alternative would have no adverse effect on this historic property, as defined by 36 CFR 800.5(a)(2) of the NHPA. As of September 2019, Caltrans is consulting with SHPO on a "no adverse effect" determination for the Soscol House.

Section 4(f)

As a historic property, Caltrans identified the Soscol House as a 4(f) resource under provisions of the U.S. Department of Transportation Act. However, the proposed project would not directly impact this property through permanent physical occupancy or temporary occupancy. The project would also not cause indirect effects through alterations in visual or cultural setting of the property. Consequently, the Build Alternatives do not trigger Section 4(f) protection because the project does not permanently use the property and does not hinder the preservation of the property. Caltrans identification and evaluation of the resource is discussed in greater detail in Appendix A.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

There are four mitigation measures currently anticipated for the project. These will be finalized with the signed MOA.

Mitigation Measure CUL-1 Establishing an Environmental Sensitive Area: An ESA will be established to protect archaeological resources and delineated on the ground with temporary high-visibility fencing. No construction-related activities or staging is permitted within the ESA.

Mitigation Measure CUL-2 Phase II Data Recovery Plan: A preconstruction Phase III Data Recovery Plan will be implemented by a qualified archaeologist for the significant archaeological site that is directly affected. Data recovery will only occur in the portion of the site being directly affected.

Mitigation Measure CUL-3 Archaeology Monitoring Area Plan: An AMA plan is to be implemented during construction. A qualified archaeologist will monitor job site activities within the AMA. No work can be conducted within the AMA unless the archaeological monitor is present.

Mitigation Measure CUL-4 Memorandum of Agreement: To resolve adverse effects (as listed under Section 106 of the NHPA) of the Build Alternative on the archaeological site, Caltrans is consulting with the SHPO and interested Native American groups. A MOA will be developed to identify mechanisms for treatment of

historic properties, primarily through recovery of important data that would be destroyed by construction of the proposed project The MOA will also outline procedures for treatment of historic properties inadvertently discovered during construction. Under this MOA, an archaeological treatment plan will be developed; the plan will stipulate that a data recovery proposal will be prepared once specific detailed construction impacts are available. The data recovery proposal will be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

REGULATORY SETTING

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 FHWA requirements for compliance are outlined in 23 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

In the EO, 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

Hydrology

A Request for Studies Memorandum (Caltrans District 4 2019a) was prepared by the Office of Hydraulic Engineering and a Water Quality Study (WQS) was prepared by the Office of Environmental Engineering at Caltrans District 4 (Caltrans District 4 2019b). According to the WQS, the project is located within the Napa River-San Pablo Hydraulic Sub-Area 206.50. The receiving water bodies within the project limits include Suscol Creek and Napa River. Suscol Creek is tributary to the Napa River which flows to the San Pablo Bay and ultimately the Pacific Ocean. Per the *Request for Studies Memorandum,* NCRCD,

conducted a fish passage assessment, in which six fish barriers were identified. The NCRCD report concluded that the culvert at SR 29 is oversized. However, stream flow calculations performed by Caltrans do not support that conclusion. The peak flow calculated by NCRCD was 455 cubic feet per second (cfs) for Q10, and 508 cfs for Q100; Caltrans calculations were 779 cfs for Q10 and 1,576 cfs for Q100.

To complete a full hydraulics analysis, a topographic survey of the creek is needed. Preliminary remediation measures are proposed and would be reevaluated as more information becomes available. These measures are at the end of this section under AMMs.

Floodplain

Floodplains are determined by the use of Federal Emergency Management Agency (FEMA) map database searches. The Caltrans study states the project site is within a Zone X Floodplain via FEMA floodplain maps. Zone X is defined as the areas outside the 0.2% annual chance (500-year) floodplain, which is an area of minimal flood hazard. The floodplain map can be seen in Figure 2.2.1-1 (FEMA 2019).

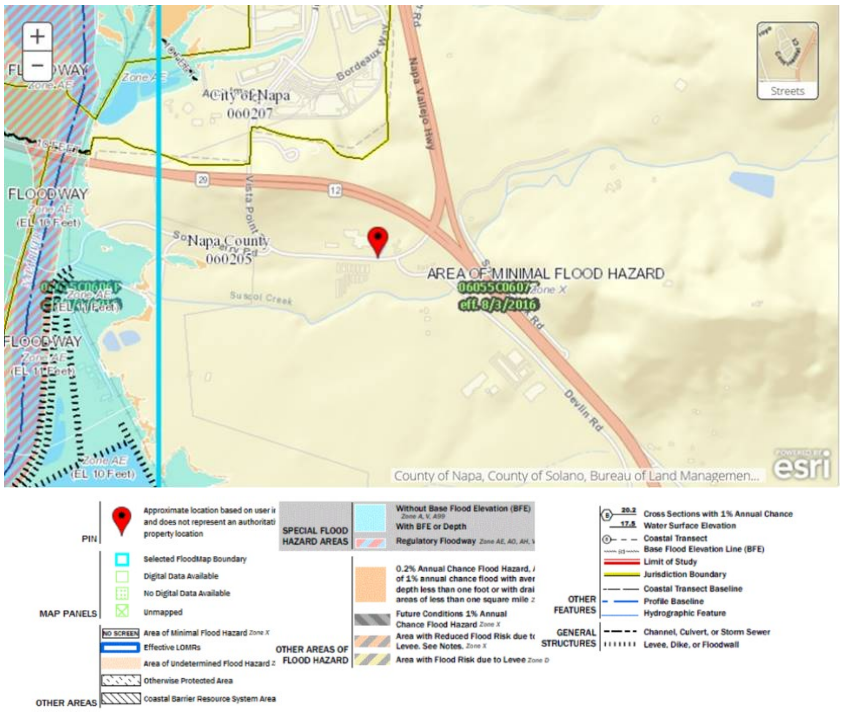


Figure 2.2.1-1 Zone X Floodplain Map

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Construction and Operation

The No Build Alternative would not result in any change in the study area's land use or its impervious surface area or result in any floodplain encroachment.

Build Alternative

Construction and Operation

The Build Alternative does not propose to change land use in or around the study area. The predominant land use in the project area is commercial and agricultural, with three residences near the project area as described in section 2.1.7 Visual Aesthetics. No businesses or residences would be displaced.

Per the WQS (Caltrans District 4 2019b), the proposed project would add 11 acres of new impervious area, plus disturbed soil area (DSA) of 15 acres. Since the project area is not within a flood zone, the proposed increase in impervious area is expected to have a less than significant impact on flooding.

The project would require approximately 15,000 cubic yards of cut and 45,000 cubic yards of fill. Drainage systems would be modified to accommodate the roadway profile changes, including installation of bioretention swales and preparation of a SWPPP. Drainage modifications would require trenching and installation of a drain line, terminating in a drainage outfall structure at Suscol Creek. Trenching work is expected to occur within existing grassy areas that can be revegetated to have a visual character similar to existing conditions. The creek outfall location and design is not yet determined. The proposed work for the build alternative is not located within a floodplain.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

AMM HYDRO-1 Fish Passage: If construction within the OHWM of Suscol Creek is added to the scope of the project, Caltrans would consult with NOAA Fisheries regarding potential impacts to EFH.

AMM HYDRO-2 Construction Site BMPs: Deploy construction site BMPs for sediment control and material management, to prevent or reduce impacts. BMPs include cover, check dam, drainage inlet protection, fiber roll, silt fence, concrete washout, construction entrances/exits, and street sweeping. Temporary construction roadway is also needed per the Office of Design. Dewatering may also be required.

AMM HYDRO-3 In-Water Work Requirements: For in-water work stormwater monitoring and rain event action plans, in addition to a creek diversion system, will be required.

AMM HYDRO-4 Treatment BMPs: Note that treatment BMPs are anticipated because the new and replaced impervious area is over 1 acre. Permanent treatment

BMPs will need to treat the project's impervious surfaces of 11 acres. Offsite treatment may be required if 100 percent treatment is not obtained onsite.

AMM HYDRO-5 Trash Control Requirement: Trash capture devices may be required for the project because although the project is not on Caltrans' Significant Trash Generation Area (STGA) map, a Section 401 certification is required from the Water Board and the project is over $5 million dollars.

AMM HYDRO-6 SWPPP: Prior to commencement of construction activities, have the contractor prepare a SWPPP, for approval by Caltrans. The SWPPP addresses potential construction impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable.

2.2.2 Water Quality And Stormwater 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 U.S. from any point source[2] 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 has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater 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 (RWQCB) administer this permitting

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

program in California. Section 402(p) requires permits for discharges of stormwater 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 United States 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."

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. Environmental Protection Agency's (EPA) Section 404 (b)(1) Guidelines (40 CFR Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by EPA, in conjunction with 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 that would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative 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 effluent[3] 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 USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements (see 33

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

CFR 320.4). A discussion of the least environmentally damaging practicable alternative determination, if any, for the document is included in Section 2.3.2, Wetlands and Other Waters.

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; this definition is broader than the CWA definition of "pollutant." 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.

The 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 study 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 these 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 listed by the state, 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 nonpoint source controls (NPDES permits or WDRs), then the CWA requires the establishment of total maximum daily loads. Total maximum daily loads specify allowable pollutant loads from all sources (point, nonpoint, 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, total maximum daily loads, and NPDES permits. RWQCBs 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 Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater discharges, including MS4s. An MS4 is defined as a conveyance system (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a public body having jurisdiction over stormwater, that is designed or used for collecting or conveying stormwater. The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans MS4 permit covers all Caltrans ROWs, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. It was amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014), Order No. 2015-0036-EXEC (conformed and effective April 7, 2015), and Order No 2017-0026-EXEC (effective November 27, 2017). The permit has four basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (CGP) (see below).

2. Caltrans must implement a year-round program in all parts of the state to effectively control stormwater and non-stormwater discharges.

3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs, to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

4. Caltrans must comply with trash reduction requirement per Caltrans Statewide Stormwater NPDES permit – Attachment V – Specific Region Requirement: San Francisco Bay Area.

To comply with the permit, Caltrans developed the Statewide Stormwater Management Plan (SWMP) to address stormwater pollution controls related to

highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater 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 Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project would be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Construction General Permit

The CGP (Order No. 2009-0009-DWQ) was adopted on September 2, 2009, and became 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). The permit regulates stormwater discharges from construction sites that result in a DSA of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than 1 acre is subject to this CGP 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 SWPPP; implement sediment, erosion, and pollution prevention control measures; and obtain coverage under the CGP.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and they 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 stormwater 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 Caltrans standard specifications, a water pollution control program is necessary for projects with a DSA of less than 1 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 verifies that the project would be in compliance with state water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, which is issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, depending on the project location, and are required before 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), which defines 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 permanent and temporary discharges of a project.

Regional and Local Requirements

RWQCB Basin Plan

The project is within jurisdiction of the SFBRWQCB, Region 2. The *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)* (RWQCB, 2015) states the goals and policies, beneficial uses, and water quality objectives that apply to water bodies throughout the San Francisco Bay region, which includes the study area. The Basin Plan has been adopted by the SWRCB, EPA, and Office of Administrative Law.

AFFECTED ENVIRONMENT

A WQS (Caltrans District 4 2019b) was prepared for the proposed project.

Regional and Local Hydrology

As provided in the WQS, the study area is mostly within the Napa River-San Pablo Hydraulic Sub-Area (#206.50). The study area is situated on gradually sloping to hilly terrain; the highest elevation is approximately 56.4 meters (185 feet). Suscol Creek and an unnamed ephemeral drainage, the north tributary to Sheehy Creek, drain the hillsides of the project area into the Napa River and eventually into the San Pablo Bay. Suscol Creek is not identified as an impaired water. Although Caltrans staff has observed the reach of the creek adjacent to the project as being dry during surveys, Suscol Creek's beneficial uses are identified as including: recreation, aquatic life uses, and wildlife uses in the San Pablo Basin plan (California RWQCB 2010).

Napa River in this location is tidal and impaired for nutrients and pathogens, based on the 2014-2016 CWA Section 303(d) List of Water Quality Limited Segments.

Surface Water

The project is located within the Napa River Hydrologic Area and is within the limits of the SFBRWQCB jurisdiction (Region 2). Stormwater from the project area drains into Suscol Creek, a tributary to Napa River, and ultimately to San Pablo Bay. The SFBRWQCB is responsible for implementation of state and federal water quality laws and regulations for this project.

The average annual rainfall within the project area is 63.5 centimeters (25 inches). Stormwater from the project area drains into Suscol Creek and Napa River, which is less than 1.6 kilometer (1 mile) from the proposed project site.

Existing Water Quality

Under Section 303(d) of the CWA, states, territories and authorized tribes are required to develop a list of water quality limited segments. These waters on the list do not meet water quality standards. Both the Napa River and the San Pablo Bay are on the EPA's 303(d) List of Water Quality Limited Segments. Pollutants of concern for the Napa River are: nutrients, pathogens, and sedimentation/siltation; and for San Pablo Bay: chlordane, Dichlorodiphenyltrichloroethane, diazanon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, polychlorinated biphenyls, and selenium.

The Region 2 SFBRWQCB Basin Plan has also established beneficial uses for Napa River, which are: agricultural supply, municipal and domestic supply, cold and warm freshwater habitat, navigation, contact- and non-contact water recreation, wildlife habitat, and spawning, reproduction, and/or early development. Beneficial uses for San Pablo Bay are: industrial service supply, ocean, commercial, and sport fishing, shellfish harvesting, estuarine habitat, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, contact and non-contact water recreation, and navigation.

The water bodies that the project would discharge to directly are not listed on EPA's 303(d) List of Water Quality Limited Segments. The proposed project would still need to consider issues related to water bodies on the 303(d) list because Napa River is less than a mile away.

Another component of surface water is roadway runoff. Caltrans has performed many studies to monitor and characterize highway stormwater runoff throughout the state. Some of the commonly found pollutants are: total suspended solids, which are solids in water that can be trapped by a filter and include a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes and sewage; nutrients; pesticides; metals (particulate and dissolved); pathogens; litter; biochemical oxygen demand, which is the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down organic material present in a given water sample; total dissolved solids, which are the total amount of mobile charged ions, including minerals, salts or metals dissolved in a given volume of water; zinc (total or dissolved); phosphorous; copper (total or dissolved); sediments; and general metals.

Groundwater

The proposed Soscol Junction Project is located in the Napa-Sonoma Valley Groundwater Basin. The existing beneficial uses of this groundwater resource, according to the Basin Plan, include: municipal and domestic water supply, industrial process and service water supply, and agricultural water supply.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Construction and Operation

There would be no construction under the No Build Alternative. Therefore, no permanent water quality impacts would occur.

Build Alternative

Construction

Temporary water quality impacts can result from sediment discharge from DSAs and construction near water resources or drainage facilities. Estimates for DSAs are listed in Table 2.2.2-1. These DSA values would be refined during the design phase, once the limits of grading and proposed improvements, construction staging, construction access, and final roadway geometry have been developed.

Proposed grading and excavation activities would have the potential to increase erosion, resulting in elevated turbidity of stormwater runoff. The project would disturb more than 15 acres of soil during construction. Sediment-laden runoff could enter storm drainage facilities that discharge into receiving waters. This would potentially impact the beneficial uses of Suscol Creek. Additional sources of sediment include stockpiles, construction staging areas, and construction equipment not properly maintained or cleaned.

To prevent or reduce impacts, construction site BMPs would be deployed for sediment control and material management. These include cover, checking the dam, drainage inlet protection, fiber roll, silt fence, concrete washout, construction entrances/exits, and street sweeping. Temporary construction roadway is also needed per the Caltrans Office of Design. Dewatering may also be required.

Creek diversion is anticipated because of the current proposed work. For in-water work , stormwater monitoring and rain event action plans, in addition to a creek diversion system, would be required.

Operation

Within the study area, the following existing drainage facilities would be modified or replaced:

- An existing drainage pipe, at the north end of the project along SR 221, which runs underneath the road, would be modified on the downstream end for the proposed roadway widening. Erosion control protection would be included on the downstream end and plans would be developed during final design.
- Modifications would be made to an existing 18-inch-diameter pipe culvert located near the intersection near SR 29/221. This existing culvert would be upgraded and improved with the Build Alternative.
- Replacement of a culvert on southbound SR 29 would occur.
- A stormwater treatment system (that is, a bioretention swale) on the edge of the shoulder would be installed to treat stormwater runoff from Caltrans ROW. Because this action is to meet requirements for project-specific CWA Section 401, the treatment device would be designed per the requirements in the BASMAA Phase 2 Post Construction BMP guidance.
- Implementation of erosion control measures would occur on the newly constructed side slopes. Treatment of disturbed slopes and soil would consist of a combination of netting, hydroseeding, and/or hydro mulch. Fiber rolls may also be used.

Drainage plans would be developed during final design. Additional minor modifications to existing drainage systems would also be determined during final design. For additional details on modifications to Drainage, see Hydrology and Floodplains, Section 2.2.1.

The proposed project is expected to have minimal impacts to the physical characteristics of the aquatic environment. The project would not alter the greater existing drainage pattern of the watersheds in which it is located.

Permanent impacts to water quality are anticipated because of the added impervious area, which would prevent runoff from naturally dispersing and infiltrating into the ground resulting in increased concentrated flow. However, this increase in runoff is anticipated to be minimized with the installation of permanent stormwater treatment measures (eleven bio swales are to be installed) and implementation or erosion control measures.

The DSA, net new impervious, and replaced impervious surface are noted in Table 2.2.2-1 and provided by the Office of Design. These numbers may change during the design phase as the project is refined. DSA is a temporary impact that will require a SWPPP.

Table 2.2.2-1 Permanent Disturbed Soil Area and Impervious Areas

Disturbed Soil Area (AC)	Net New Impervious (AC)	Replaced Impervious (AC)	New Impervious (AC) (NNI+RIS)
15+	2.23	9.12	11.35

Post-construction water quality treatment BMPs would be required to treat the projects total impervious area of approximately 11 acres.

The Build Alternative would require Project Features Construction Site Management Practices, Hazardous Materials Incident Contingency Plan, SWPPP, Erosion Control and Water Quality Protection Measures, Stormwater Multiple Application and Report Tracking System, Stormwater BMPs, Dewatering Activities and Clean Water Diversions and Low Impact Development Controls, as described in Table 1-3 of Section 1.3.2, Project Features.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Build Alternative would require a 404 permit from USACE and a 401 Water Quality Certification from the SFBRWQCB. Because of this, the Caltrans District Biologist must document that the identified project features and AMMs for the project have been followed. In addition, the following measures will be implemented to minimize potential impacts related to water quality:

AMM WQ-1 Restoring Disturbed Areas: Disturbed areas will be restored with the following methods:

- All slopes or unpaved areas temporarily affected by the proposed project outside of the sediment grading area will be restored to original topography and stabilized with effective erosion control materials. The permanent postconstruction topography of the sediment grading area will be at a lower elevation because of the excavation of sediment; this area will be stabilized following construction.

- Slopes and bare ground will be reseeded with native plant seed mix to stabilize and prevent erosion, where appropriate.

AMM WQ-2 Turbidity and Water Quality Monitoring: Turbidity monitoring will be performed during and after installation and removal of the cofferdam, as well as during dewatering activities, according to Standard Specification 13-1.01D(5)(b) Water Quality Sampling and Analysis. Water quality monitoring will be performed to document changes in turbidity in compliance with water quality standards, permits, and approvals from National Oceanic and Atmospheric Association (NOAA) Fisheries and/or CDFW. If the water quality monitor observes excursions of turbidity beyond 50 nephelometric turbidity units, or as otherwise specified in regulatory agency permits and approvals, then the water quality monitor will notify the Resident Engineer. The Resident Engineer has the authority to stop all construction work in the area until the appropriate corrective measures have been conducted. Work will resume once it is determined that water quality standards will not be violated.

2.2.3 Topography/Geology/Soils/Seismicity

REGULATORY SETTING

For topographic and geologic 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 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 Caltrans Seismic Design Criteria. The Seismic Design Criteria provide the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification would determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see

Caltrans' Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

AFFECTED ENVIRONMENT

This section references findings from the Geology for the Soscol Flyover Memorandum (Caltrans District 4 2013) and Geological and Paleontological Impacts Memorandum (Caltrans District 4 2019c).

Topography/Geology

The project site is located within the California Coast Ranges geomorphic province, which is characterized by extensive folding that has created a series of northwest-trending ranges and valleys. The boundary between the Pacific plate and the North American plate is the San Andrea fault, which was formed following the cessation of the subduction of the Farallon plate. The San Andreas fault is a right-lateral, strike-slip fault and is part of a larger system, including the West Napa and the Green Valley faults, that accommodates the stresses formed by the migrating plates.

The project site is covered by early to middle Pleistocene fan or terrace deposits. Suscol Creek have deposited Holocene alluvium in the flatlands located in the western portion of the project site. In the hills to the east of the project site, Suscol Creek is entrenched in Pleistocene to Holocene alluvial sediments. A few landslide deposits are located in the central portion of the project site. At the intersection of SR 29 and SR 221, Sonoma Volcanics, consisting of rhyolite flows, agglomerates, and tuffs, underlie the roadway. In the center portion of the project site on SR 29, Capay Shale (Eocoene) and the San Pablo Group (Miocene) form the hills to the east of the roadway. The Pliocene Huichica Formation, formed by deposits of fluvial gravels, sand, silt, and clay derived from the Sonoma Volcanics underlies the southern portion of the project site.

Soil borings presented on the 1977 Suscol Creek logs of test boring show cobbles and gravel, silt sandy gravel, silty sand, and sandy gravel. Meta-volcanic rocks (most likely Sonoma Volcanics) were encountered at approximately 20 feet below ground surface. Groundwater was measured at approximately 11 and 17 feet below ground surface.

Soils

The surficial soils in the project site are Bale clay loam, Coombs gravelly loam, Fagan clay loam, Haire clay loam, Haire loam, Hambright-Rock outcrop complex

(see attached Natural Resources Conservation Service's soils map). Soil information is presented in Table 2.2.3-1 and Figure 2.2.3-1.

Table 2.2.3-1 Soil Group – Summary by Map Unit

Map Unit Symbol	Soil Unit Name	Parent Material	Hydrologic Soil Group	Shrink-Swell Potential
104	Bale clay loam	Alluvium derived from rhyolite and/or alluvium derived from igneous rock	C	High
123	Coombs gravelly loam	Alluvium derived from igneous rock and/or alluvium derived from sedimentary rock	B	Moderate
131	Fagan clay loam	Residuum weathered from sandstone and shale	C	High
146	Haire loam	Alluvium derived from sedimentary rock	C	High
148	Haire clay loam	Alluvium derived from sedimentary rock	C	High
151	Hambright-Rock outcrop complex	Residuum weathered from basic volcanic rock	D	High

The Natural Resources Conservation Service's hydrologic soil groups are described as follows:

- Group B – These soils have a moderate rate of water transmission and a moderate infiltration rate when thoroughly wet. These soils generally consist of moderately deep or deep, moderately well-drained, or well-drained soils that have moderately fine to moderately coarse texture.

- Group C – These soils have a slow rate of water transmission and a slow infiltration rate when thoroughly wet. These soils generally have a layer that impedes the downward movement of water or have moderately fine or fine texture.

- Group D – These soils have a very slow rate of water transmission and a very slow infiltration rate when thoroughly wet; therefore, these soils have a high runoff potential. These soils generally consist of clay soils that have a high shrink-swell potential, a high water table, a claypan or clay layer at or near the Custom Soil Resource Report 24 surface and are shallow over nearly impervious material.

Explanation

Map Unit Symbol	Map Unit Name
104	Bale clay loam, 0 to 2 percent slopes
123	Coombs gravelly loam, 2 to 5 percent slopes
131	Fagan clay loam, 5 to 15 percent slopes
146	Haire loam, 2 to 9 percent slopes
148	Haire clay loam, 2 to 9 percent slopes
151	Hambright-Rock outcrop complex, 2 to 30 percent slopes
152	Hambright rock-Outcrop complex, 30 to 75 percent slopes

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Reference:
USDA, NRCS, 2013:Custom Soil Resource Report for Napa County, California

SCALE

0 1/4 mile

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ENGINEERING SERVICES
GEOTECHNICAL SERVICES
GEOTECHNICAL DESIGN - WEST – BRANCH B

Soil Map

04-NAP-029	0400000769
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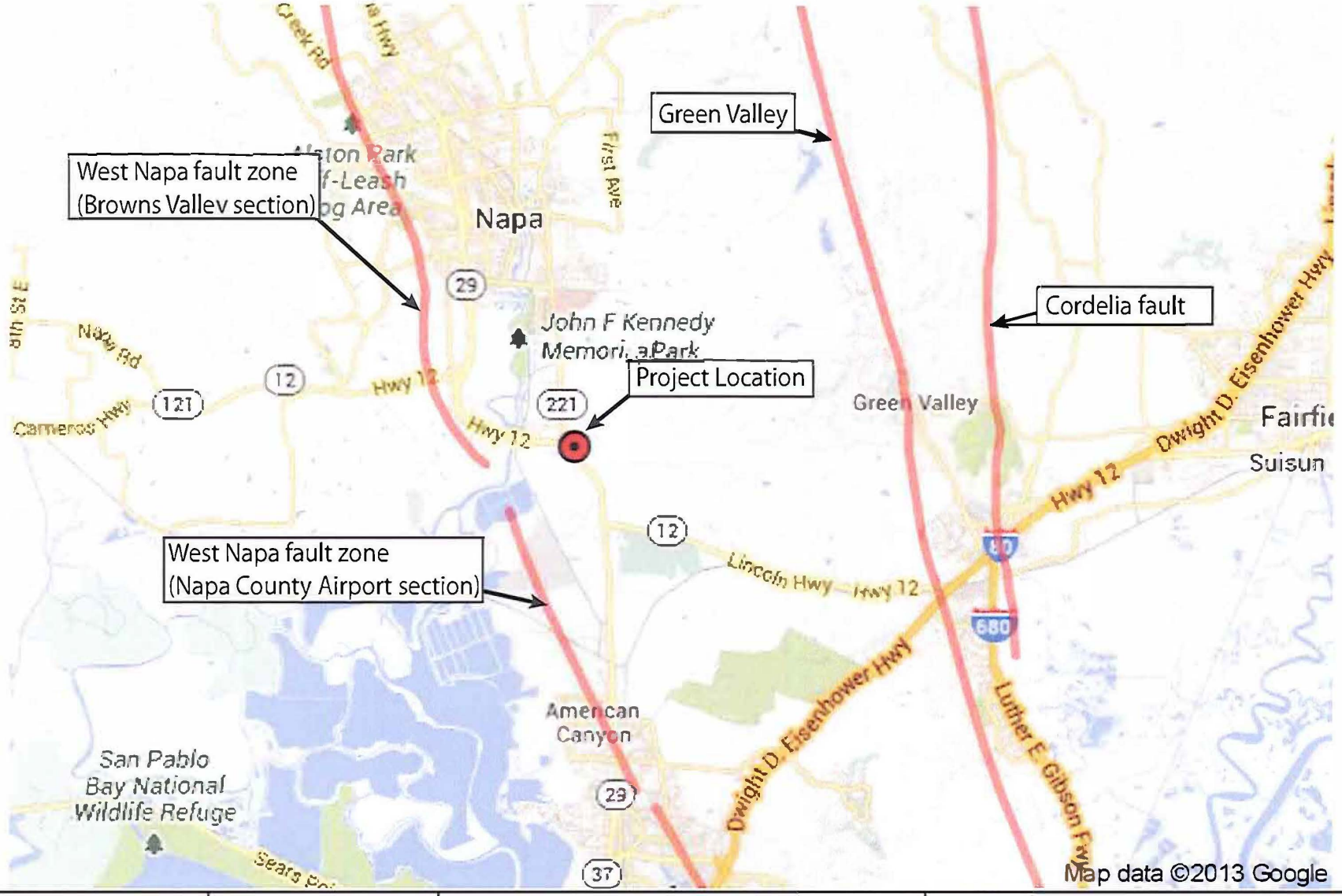
FIGURE 2.2.3-1

The properties listed in Napa County soil surveys are general and listed for information only. Soil strength tests should be performed over the project site before considering the use of soils from the project site for embankments.

Seismicity

The project site is located within a seismically active region dominated by the northwest-trending San Andreas fault. Several other faults that parallel the San Andreas fault make up the larger San Andreas fault system and separate the Pacific plate from the North American plate. The San Andrea fault system is a diffuse plate boundary at which strain is spread across a wide region. There are larger, well-known faults within the system that tend to be the most active; however, there are other unnamed faults that are not mapped and may produce moderate earthquakes.

There are numerous active faults within the northern San Francisco Bay Area that have the potential to produce large earthquakes. These include the West Napa fault zone (Browns Valley and Napa County Airport sections) and Green Valley fault. The closest of these faults zones is the West Napa fault zone (Browns Valley), which is located within 1.5 miles of the project site and is the controlling fault for the proposed project. The West Napa fault zone (Browns Valley) is a right-lateral strike-slip fault that dips 90 degrees relative to horizontal. Table 2.2.3-2 and Figure 2.2.3-2 present the seismic data for the closet of the fault zones to the project site. Seismic data are from the Caltrans 2007 Seismic Hazard Report Database. Maximum credible earthquakes are given in moment magnitude and are a function of the length and width of a fault zone and not of recent or historical events.



SCALE **Not to Scale** 0 1,000ft	Caltrans	**DIVISION OF** **ENGINEERING SERVICES** GEOTECHNICAL SERVICES GEOTECHNICAL DESIGN - WEST – BRANCH B	**Alquist-Priolo Earthquake Fault Zones** **04-NAP-029** **0400000769** **PM. 5-6.2** **NOVEMBER 2013** **FIGURE 2.2.3-2**

Table 2.2.3-2 Seismic Data

Fault	Fault No.	Distance (miles)	Fault Type	Maximum Credible Earthquake (moment magnitude)	Peak Ground Acceleration (560 m/s shear wave velocity)
West Napa fault zone (Browns Valley section)	106	1.4	Right-Lateral Strike-Slip	6.6	0.47g
West Napa fault zone (Napa County Airport section)	114	1.5	Right-Lateral Strike-Slip	6.6	0.47g
Green Valley	108	5.7	Right-Lateral Strike-Slip	6.8	0.28g
Probabilistic Model U.S. Geological Survey Seismic Hazard Map (2008) 975 Year Return Period, calculated at 560 m/s					0.58g

Source: Caltrans 2007 Seismic Hazard Report Database.
g = gravity
m/s = meter per second

ENVIRONMENTAL CONSEQUENCES

Construction Impacts

No Build Alternative

The proposed project would not be constructed with the No Build Alternative. Therefore, there would be no construction impacts to geologic resources.

Build Alternative

No construction impacts to geologic resources would occur during construction of the Build Alternative.

Operation Impacts

No Build Alternative

The proposed project would not operate with the No Build Alternative. Therefore, there would be no project-level impacts to utilities.

Build Alternative

Seismic Hazards

Potential seismic hazards within the project site during operation of the proposed project include surface rupture, seismic fault creep, and secondary effects resulting from strong ground shaking.

Surface Rupture/Seismic Fault Creep

There are no active faults within the project site. Therefore, surface rupture and seismic fault creep are not considered to pose hazardous to the proposed project.

Ground Shaking

The potential for ground shaking in the project site during the life of the proposed project is high and would affect both roadways and structures. Loose, saturated soils pose the greatest threat during episodes of strong ground shaking. Possible hazards, such as liquefaction, flooding, and landslides, may occur as a result of strong ground shaking.

Liquefaction

Liquefaction potential, a phenomenon in which soils lose all shear strength and essentially turn into liquids, is very high in the project site. Potentially liquefiable deposits are generally composed of clean sand with a high ratio of void space. Future subsurface sampling would indicate if the soil within the project site is liquefiable. The potential for liquefaction near Suscol Creek and Sheehy Creek is moderate to high; the potential for liquefaction throughout the remainder of the project site is very low. Liquefaction potential is presented in Figure 2.2.3-3.

Flooding

The project site is not susceptible to flooding hazards.

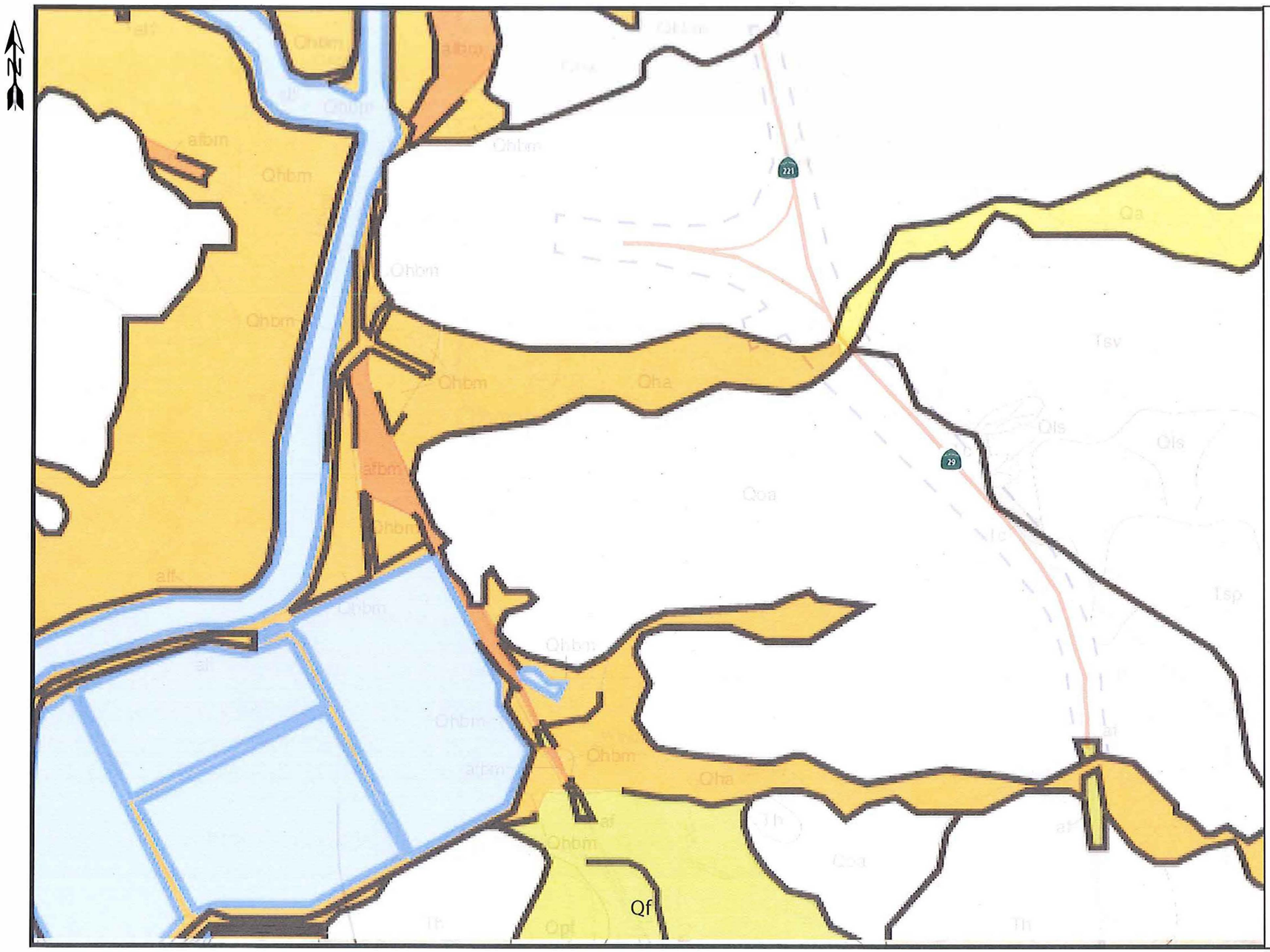
Landslides

Historical landslides have occurred at the central portion of the project site. Therefore, there is a potential for landslides in the sloped areas in the central portion of the project site.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

All project components would be designed in accordance with standard engineering practices and Caltrans standard specifications. No substantial adverse effects under NEPA or significant impacts under CEQA would occur related to topography, geology, soils, or seismicity. Therefore, no AMMs are required.

As described in Section 2.2.2, Water Quality and Stormwater Runoff, erosion control measures will be implemented during construction activities in accordance with the BMPs outlined in the SWPPP. Protective measures will reduce soil erosion and minimize impacts to water quality.



Reference:
http://gis.abag.ca.gov/website/LiquefactionSusceptibility/index.html

SCALE
0 1/4 mile

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Liquifaction Susceptiblitiy Map

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FIGURE 2.2.3-3

2.2.4 Paleontology

REGULATORY SETTING

Paleontology is a natural science focused on the study of ancient animal and plant life as preserved in the geologic record as fossils. A number of federal statues specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

In accordance with 23 USC 1.9(a), the use of federal-aid funds must be in conformity with all federal and state laws.

Additionally, 23 USC 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 and state law.

Under California law, paleontological resources are protected by CEQA.

AFFECTED ENVIRONMENT

This section references findings from the Geology for the Soscol Flyover Memorandum (Caltrans District 4 2013) and Geological and Paleontological Impacts Memorandum (Caltrans District 4 2019c). Most of the project site lies in the Pliocene Huichica Formation that consists of fluvial gravels, sand, silt, and clay deposits, which can contain fossils.

ENVIRONMENTAL CONSEQUENCES

Construction

No Build Alternative

The proposed project would not be constructed with the No Build Alternative. Therefore, there would be no construction impacts to paleontological resources.

Build Alternative

Potential impacts to paleontological resources would be assessed in the revised paleontological evaluation report (PER) and in the paleontological mitigation plan (PMP) when the revised limits and depth of excavation are known.

Operation

No Build Alternative

The proposed project would not operate with the No Build Alternative. Therefore, there would be no project-level impacts to paleontological resources.

Build Alternative

There would be no project-level impacts to paleontological resources during operation of the Build Alternative; however, impacts to paleontological resources could occur during construction of the Build Alternative and these impacts are discussed in the construction impacts section below.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Mitigation Measure PAL-1 PER and PMP: A revised PER and a PMP will be prepared when the revised limits and depth of excavation are known. The revised PER will address whether the proposed excavation will reach the potentially fossiliferous Pleistocene Sonoma Volcanics. The PMP will define the specific mitigation measures and methods that will be implemented during construction of the proposed project.

2.2.5 Hazardous Waste/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 clean up 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 of 1992
- CWA
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

In addition to the acts listed above, 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 California 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

Potentially contaminated sites in the vicinity of the project were identified using the SWRCB GeoTracker database and the California Department of Toxic Substances Control EnviroStor database. These databases showed that no known contaminated or hazardous materials sites, such as storage tank sites, are within range of affecting the project area.

Caltrans conducted a preliminary site investigation (December 2003) for which aerially deposited lead (ADL) was the only hazardous material identified that presents a risk to the environment. ADL has been detected in the soil within the proposed project area. A summary of the existing conditions identified in the preliminary site investigation are discussed in this section.

ADL is known to exist in surface soils adjacent to the edge of pavement within the SR 29 and SR 221 corridor because of the historical use of leaded gasoline. Until the 1980s in the United States, lead was commonly added to gasoline. As a result, lead was emitted as a component of motor vehicle exhaust. Soil sampling along many

roadways has found that concentrations of lead exceed applicable thresholds for classification as a hazardous waste material.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

As construction would not occur under the No Build Alternative, ADL would not be disturbed, and no impacts would be anticipated.

Build Alternative

Construction and Operation

As part of project development, a more extensive soil investigation would be conducted to determine to what extent ADL has affected soils that would be excavated as part of the proposed project. The investigation scope would be based on the project plans that likely represent the final project details. This investigation would include screening for additional metals and some organic compounds, such as fuel hydrocarbons and pesticides, to confirm, or refute, the supposition that there are no contamination issues related to them. The investigation for ADL would be performed in accordance with the Caltrans Lead Testing Guidance Procedure. The analytical results would be compared against applicable hazardous waste criteria. Based on analytical results, the investigation would provide recommendations regarding management and disposal of affected soils in the project area, including the reuse potential of ADL-affected soil during project construction.

The provisions of a variance granted to Caltrans by the California Department of Toxic Substances Control outlined in the July 2016 agreement regarding ADL-affected hazardous waste soil would be followed. The variance allows for lead-contaminated soil that has state-defined hazardous waste characteristics because of its lead content to be reused under specific engineering controls rather than disposed of in a landfill.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No AMMs are proposed.

2.2.6 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 is its companion state law. These laws, and related regulations by the 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 transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter—which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$)—and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), 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 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 176(c), which prohibits the U.S. Department of Transportation 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 Build Alternative must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 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 CO, NO_2, O_3, PM_{10} and $PM_{2.5}$, and in some areas (although not in California), SO_2. California has nonattainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for Pb; however, Pb 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, FHWA, and Federal Transit Administration 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 Build Alternative 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 scope 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-spot analyses) may be required for projects located in CO and particulate matter nonattainment or maintenance areas to examine localized air quality impacts.

AFFECTED ENVIRONMENT

The discussion below is a summary from information contained in the Air Quality Report (August 2019) and Traffic Operations Analysis Report (2019).

Meteorology and Climate

The project site is located in proximity to the City of Napa in south Napa County, an area within the San Francisco Bay Area Air Basin (SFBAAB), which includes Alameda, Contra Costa, Marin, San Francisco, San Mateo, and Santa Clara counties, the western portion of Solano County, and the southern portion of Sonoma County. The Napa Valley has a generally dry Mediterranean climate with the average winter temperature in 50s °F and average summer temperatures in the 80s °F in the south where the project site is located.

The area experiences strong up-valley winds that develop from the San Pablo Bay during the day, but wind speeds are low with half of the winds averaging less than

4 mph. Stable conditions are also common, which can lead to particulate matter buildup from motor vehicles and agriculture during the late fall and winter as a result of the slower wind speeds. O_3 precursors can also be transported northward from the summer and fall prevailing winds.

Attainment Status and Air Pollution Standards

The SFBAAB is designated as a federal attainment/maintenance area for CO[4], and the project is in a federal nonattainment area for O_3 and $PM_{2.5}$. O_3 impacts are regional in nature; projects that are included in an RTP and TIP have already undergone regional conformity analysis and do not require further analysis for a project-level conformity determination. Therefore, emissions of O_3 precursors from project-related traffic are not anticipated to cause, contribute to, or worsen, any O_3 violations.

40 CFR 93.123(c)(5) states that CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities that cause temporary increases in emissions. Temporary increases are defined as those which occur only during the construction phase and last 5 years or less, which corresponds to this project because construction is expected to be less than 5 years.

Air Pollution Standards

Table 2.2.6-1 shows the NAAQS and CAAQS, along with associated principal health and atmospheric effects and typical sources of emissions.

Local Monitored Data

The Napa Valley College climatological station maintained by Bay Area Air Quality Management District (BAAQMD), is located near the project site, although this station was not in operation until 2018; therefore, historical pollutant data were pulled from Napa-Jefferson Station. The Napa-Jefferson Station is approximately 7 miles north of the project, while the Napa Valley College Station is approximately 3 miles north. Table 2.2.6-2 displays ambient air quality data from the past 5 years from the Napa-Jefferson Station.

[4] EPA letter from Elizabeth J. Adams dated March 21, 2018 stated that as of June 1, 2018 transportation conformity requirements no longer apply for the CO NAAQS for FHWA/FTA projects.

Table 2.2.6-1 State and Federal Criteria Air Pollutant Effect and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standards	Principal Health and Atmospheric Effects	Typical Sources	State Attainment Status	Federal Attainment Status
Ozone (O_3)	1 hour	0.09 ppm (180 μg/m^3)	--	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases (ROG)/ VOC and nitrogen oxides (NO_x) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Nonattainment	Nonattainment (Marginal)
	8 hours	0.070 ppm (137 μg/m^3))	0.070 ppm (137 μg/m^3)				
Respirable Particulate Matter (PM_{10})	24 hours	50 μg/m^3	150 μg/m^3	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke and vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; and natural sources.	Nonattainment	Unclassifiable/ Attainment
	Annual	20 μg/m^3	--				
Fine Particulate	24 hours	--	35 μg/m^3	Increases respiratory disease, lung damage,	Combustion including motor vehicles, other mobile	Nonattainment	Nonattainment (Moderate)

Table 2.2.6-1 State and Federal Criteria Air Pollutant Effect and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standards	Principal Health and Atmospheric Effects	Typical Sources	State Attainment Status	Federal Attainment Status
Matter ($PM_{2.5}$)				cancer, and premature death. Reduces visibility and	sources, and industrial activities; residential and		
	Annual Arithmetic Mean	12 μg/m^3	12.0 μg/m^3	produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NO_x, sulfur oxides, ammonia, and ROG.		
Carbon Monoxide (CO)[5]	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Attainment	Attainment/ Maintenance
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)				
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm (339 μg/m^3)	100 ppb (188 μg/m^3)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain and nitrate contamination of stormwater. Part of the "NO_x" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Attainment	Unclassifiable/ Attainment
	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)				

[5] EPA letter from Elizabeth J. Adams dated March 21, 2018 stated that as of June 1, 2018 transportation conformity requirements no longer apply for the CO NAAQS for FHWA/FTA projects.

Table 2.2.6-1 State and Federal Criteria Air Pollutant Effect and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standards	Principal Health and Atmospheric Effects	Typical Sources	State Attainment Status	Federal Attainment Status
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Unclassifiable/ Attainment
	3 hours	--	0.5 ppm[3] (1300 μg/m^3)				
	24 hours	0.04 ppm (105 μg/m^3)	0.14 ppm (for certain areas				
	Annual Arithmetic Mean	--	0.030 ppm (for certain areas)				
Lead (Pb)	30 Day Average	1.5 μg/m^3	--	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.	Attainment	Unclassifiable/ Attainment
	Calendar Quarter	--	1.5 μg/m^3 (in some areas)				
	Rolling 3-Month Average	--	0.15 μg/m^3				
Visibility-Reducing Particles (VRP)	8 hour	Visibility of 10 miles or more (Lake Tahoe - 30 miles at relative	N/A	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the FCAA, which is oriented primarily toward	See particulate matter above. May be related more to aerosols than to solid particles.	Unclassified	N/A

Table 2.2.6-1 State and Federal Criteria Air Pollutant Effect and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standards	Principal Health and Atmospheric Effects	Typical Sources	State Attainment Status	Federal Attainment Status
		humidity less than 70%)		visibility issues in national parks and other "Class I" areas. However, some issues and measurement methods are similar.			
Sulfate	24 hours	25 $\mu g/m^3$	N/A	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Attainment	N/A
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 $\mu g/m^3$)	N/A	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Unclassified	N/A
Vinyl Chloride	24 hours	0.01 ppm (26 $\mu g/m^3$)	N/A	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.	No information available	N/A

Notes:

1. State standards are values that are "not to be exceeded" or "not to be equaled or exceeded".
2. Federal standards are "not to exceed more than once a year" or as described above.
3. Secondary standard, set to protect public welfare rather than health.

Table 2.2.6-2 Air Quality Concentrations for the Past 5 Years Measured at Napa-Jefferson Station

Pollutant	Status		Standard	2013	2014	2015	2016	2017
Ozone (ppb)	Max 1-hr. concentration			89	74	79	80	98
	No. days exceeded:	State	0.09 ppm	0	0	0	0	1
	Max 8-hr. concentration			76	66	69	67	84
	No. days exceeded:	State	0.070 ppm	1	0	0	0	2
		Federal	0.070 ppm	2	0	0	0	2
Carbon Monoxide (ppm)	Max 1-hr. concentration			3.1	2.2	3.3	2.2	5.6
	No. days exceeded:	State	20 ppm	0	0	0	0	0
		Federal	35 ppm	0	0	0	0	0
	Max annual concentration			1.7	1.4	1.6	1.5	4.7
	No. days exceeded:	State	9.0 ppm	0	0	0	0	0
		Federal	9 ppm	0	0	0	0	0
PM_{10}	Max 24-hr. concentration			40	39	50	33	–
	No. days exceeded:	State	50 µg/m^3	0	0	0	0	–
		Federal	150 µg/m^3	0	0	0	0	–
	Max 8-hr. concentration			18.9	15.8	18.6	16.6	–
	No. days exceeded:	State	20 µg/m^3	0	N/A	N/A	N/A	N/A
$PM_{2.5}$ (µg/m^3)	Max 24-hr. concentration			35.8	29.9	38.2	24.3	199.1
	No. days exceeded:	Federal	35 µg/m^3	1	0	1	0	13
	Max annual concentration			11.7	12.0	10.6	8.5	13.7
	No. days exceeded:	State	12 µg/m^3	N/A	N/A	N/A	N/A	N/A
		Federal	12.0 µg/m^3	N/A	N/A	N/A	N/A	N/A
Nitrogen Dioxide (ppb)	Max 1-hr. concentration			43	46	43	39	53
	No. days exceeded:	State	0.18 ppm	0	0	0	0	0
		Federal	100 ppb	0	0	0	0	0
	Max annual concentration			9	8	8	7	7
	No. days exceeded:	State	0.030 ppm	N/A	N/A	N/A	N/A	N/A
		Federal	53 ppb	N/A	N/A	N/A	N/A	N/A

ENVIRONMENTAL CONSEQUENCES

Regional Conformity

The project is included in the regional emissions analysis conducted by MTC for the current RTP, Plan Bay Area 2040. The regional emissions analysis found that significant projects in the San Francisco Bay Area will conform to the SIP for attaining and/or maintaining the NAAQS as provided in Section 176(c) of the Clean Air Act. FHWA and Federal Transit Administration determined that the RTP conforms to the SIP on August 23, 2017. The project is also included in the MTC's financially constrained 2019 TIP. The TIP gives priority to eligible transportation control measures identified in the SIP and provides sufficient funds to provide for their implementation. The project's design, scope, and open-to-traffic date assumptions are consistent with the regional emissions analysis performed for the current RTP and TIP. Therefore, the project would not interfere with the timely implementation of any transportation control measures identified in the SIP.

Project-level Conformity

The SFBAAB was designated as a federal attainment/maintenance area for CO, and the project is in a federal nonattainment area for O_3 and $PM_{2.5}$. SFBAAB is currently designated as a federal nonattainment area for O_3. Because O_3 impacts are regional in nature, projects that are included in an RTP and TIP have already undergone regional conformity analysis and do not require further analysis. This project is included in a conforming RTP and TIP; therefore, emissions of O_3 precursors from project-related traffic are not anticipated to cause, contribute to, or worsen, any O_3 violations.

Construction Conformity Requirements

40 CFR 93.123(c)(5) states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site." Because construction of the project is expected to last less than 5 years, an evaluation of CO, PM_{10}, and $PM_{2.5}$ emissions during project construction is not required for a project-level conformity determination.

Operational Phase Emissions

Operational emissions take into account long-term changes in emissions due to the project (excluding the construction phase). The operational emissions analysis compares forecasted emissions for existing/baseline, No-Build, and all Build alternatives. The operational emissions analysis compares forecasted emissions for

existing/baseline, No-Build, and the Build Alternative. The CT-EMFAC model (Version 6.0) was used with project traffic data to analyze air pollutant emissions associated with the project. These emissions were computed for the Opening Year (2025), Horizon Year (2040), and Design Year (2045). Table 2.2.6-3 shows the project emissions from the proposed Soscol Interchange improvements.

The proposed improvements would not worsen the flow or operations with the implementation of the project. The Build Alternative shows lower emissions in the Opening Year (2025), Horizon Year (2040), and Design Year (2045) compared to the No-Build Alternative. In the project area, PM_{10} and $PM_{2.5}$ emissions would increase slightly in future years due to the increase in VMT over the existing condition; however, the emissions are below any significance thresholds. Emissions of CO and NOx would decrease. Note that the growth in VMT is due to the increased traffic that would occur under all alternatives, including the No-Build Alternative. Overall, Table 2.2.6-4 demonstrates that proposed project would improve traffic operations and facilities since operational emissions in 2025, 2040, and 2045 are lower in the Build Alternative versus the No Build Alternative.

Table 2.2.6-4 Summary of Comparative Emissions Analysis for Soscol Junction (in pounds per day)

Scenario/ Analysis Year	CO (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	ROG (lbs/day)	NOx (surrogate for NO2) (lbs/day)
Existing Conditions (2018)	111.57	4.91	2.26	16.59	41.53
No-Build (2025)	71.68	5.59	2.39	11.86	26.13
Build Alternative 2025	68.07	6.13	2.56	6.28	17.55
No Build 2045	46.84	6.35	2.59	7.02	20.55
Build Alternative 2045	42.94	7.04	2.85	3.77	7.21

Carbon Monoxide Hot-Spot Analysis

The CO Protocol was developed for project-level conformity (hot-spot) analysis and was approved for use by the U.S. EPA in 1997. It provides qualitative and quantitative screening procedures, as well as quantitative (modeling) analysis methods to assess project-level CO impacts. The qualitative screening step is designed to avoid the use of detailed modeling for projects that clearly cannot cause a violation, or worsen an existing violation, of the CO standards. Although the protocol was designed to address federal standards, it has been recommended for use by

several air pollution control districts in their CEQA analysis guidance documents and should also be valid for California standards because the key criterion (8-hour concentration) is similar: 9 ppm for the federal standard and 9.0 ppm for the state standard.

The project is not anticipated to increase the percentage of vehicles operating in cold start mode; increase traffic volume; or worsen traffic flow. Additionally, the project is located in an area designated "Attainment" for CO under the CAAQS and Attainment/Maintenance under NAAQS. However, the transportation conformity requirements for CO ceased to apply in June 1, 2018. Therefore, based on the CO Protocol Carbon Monoxide Screening Analysis, no further analysis is necessary to demonstrate that the project would not cause or contribute to a violation of an ambient air quality standards for CO.

$PM_{2.5}$ Hot Spot Analysis

In November 2015, the U.S. EPA released an updated version of Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas (Guidance) for quantifying the local air quality impacts of transportation projects and comparing them to the PM NAAQS (75 FR 79370). The U.S. EPA originally released the quantitative guidance in December 2010 and released a revised version in November 2013 to reflect the approval of EMFAC 2011 and U.S. EPA's 2012 PM NAAQS final rule. The November 2015 version reflects MOVES2014 and its subsequent minor revisions such as MOVES2014a, to revise design value calculations to be more consistent with other U.S. EPA programs, and to reflect guidance implementation and experience in the field. Note that EMFAC, not MOVES, should be used for project hot-spot analysis in California. The Guidance requires a hot-spot analysis to be completed for a project of air quality concern (POAQC). The final rule in 40 CFR 93.123(b)(1) defines a POAQC as:

(i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

(ii) Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

(v) Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The NVTA, as the project sponsor, initiated consultation with the Air Quality Conformity Task Force (AQCTF). The Task Force considered projected future traffic conditions, with and without the project, and whether the project meets the specific regulatory definition of a project of air quality concern (POAQC) set forth in 40 CFR Part 93. It was determined by email on July 1, 2019 that the project is not a POAQC and thus not subject to $PM_{2.5}$ project level conformity requirements. The project will be submitted for FHWA project level conformity determination.

Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that EPA regulate 188 air toxics, also known as hazardous air pollutants. EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are part of EPA's Integrated Risk Information System. In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and noncancer hazard contributors from the 2011 National Air Toxics Assessment. These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics (MSATs), the list is subject to change and may be adjusted in consideration of future EPA rules.

FHWA released updated guidance in October 2016 (FHWA, 2016) for determining when and how to address MSAT impacts in the NEPA process for transportation projects. FHWA identified three levels of analysis:

- No analysis for exempt projects or projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; and
- Quantitative analysis to differentiate Alternative for projects with higher potential MSAT effects.

Projects with no impacts generally include those that:

a) qualify as a categorical exclusion under 23 CFR 771.117,

b) qualify as exempt under the FCAA conformity rule under 40 CFR 93.126, and

c) are not exempt but have no meaningful impacts on traffic volumes or vehicle mix.

Projects that have low potential MSAT effects are those that serve to improve highway, transit, or freight operations or movement without adding substantial new capacity or creating a facility that is likely to substantially increase emissions. Most projects fall into this category, including this project. Examples of these types of projects are minor widening projects; new interchanges; replacing a signalized intersection on a surface street; and projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT). For these projects, a qualitative assessment of emissions projections is conducted.

This qualitative assessment considers the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the project alternatives, including the No-Build Alternative, based on vehicle miles travelled (VMT), vehicle mix, and speed. Because the emission effects of these projects typically are low, we expect there would be no appreciable difference in overall MSAT emissions among the various alternatives.

Projects with high potential MSAT effects include those that:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of Diesel Particulate Matter in a single location; or
- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the

design year; and are proposed to be located in proximity to populated areas or, in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

The Build Alternative would not change the traffic mix, increase traffic volumes, or move roadways closer to sensitive receptors. The Build Alternative is expected to decrease vehicle idling time. For the Build Alternative, the amount of MSAT emitted is expected to be proportional to the VMT or volumes, assuming that other variables such as fleet mix remain the same. The Traffic Operations Analysis Report (2019) estimated average daily traffic volumes. VMT was estimated by applying the length of project segments to the ADT projections for peak and non-peak periods and summing the VMT for all segments. Since the VMT estimated for the No Build Alternative and Build Alternative are the same, higher levels of MSAT are not expected. As shown in Table 2.2.6-3, VMT within the project area remain unchanged between the Build and No-Build alternatives.

Table 2.2.6-3 Project Area Vehicle Miles Travelled (VMT)

Scenario	Existing 2018	Opening Year 2025	Horizon Year 2040	Design year 2045
Build and No-build Alternative	71,000	75,660	85,785	89,160

Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the horizon year as a result of U.S. EPA's national control programs that are projected to reduce annual MSAT emissions by over 90 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the U.S. EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The Build Alternative is expected to have reduced MSAT emissions in the immediate area of the project, relative to the Existing and No-Build Alternative, due to the project including, improved traffic speed, less idling time, and due to the EPA's MSAT reduction programs.

Additionally, it should be noted that current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts from transportation projects in a way that would be useful to decision-makers.

Council on Environmental Quality (CEQ) Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22)

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

    1. a statement that such information is incomplete or unavailable;

    2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;

    3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and

    4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture and is within the rule of reason.

c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal

Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

Incomplete or Unavailable Information for Project Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxic (MSAT) emissions associated with a proposed set of highway alternatives. The outcome of such C-2 an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

EPA is responsible for protecting the public health and welfare from welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the CAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris/). Each report contains assessments of non- cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-reviewliteratureexposure-and-health-effects) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of C-3 occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxicscritical-review-literatureexposure-and-health-effects). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (https://www.epa.gov/iris)."

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the FCAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that

cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework.

Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf.)

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

No Build Alternative

Construction Phase

Construction would not occur under the No Build Alternative, so there would be no impacts to air quality.

Operation Phase

Traffic levels would continue to increase under the No-Build Alternative and traffic speeds would decrease. While traffic levels would increase over existing conditions, emissions of CO, ROG and NOx would decrease as a result of improved vehicle emission rates in the future that are associated with turnover of the on-road vehicle fleet. Emissions of PM_{10} and $PM_{2.5}$ would increase slightly as those emissions include re-entrained roadway dust, brake and tire wear that are not associated with expected improvements in exhaust emissions.

Build Alternative

Construction Phase

During construction, short-term degradation of air quality is expected from the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated and would include CO,

NO_X, VOCs, directly emitted PM_{10} and $PM_{2.5}$, and toxic air contaminants, such as diesel exhaust particulate matter. A temporary increase in traffic resulting from construction would create a localized increase in emissions from traffic.

Construction emissions were estimated for the Build Alternative using the Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, version 8.1.0. The total construction emissions for the Build Alternative are all below the BAAQMD significance thresholds, as seen in Table 2.2.6-3.

Table 2.2.6-3 Total Construction Emissions

Total Emissions	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Daily Average (lbs/day)	3.09	30.76	1.49	1.35
BAAQMD significance thresholds (lbs/day)	54	54	82	54

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Project Features Dust Control, Construction Traffic, Track-Out Reduction Measures, Unpaved Road Speed Limits, Paving and Building Pads, Idling and Access Points, Maintaining Construction Equipment and Vehicles, and Contractor Air Quality Compliance as described in Table 1-3 of Section 1.3.2, Project Features would be designed and implemented into the project and therefore minimize air quality impacts.

2.2.7 Noise

REGULATORY SETTING

NEPA and 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 23 CFR 772 noise analysis; please see Chapter 3, CEQA Evaluation, for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA involvement (and Caltrans, as assigned), the Federal-Aid Highway Act of 1970 and the associated 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). Table 2.2.7-1 lists the NAC for use in the NEPA 23 CFR 772 analysis.

Figure 2.2.7-1 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.

Table 2.2.7-1 Noise Abatement Criteria

Activity Category	Activity $L_{eq}[h]$[a]	Evaluation Location	Description of Activities
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[b]	67	Exterior	Residential
C[b]	67	Exterior	Active sport areas, amphitheaters, 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

Table 2.2.7-1 Noise Abatement Criteria

Activity Category	Activity $L_{eq}[h]$[a]	Evaluation Location	Description of Activities
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	--	--	Undeveloped lands that are not permitted (without building permits)

[a] NAC, Hourly A-weighted Noise Level, $L_{eq}(h)$

[b] Includes undeveloped lands permitted for this activity category.

According to Caltrans *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 increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project would 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.

Caltrans *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. A minimum 5-dBA reduction for all impacted receptors in the future noise levels must be achieved for an abatement to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. Additionally, a noise reduction of at least 7 dBA must be achieved at one or more benefited receptors for an abatement measure to be considered reasonable. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance and the cost per benefited receptor.

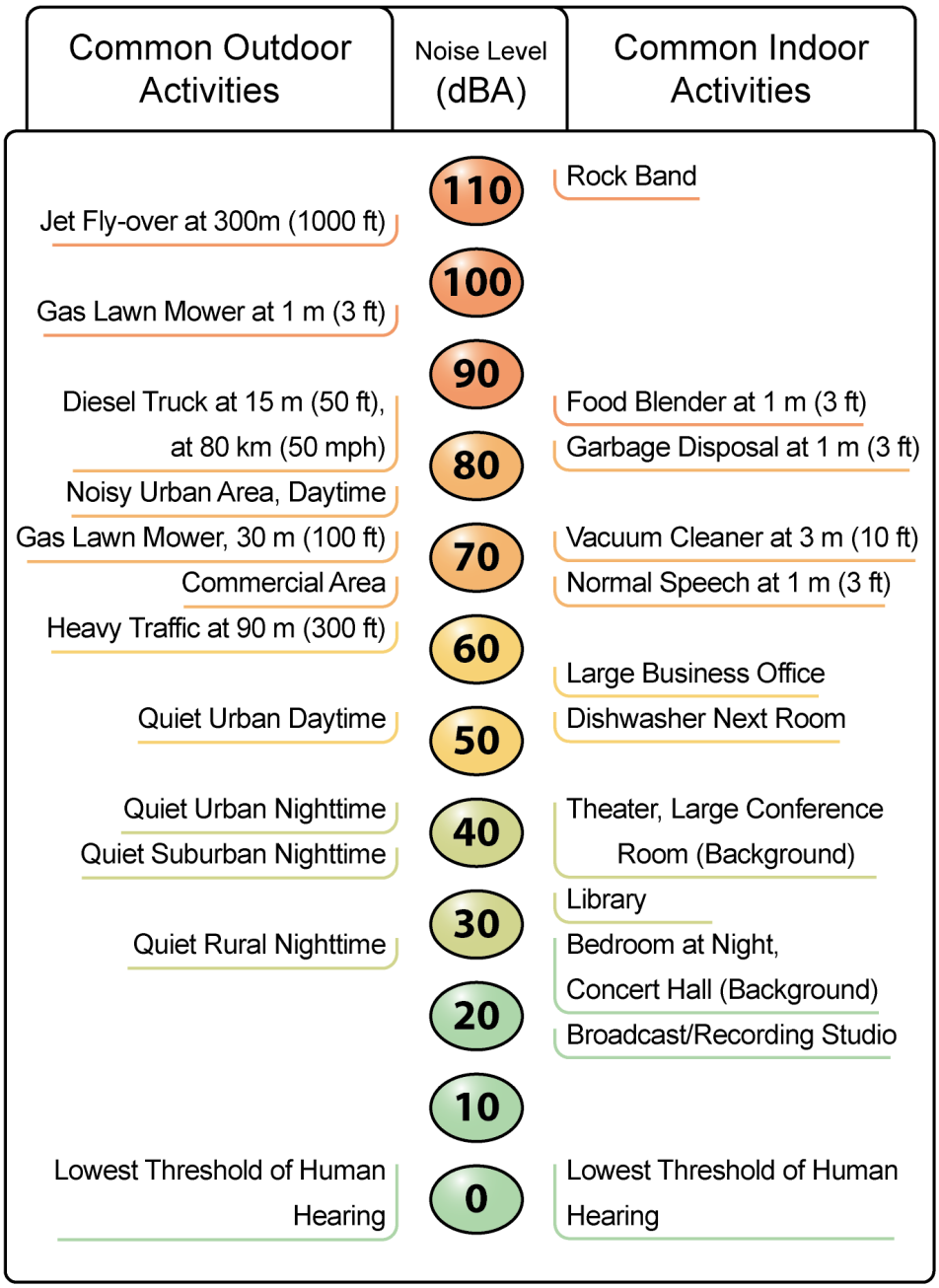


Figure 2.2.7-1 Noise Levels of Common Activities

AFFECTED ENVIRONMENT

The analysis summarized in this subsection is based on the Noise Study Report (August 2019) and Noise Abatement Decision Report (August 2019), and discusses the anticipated noise effects of the Build Alternative. The FHWA Traffic Noise Model, TNM 2.5, was used to calculate existing and future traffic noise levels and analyze traffic noise impacts. Noise receptor locations in the project area were identified through a review of project mapping, aerial photos, and field reconnaissance.

Noise Study

Long-term reference noise measurements were made at two locations in the project vicinity to quantify the diurnal trend in noise levels and establish the peak-traffic noise hour at Vista Point Park, just north of SR 29 and east of Napa Valley Corporate Drive, and a site just north of the residence located at 110 Devlin Road. The long-term noise measurements were made over an approximately 120-hour period, from midday on Wednesday, June 5, 2019, to midday on Monday, June 10, 2019. Seven short-term noise measurements were made in the project vicinity, in concurrent time intervals, with the data collected at the long-term reference measurement sites. Two or more consecutive 10-minute measurements were made at each noise measurement site. In addition, three modeled receptor locations (R3, R5, and R6) were included in the model to represent residential areas of frequent human use. Because these locations could not be accessed directly, the areas could not be accessed for noise measurements. Locations are shown in Figure 2.2.7-2.

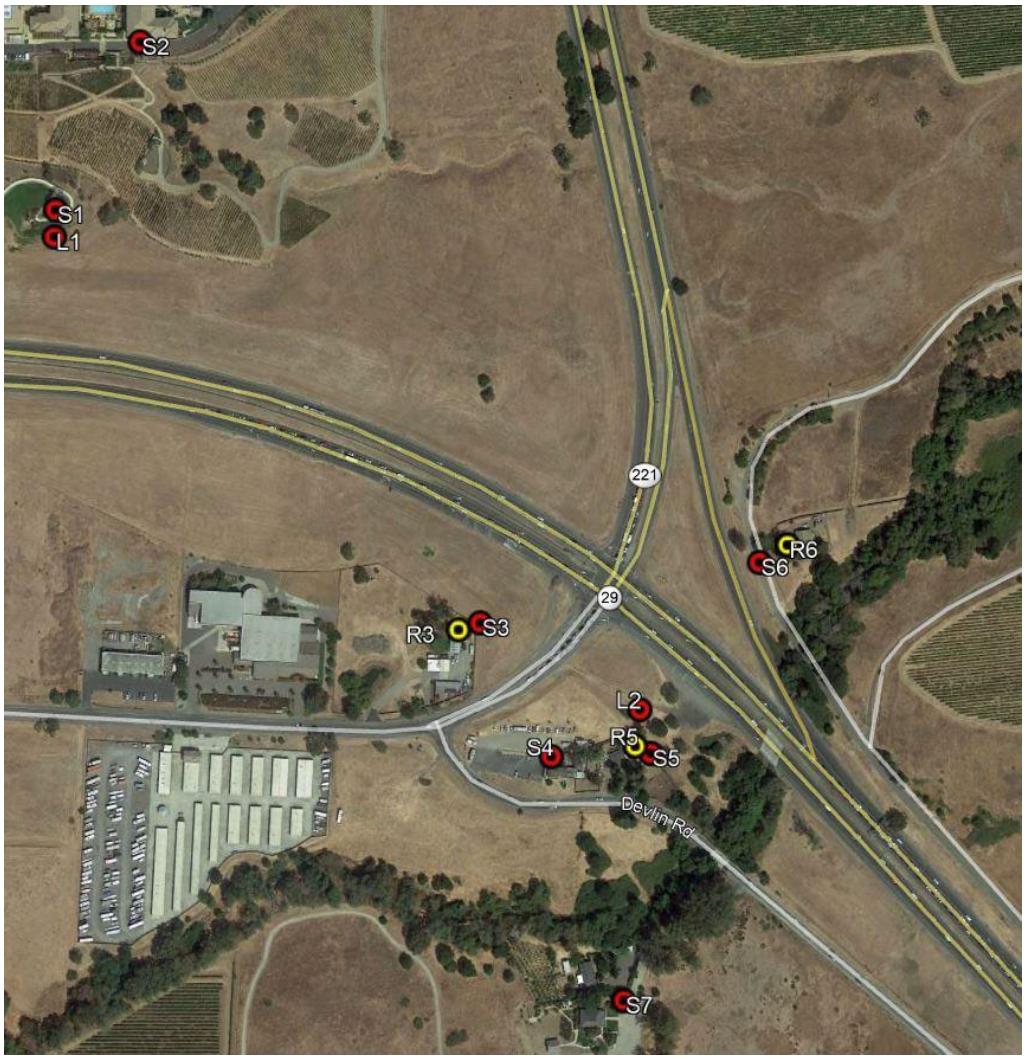


Figure 2.2.7-2 Long-term (L) and Short-term (S) Reference Noise Measurement Locations

Traffic volumes were classified into five vehicle types: (1) light-duty autos and trucks, (2) medium-duty trucks (typically trucks with two axles and more than four wheels), (3) heavy-duty trucks (typically trucks with more than two axles), (4) buses, and (5) motorcycles. TNM 2.5 calculates traffic noise levels based on the geometry of the sites, which includes the positioning of travel lanes, receptors, barriers, terrain, ground type, and buildings. The noise source in the model is the traffic flow, as defined by the noise analyst, in terms of hourly volumes of automobiles, medium-duty trucks, heavy-duty trucks, buses, and motorcycles.

Following established methods for a traffic noise study, the short-term measurements, together with the measured traffic conditions, vehicle mix, and site-specific geographical information, were then used to determine existing noise levels in the

study area. Calculated and measured noise levels were compared to assess any differences, to calibrate or validate the FHWA traffic noise model for use in determining noise levels with and without the project, and to consider any applicable noise abatement measures.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The proposed project would not operate with the No Build Alternative. Therefore, there would be no noise project-level impacts.

Build Alternative

Construction and Operation

Project Type. The project meets the definition of a Type I Project because it would involve the addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange and would receive federal funding from the FHWA administered through Caltrans. Therefore, the project requires noise abatement to be considered for impacted receptors. Compliance with 23 CFR 772 provides compliance with the noise impact assessment requirements of NEPA.

Traffic Volumes. Once the TNM 2.5 was validated, the loudest hour traffic noise levels were calculated for Existing, 2045 No Build, and 2045 Build. The loudest hour is not necessarily the hour with peak traffic volumes. Congestion results in slower speeds, which substantially reduces traffic noise levels. The loudest hour is generally characterized by free-flowing traffic at the roadway design speed (i.e., LOS C/D or better).

Traffic volume inputs for the traffic noise model were taken from the traffic projections provided by GHD (GHD, 2019). The vehicle mix was based on traffic counts made during the noise survey. Peak hour traffic volumes were calculated by dividing the provided two-hour peak traffic volumes in half. Arterial roadways were modeled at the posted speed limits for the roadway.

Noise Measurements and Calculations. The results of the long- and short-term field measurements are summarized in Tables 2.2.7-2 and 2.2.7-3. The existing loudest hour noise levels ranged from 62 to 69 dBA $L_{eq[h]}$ at long-term reference locations and at the short-term site; loudest hour noise levels ranged from 51 to 68 dBA $L_{eq[h]}$.

Table 2.2.7-2 Summary of Long-Term Noise Measurements

Receptor ID	Location	Date	Loudest Hour	Measured Loudest Hour $L_{eq[h]}$, dBA
L1	Vista Point Park	6/06/2019	6:00 a.m.	62
L2	North of Residence at 110 Devlin Road	6/06/2019	5:00 p.m.	69

Table 2.2.7-3 Summary of Short-Term Noise Measurements

Receptor ID	Location	Date	Start Time	10-minute L_{eq} or L_{50} dBA	Calculated Loudest-Hour $L_{eq[h]}$, dBA
S1	Vista Point Park	6/6/2019	10:00 a.m.	60	59
			10:10 a.m.	59	
S2	Meritage Resort and Spa	6/6/2019	10:00 a.m.	51	51
			10:10 a.m.	52	
S3	Residence at 1020 Soscol Ferry Road	6/6/2019	10:40 a.m.	54	58
			10:50 a.m.	53	
S4	Villa Romano Restaurant at 1011 Soscol Ferry Road	6/6/2019	11:20 a.m.	56	58
			11:30 a.m.	58	
S5	Residence at 110 Devlin Road	6/6/2019	10:40 a.m.	59	61
			10:50 a.m.	58	
S6	Residence at 300 Soscol Creek Road	6/6/2019	12:00 p.m.	68	68
			12:10 p.m.	68	
S7	Residence at 129 Devlin Road	6/6/2019	11:20 a.m.	53	54
			11:30 a.m.	53	

Traffic noise modeling results and predicted traffic noise impacts for existing and design year conditions are shown in Table 2.2.7-4. The modeling results are discussed in detail following Table 2.2.7-4. In this table, 2045 Build Alternative traffic noise levels are compared to existing conditions and 2045 No Build Alternative conditions.

Table 2.2.7-4 Calculated Noise Levels

Receptor ID	Loudest-Hour Noise Levels, $L_{eq[h]}$ dBA			Increase Over Existing, dBA		Increase Over No Build, dBA	Activity Category (NAC)	Impact
	Exist	2045 No Build	2045 Build	2045 No Build	2045 Build	2045 Build		2045 Build
L1	61	62	64	1	3	2	C(67)	None
L2	69	69	68	0	-1	-1	Reference	N/A
S1	60	60	63	0	3	3	C(67)	None
S2	51	52	50	1	-1	-2	E(72)	None
S3	58	59	67	1	9	8	Reference	N/A
S4	58	59	63	1	5	4	E(67)	None
S5	61	62	66	1	5	4	Reference	N/A
S6	68	69	72	1	4	3	Reference	N/A
S7	54	55	58	1	4	3	B(67)	None
R3	57	58	65	1	8	7	B(67)	None
R5	61	61	65	0	4	4	B(67)	None
R6	63	64	68	1	5	4	B(67)	A/E

As shown in Table 2.2.7-4, the loudest-hour noise levels at Category B land uses are calculated to range from 54 to 63 dBA $L_{eq[h]}$ under existing conditions, from 55 to 64 dBA $L_{eq[h]}$ under 2045 No Build Alternative conditions, and from 58 to 68 dBA $L_{eq[h]}$ under 2045 Build Alternative conditions. The loudest-hour noise levels at Category C land uses are calculated to range from 60 to 61 dBA $L_{eq[h]}$ under existing conditions, from 60 to 62 dBA $L_{eq[h]}$ under 2045 No Build Alternative conditions, and from 63 to 64 dBA $L_{eq[h]}$ under 2045 Build Alternative conditions. The loudest-hour noise levels at Category E land uses are calculated to range from 51 to 58 dBA $L_{eq[h]}$ under existing conditions, from 52 to 59 dBA $L_{eq[h]}$ under 2045 No Build Alternative conditions, and from 50 to 63 dBA $L_{eq[h]}$ under 2045 Build Alternative conditions. The 2045 Build Alternative traffic noise levels are predicted to approach or exceed the NAC at one Category B receptor located at 300 Soscol Creek Road.

Short-Term ("Construction") Noise

Table 2.2.7-5 presents construction noise levels calculated for each major phase of the project at a distance of 50 and 100 feet, based on calculations conducted in FHWA's Roadway Construction Noise Model (RCNM) using project specific construction

information. Table 2.2.7-6 presents construction noise levels calculated for each major phase of the project at the distance of each receptor.

Table 2.2.7-5 Noise Levels by Construction Phase

Phase	Maximum Noise Level (50 ft) (L_{max}, dBA)	Hourly Average Noise Level (50 ft) ($L_{eq[h]}$, dBA)	Maximum Noise Level (100 ft) (L_{max}, dBA)	Hourly Average Noise Level (100 ft) ($L_{eq[h]}$, dBA)
Grubbing/Land Clearing	90	90	84	84
Grading/Excavation	85	88	79	82
Grading/Excavation (with Pile Driving)	101	95	95	89
Drainage/Utilities/Subgrading	83	82	77	76
Paving	85	88	79	82

Table 2.2.7-6 Noise Levels by Construction Phase at Receptors

Phase	Hourly Average Noise Level ($L_{eq[h]}$, dBA) at receptors S1 to S7						
	S1	S2	S3	S4	S5	S6	S7
Grubbing/Land Clearing	59	58	72	70	71	69	63
Grading/Excavation	57	56	70	67	69	67	61
Grading/Excavation (with Pile Driving)	64	63	77	74	75	74	68
Drainage/Utilities/Subgrading	51	50	64	62	63	61	55
Paving	57	56	70	68	69	67	61
Existing Worst Hour Noise Level at Receptor	59	51	58	58	61	68	54
Construction Noise Level Increase Above Existing Worst Hour Noise Level	**5**	**5-12**	**6-19**	**4-16**	**2-14**	**1-6**	**1-14**

Construction is anticipated to occur over 2 years; roadway construction activities typically occur for relatively short periods of time in any specific location as construction proceeds along the project's alignment. Most construction phases would generate average noise levels that would exceed existing worst-hour noise levels at adjacent land uses by 5 to 19 dBA $L_{eq[h]}$. Typical construction noise levels would not be expected to exceed the quantitative noise limits established by Caltrans or to

exceed the Napa County's daytime noise criteria for residential land uses. Construction activities occurring more than 230 feet from residences would produce noise levels less than the 75-dBA daytime residential noise limit established by Napa County. However, during the installation of foundation piles, when using an impact hammer, hourly average noise levels would exceed the 75-dBA daytime residential noise limit established by Napa County at receptor S3.

Detour traffic during Construction Stages 2B, 3, and 4 will temporarily increase traffic noise levels along Napa Valley Corporate Drive, Soscol Ferry Road, and Devlin Road. These three roadways primarily serve commercial and industrial land uses. The only noise-sensitive receptor along Napa Valley Corporate Drive is the Meritage Resort and Spa, which is located over 200 feet from the centerline of Napa Valley Corporate Drive and requires access from the roadway. The primary noise-sensitive exterior use areas at the hotel are shielded from local traffic noise by the hotel building itself.

A single residence is located north of Soscol Ferry Road, just west of the Soscol Junction. This residence also requires access from Soscol Ferry Road. Similarly, a single residence is located north of Devlin Road, just south of the Soscol Junction. This residence also requires access from Devlin Road. The only other noise-sensitive residential land use in the area is located approximately 350 feet southwest from the center of Devlin Road. This residence also requires access from Devlin Road. There are no criteria or thresholds in TeNS or the TNAP that address temporary traffic noise levels resulting from detour traffic. Given the need to maintain access to these properties (that is, breaks in noise barriers for access would render the barriers ineffective), the presence of existing wood fences, and the distances separating some of the noise-sensitive outdoor areas from the roadways, temporary noise barriers would not be considered feasible or reasonable.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Traffic Noise Abatement Evaluation

Twelve locations near the project were evaluated to determine whether traffic noise impacts will occur, as depicted above in Figure 2.2.7-3. Table 2.2.7-3 above shows the locations evaluated for noise impact, and in Table 2.2.7-4, noise levels (Leq(h)) of 2045 No Build conditions were observed to increase by up to 1 dBA over Existing conditions. Under 2045 Build conditions, noise levels were observed to increase by up to 9 dBA over Existing and 8 dBA over No Build conditions. The predicted noise level increases did not exceed the existing noise levels by 12 dBA Leq(h) and

therefore are not a substantial increase. Only one receptor represented by R6 was predicted to be impacted by the project.

Noise Barrier

Permanent noise abatement must be predicted to provide at least a 5-dB minimum reduction at an impacted receptor to be considered feasible by Caltrans. A masonry noise barrier was the noise abatement considered for this project. This noise barrier was evaluated for acoustical feasibility (predicted to reduce noise at least 5 dBA at an impacted receptor) and noise reduction design goal of 7 dBA at a benefited receptor. The location of Barrier 1 is shown in Figure 2.2.7-3. Table 2.2.7-7 shows the predicted 2045 loudest-hour noise levels and insertion loss for Barrier 1 at various design heights.

Figure 2.2.7-3 Receptor Locations and Noise Barriers

Table 2.2.7-7 Noise Barrier 1 Insertion Loss

Receptor ID	Units Represented	With Wall H=6 feet		With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
R6	1	67	1	66	2	65	3	63	5	62	6	61	7

A proposed 16-foot sound wall could feasibly abate traffic noise and meet the 7-dB acoustical design goal as shown in Table 2.2.7-7.

Table 2.2.7-8 lists the reasonableness allowance calculated for the noise barrier that was determined to be acoustically feasible and to meet the Caltrans acoustical design goal. For each noise barrier found to be acoustically feasible, reasonable cost allowances were calculated by multiplying the number of benefited receptors by $107,000. As defined in Section 772.5 of the regulation, reasonableness is the combination of social, economic, and environmental factors considered in the evaluation of a noise abatement measure.

Table 2.2.7-8 Acoustically Feasible and Reasonable Noise Barrier

Barrier ID	Length and Location[a]	Noise Level w/o Barrier at Benefited Receptors ($L_{eq[h]}$)	Barrier Height (feet)	Insertion Loss (dBA)	Number of Benefited Receptors	Total Reasonable Monetary Allowance
1	~ 775 feet along NB SR 29 Ramp to NB SR 221	68	6	1	0	0
			8	2	0	0
			10	3	0	0
			12	5	1	0
			14	6	1	0
			16	7[b]	1	$107,000[c]

[a] Barrier lengths are based on linear approximations used for purposes of noise modeling in TNM 2.5 lengths may differ slightly due to barrier curvature, etc.

[b] Barrier breaks line of sight between 11.5-foot high truck stack and 5-foot high receptor and meets the Caltrans acoustical design goal for noise reduction.

[c] A NADR was prepared that identifies noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

Table 2.2.7-9 shows the summary of the noise barrier evaluation. Table 2.2.7-9 shows that at one impacted receptor (R6), the noise barrier (at a height of 12 feet) was predicted to reduce noise by at least 5 dBA, and therefore the noise barrier is

considered feasible from an acoustical perspective. At the same receptor (R6) the noise barrier (at a height of 16 feet) was predicted to reduce noise by 7 dBA, achieving the design goal.

Table 2.2.7-9 Summary of Noise Barrier Evaluation

Barrier	Location	Barrier Height (feet)	Insertion Loss (dBA)	Acoustically Feasible?	Number of Benefited Residences[b]	Design Goal Achieved?	Reasonable Allowance per Residence	Total Reasonable Allowance
1	Approximately 775 along NB SR 29 Ramp to NB SR 221	6	1	No	0	No	$0	$0
		8	2	No	0	No	$0	$0
		10	3	No	0	No	$0	$0
		12	5	Yes	1	No	$0	$0
		14	6	Yes	1	No	$0	$0
		16	7[a]	Yes	1	Yes	$107,000	$107,000

Notes

[a] Barrier breaks line of sight between 11.5-foot high truck stack and 5-foot high receptor and meets the Caltrans acoustical design goal of 7 dBA Leq.

[b] There is only one impacted receptor (residence) benefited by the noise barrier. This residence is located at 300 Soscol Creek Road.

Cost Considerations and Reasonableness

Cost considerations for determining noise abatement reasonableness are evaluated by comparing reasonableness allowances and projected abatement costs. If the engineer's cost estimate for a given proposed noise abatement measure is less than the total reasonableness allowance for all benefited receptors, the noise abatement measure is considered reasonable from a cost perspective. The total reasonableness allowance for a given barrier is the reasonableness allowance per receptor multiplied by the number of benefited receptors for that barrier.

The base cost (reasonable) allowance for 2019 traffic noise analysis per benefited receptor is $107,000. Table 2.2.7-10 shows the Caltrans estimate of construction cost of the masonry noise barrier considered to be $40 per square-foot of barrier area, or a total estimated cost of $496,000 for a 16-foot wall that is 775 feet in length with one receptor (R6). The comparison shows that the estimated construction cost is higher than the reasonable allowance.

Table 2.2.7-10 Summary of Abatement

Barrier*	Height (feet)	Acoustically Feasible?	Number of Residences Benefited	Design Goal Achieved?	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?
1	6	No	0	No	$0	N/A	No
	8	No	0	No	$0	N/A	No
	10	No	0	No	$0	N/A	No
	12	Yes	1	No	$0	N/A	No
	14	Yes	1	No	$0	N/A	No
	16	Yes	1	Yes	$107,000	$496,000	No

* R6 at 300 Soscol Creek Road, Napa, CA

There is only one impacted receptor (R6) that will benefit from the construction of a noise barrier along NB SR29 Ramp to NB SR221. Though the evaluation showed that the noise barrier was both acoustically feasible (meets the reduction of 5 dBA at the impacted receptor) and meets the design goal (7 dBA), the cost consideration for determining noise abatement reasonableness was not met. Therefore, a noise barrier (Barrier 1) is not recommended.

If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed during the final project design. A final decision to construct noise abatement will be made upon completion of the project design.

Short-Term (Construction) Noise

Several Project Features in Subsection 1.3.2 address best available construction practices and will reduce noise impacts. These include Project Features Construction Traffic, Idling and Access Points, Best Management Practices to Reduce Noise and Vibration, and Delivery and Disposal Schedules. AMM TRANSPORTATION-1 TMP also reduces noise through traffic control along detours and reducing detour traffic near residences.

AMM NOISE-1 Sensitive Receptors: Stationary noise-generating equipment, staging areas, and storage areas will be located as far as possible from sensitive receptors when sensitive receptors adjoin or are near the construction project area.

AMM NOISE-2 Public Involvement and Project Coordination: Accurate and timely information regarding temporary construction impacts will be disseminated to the public.

AMM NOISE-3 Best Available Construction Noise Practices: Best available construction noise practices shall include, but not be limited to, the following practices:

- All construction equipment should conform to Section 14-8.02, Noise Control, of the latest Standard Specifications.
- Pile driving activities should be limited to daytime hours only.
- Multiple-pile drivers should be considered to expedite construction. Although noise levels generated by multiple pile drivers would be higher than the noise generated by a single pile driver, the total duration of pile driving activities would be reduced.
- Temporary noise control blanket barriers should be erected in a manner to shield the affected land use. Such noise control blanket barriers can be rented and quickly erected.
- Foundation pile holes should be pre-drilled to minimize the number of blows required to seat the pile.
- Equip all internal combustion engine driven equipment with manufacturer recommended intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Unnecessary idling of internal combustion engines within 100 feet of residences should be strictly prohibited.
- Haul routes shall avoid residential areas as feasible.
- Provide traffic control at detours to minimize speeds and congestion.

2.3 Biological Environment

Caltrans prepared a Natural Environment Study (NES) to provide technical information to determine the extent to which the Soscol Junction Improvement Project will affect plants, wildlife, and natural communities occurring in the BSA, including special-status species, jurisdictional wetlands and waters, and protected natural plant communities (Caltrans 2019). These biological resources are further detailed in the following sections.

2.3.1 Natural Communities

This section of the document discusses natural communities of concern, focusing on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors 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.

Project implementation would affect natural resources within the jurisdiction of the CDFW (Bay-Delta Region Office). Regulatory requirements and laws that apply to the proposed project include FGC Section 1600 through 1616, specifically regarding the preservation of riparian ecosystems.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act (FESA) are discussed in subsection 2.3.5, Threatened and Endangered Species. Wetlands and other waters are discussed in subsection 2.3.2. Fish passage also is discussed in subsection 2.3.5, Threatened and Endangered Species.

AFFECTED ENVIRONMENT

The following terms are used in this section:

- Biological Study Area: The BSA established for the project encompasses the entire extent of the project footprint and immediately adjacent areas. The BSA is defined as the area (aquatic and terrestrial) that may be directly, indirectly, temporarily, or permanently impacted by construction. The established BSA for the project is 84.29 acres.

- Project Footprint: The project footprint or action area is defined as the entire area of potential direct impacts from the project. Indirect effects outside of the project footprint, such as siltation downstream from construction disturbance, can sometimes occur, but potential indirect impacts would be avoided through the use of BMPs. The project footprint is expected to be updated during the PS&E phase of the project, with the integration of elements, such as bioretention swale features and fish passage improvements. The final project footprint is expected to be smaller than the current project footprint.

On June 12, 2019, biologists conducted a vegetation characterization survey within the BSA. Undeveloped portions of the BSA are primarily annual grassland with

scattered trees, including oak (*Quercus* ssp.) and eucalyptus (*Eucalyptus* ssp.) occurring as localized patches of woodland. A riparian corridor dominated by California bay (*Umbellularia californica*) and white alder (*Alnus rhombifolia*) is also present where Suscol Creek crosses the BSA near the intersection of SR 221 and SR 29. A few seasonal wetland and ephemeral drainages and swales are also in the BSA, as shown in Figures 2.3.1-1 and 2.3.1-2.

Five distinct vegetation communities were identified within the BSA. These are detailed in the following subsections. The vegetation classification follows *A Manual of California Vegetation* (Sawyer et al. 2009). Figure 2.3.1-1 shows the habitat characterization within the BSA.

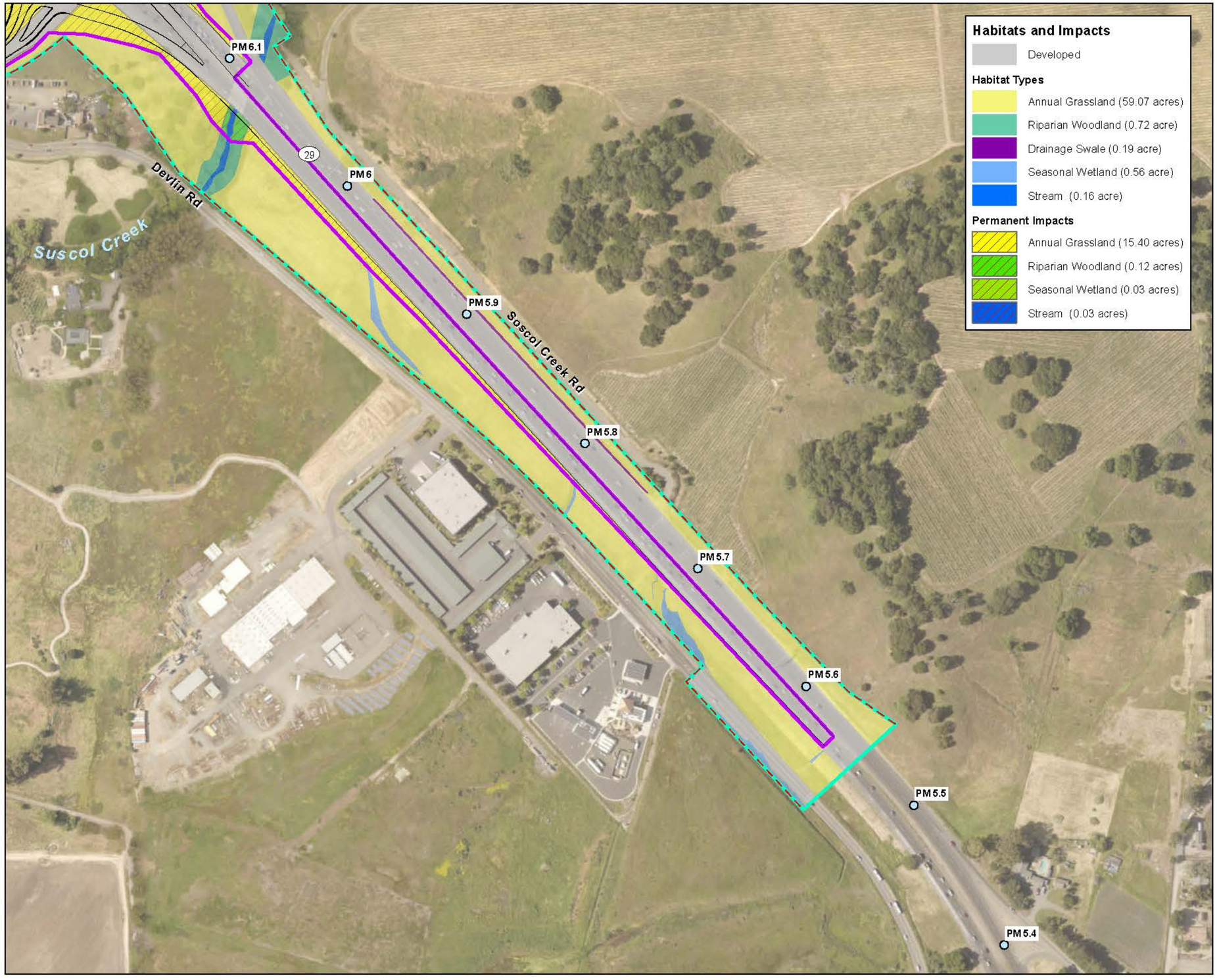
California Annual Grassland

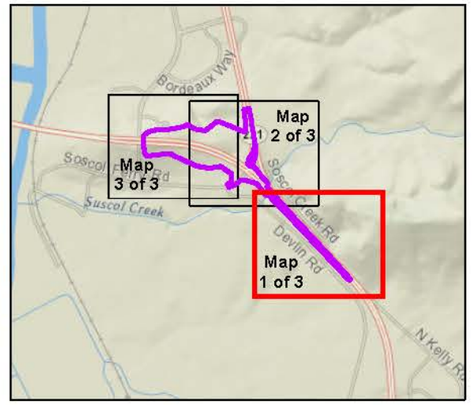
Much of the vegetation within the BSA is composed of California annual grassland. Dominant species include slender wild oats (*Avena barbata*), soft chess (*Bromus hordeaceus*), and Harding grass (*Phalaris aquatica*). Common associated plants include purple vetch (*Vicia benghalensis*), wild radish (*Raphanus sativus*), prickly lettuce (*Lactuca serriola*), broad-leaf filaree (*Erodium botrys*), Italian rye grass (*Festuca perennis*), rose clover (*Trifolium hirtum*), and bristly ox-tongue (*Helminthotheca echioides*). Native species are sparsely distributed and include purple needlegrass (*Stipa pulchra*), blue-eyed grass (*Sisyrinchium bellum*), and California poppy (*Eschscholzia californica*). Valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia* ssp. *agrifolia*) trees are present within the annual grassland habitat. Localized disturbed areas, characterized by ruderal vegetation, are also included within this vegetation community.

The grassland community within the BSA includes *Avena* (*barbata*, *fatua*) seminatural herbaceous stands, *Bromus* (*diandrus, hordeaceus*) – *Brachypodium distachyon* seminatural herbaceous stands, and *Phalaris aquatica* seminatural herbaceous stands. None of these vegetation types are considered sensitive natural communities.

Mixed Oak Woodland

Mixed oak woodland is characterized by a combination of co-dominant oak species. Within the BSA, this vegetation type occurs mostly around the western area of SR 29, along both sides of the highway, with smaller pockets along SR 221 and Devlin Road. This community is characterized by relatively large mature coast live oak, valley oak, and blue oak (*Quercus douglasii*), with occasional blue gum (*Eucalyptus globulus*).





LEGEND

- Biological Study Area / Project Footprint (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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Feet

FIGURE 2.3.1-1
MAP 1 OF 3
HABITAT CHARACTERIZATION AND IMPACTS
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

Caltrans

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\C\CALTRANS\28120_SOSCOL_INTERCHANGE\GIS\MAPS\REPORT\2019\SMNDEA\AUG\28120_FIGURE_2.3.1-1_HABITAT_CHARACTERIZATION_AND_IMPACTS_11X17.MXD GMOON 9/10/2019 10:38:07 AM

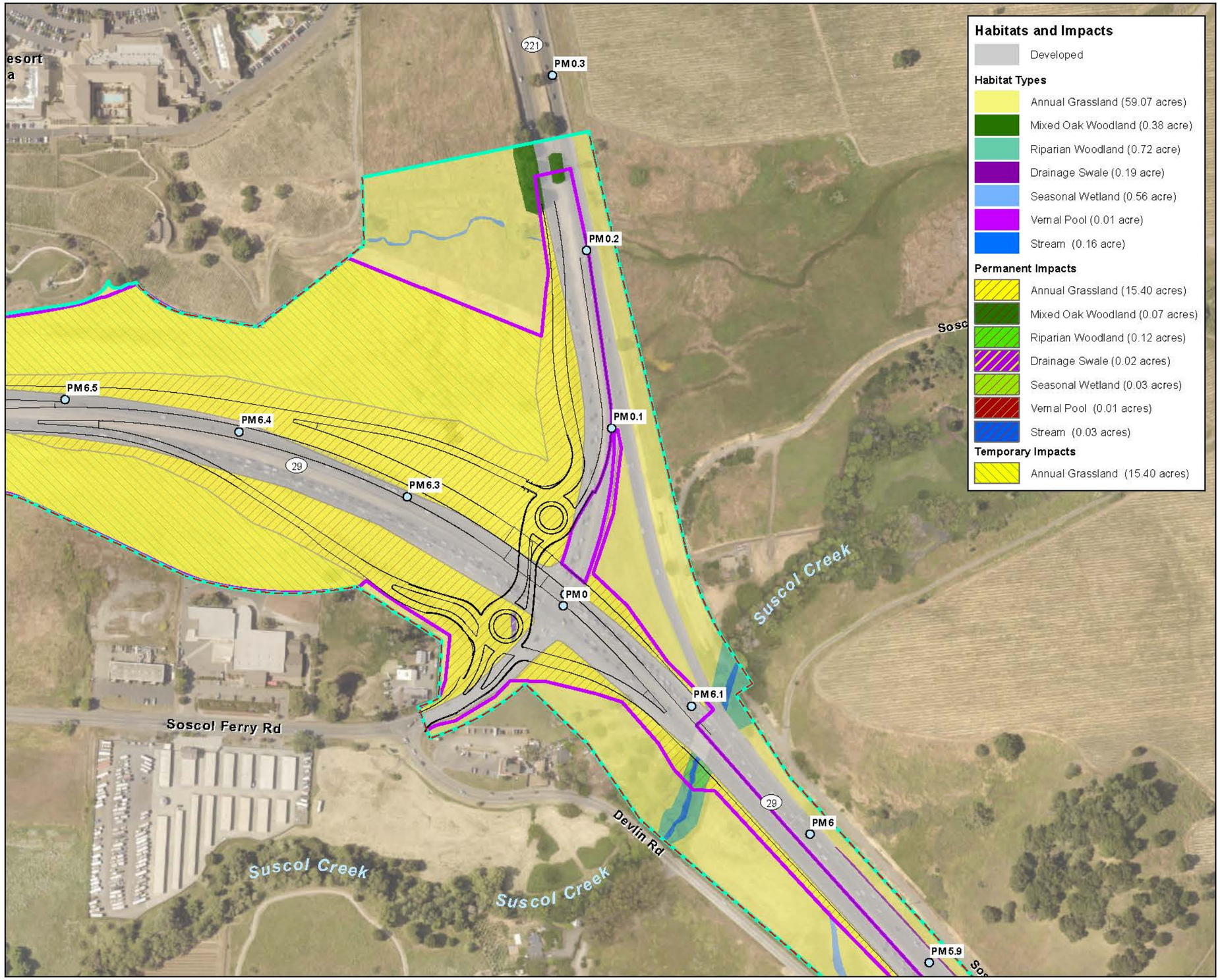

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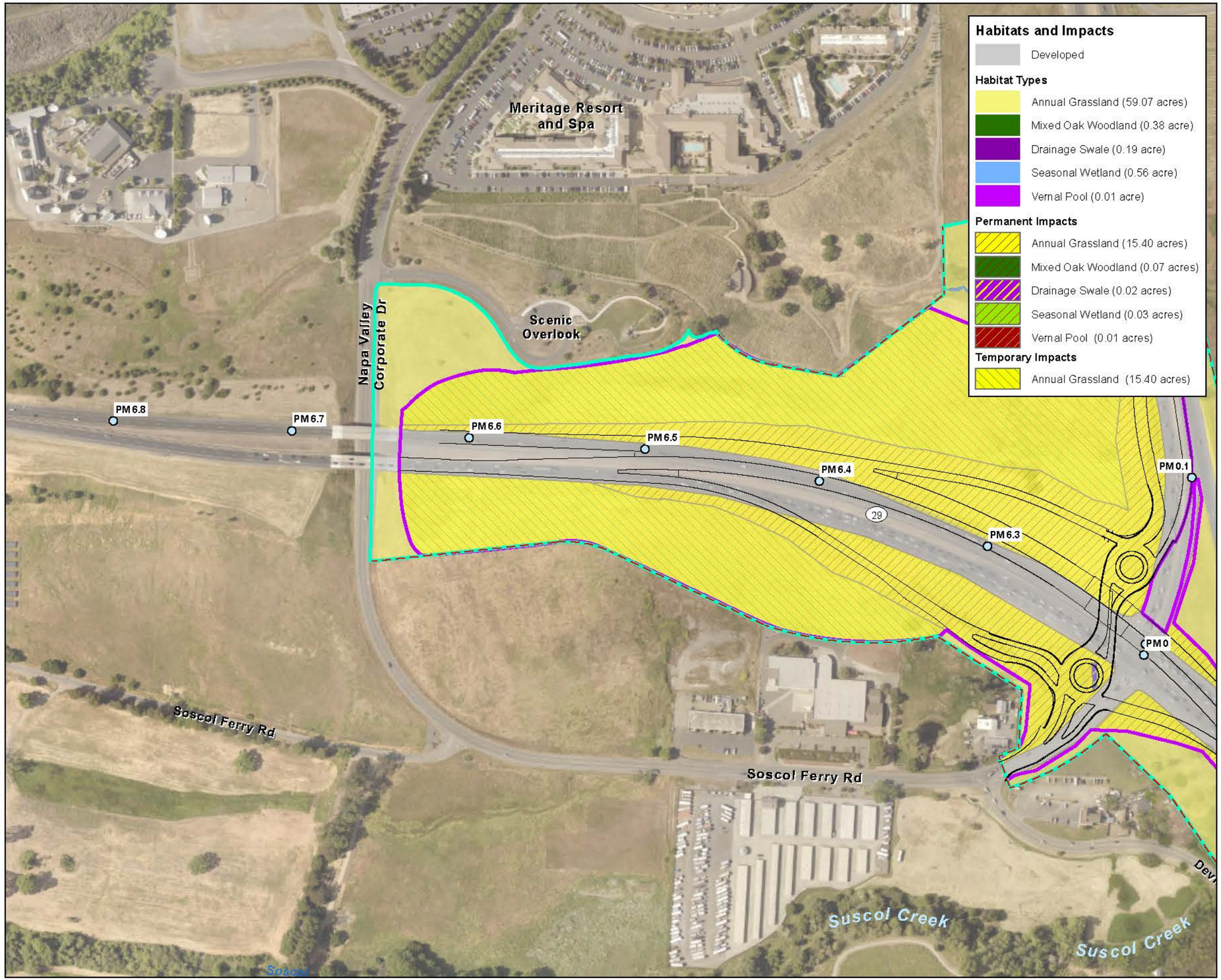
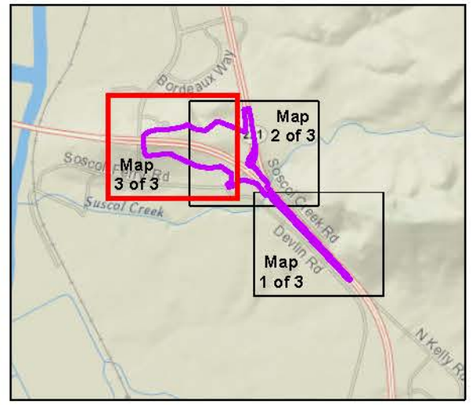
FIGURE 2.3.1-1
MAP 2 OF 3
HABITAT CHARACTERIZATION AND IMPACTS
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California





LEGEND

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- Project Footprint (50.76 acres)
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- Right of Way
- Post Mile

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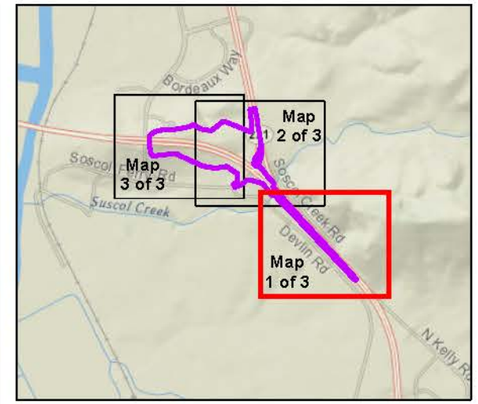
FIGURE 2.3.1-1
MAP 3 OF 3
HABITAT CHARACTERIZATION AND IMPACTS
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California



LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile

Tree Survey - Within BSA

- Outside Cut and Fill, Non-Riparian (95 Trees)
- Outside Cut and Fill, Riparian (24 Trees)
- Permanent Impact, Non-Riparian (11 Trees)
- Permanent Impact, Riparian (7 Trees)

Non-wetland Waters

- Temporary Impact (0.22 acre)
- No Impact (0.58 acre)

Wetlands

- No Impact (0.36 acres)

Service Layer Credits:
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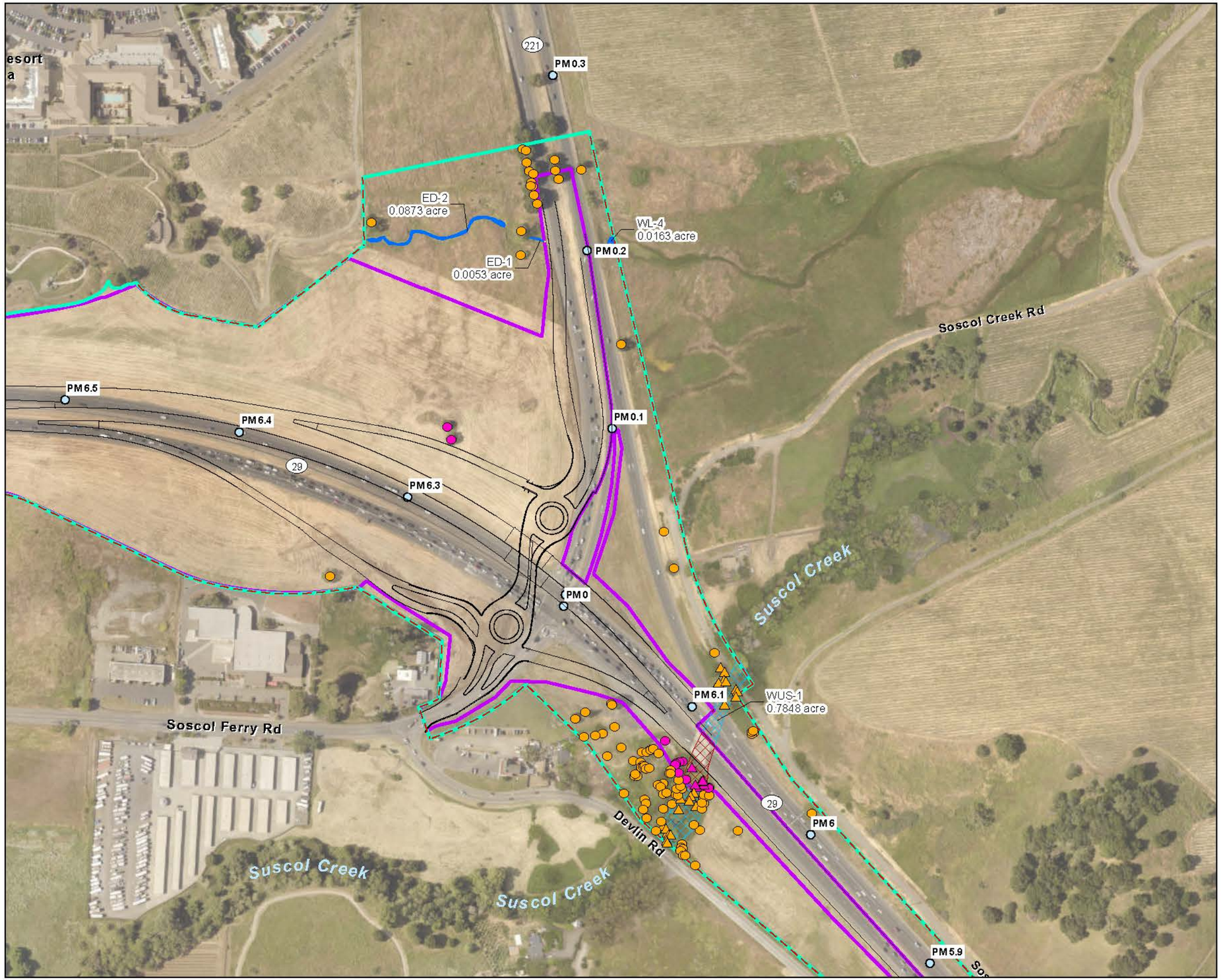
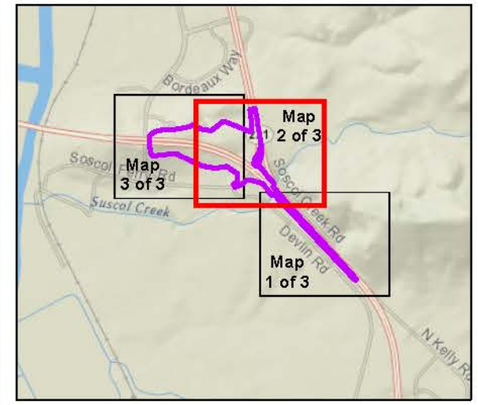
FIGURE 2.3.1-2
MAP 1 OF 3
IMPACTS TO TREES AND JURISDICTIONAL AQUATIC RESOURCES

State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California





LEGEND

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- Right of Way
- Post Mile

Tree Survey - Within BSA

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- Outside Cut and Fill, Riparian (24 Trees)
- Permanent Impact, Non-Riparian (11 Trees)
- Permanent Impact, Riparian (7 Trees)

Non-wetland Waters

- Temporary Impact (0.22 acre)
- No Impact (0.58 acre)

Wetlands

- No Impact (0.36 acres)
- Temporary Impact (0.00 acre)

Service Layer Credits:
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National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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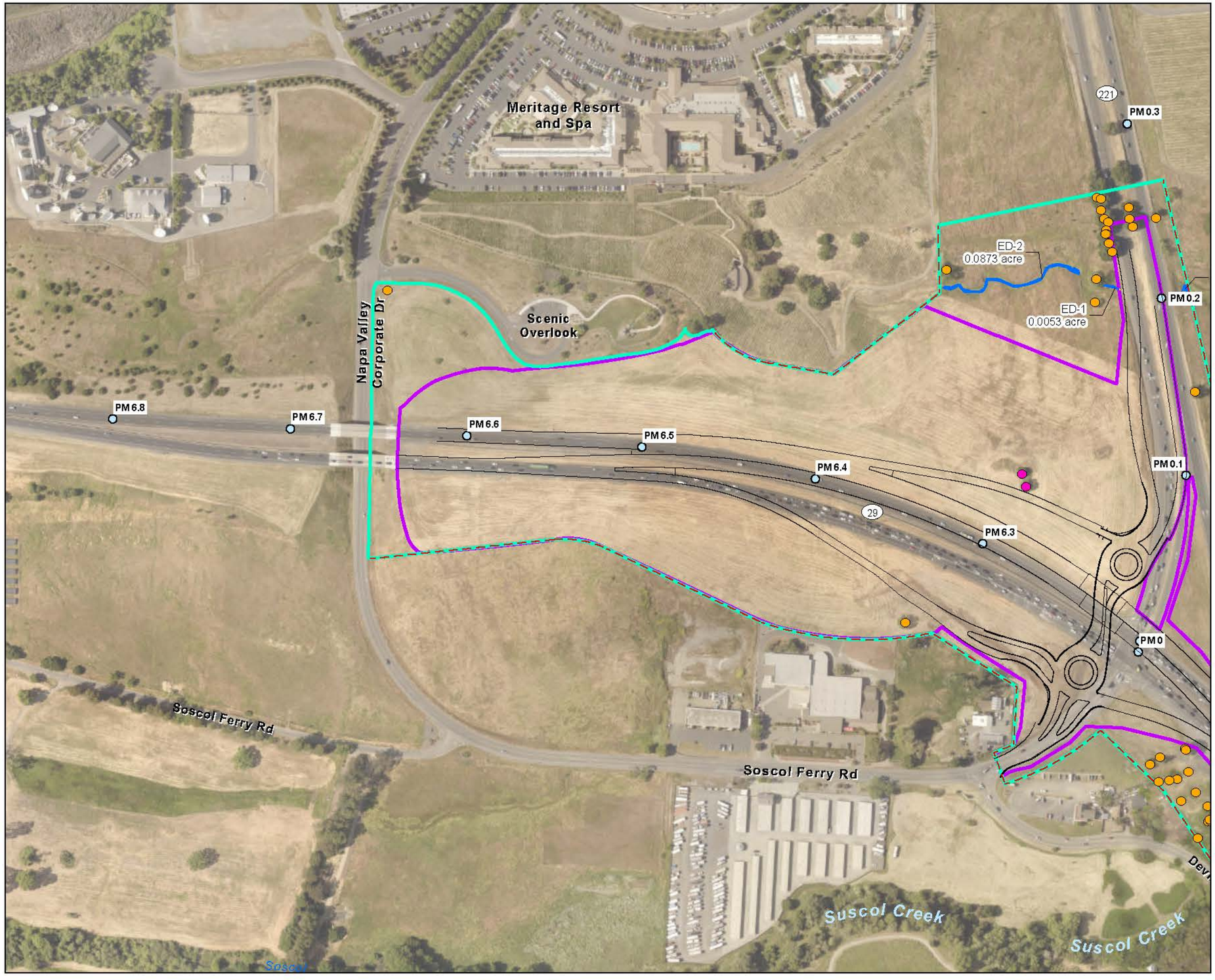
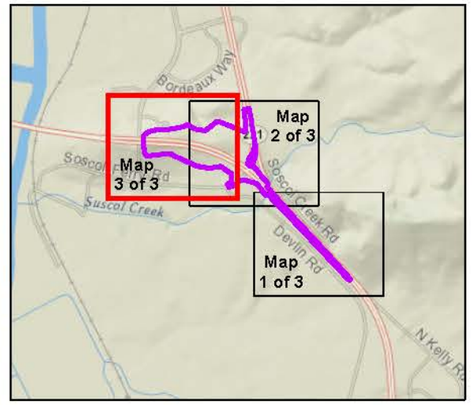
FIGURE 2.3.1-2
MAP 2 OF 3
IMPACTS TO TREES AND JURISDICTIONAL AQUATIC RESOURCES
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

Caltrans





LEGEND

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FIGURE 2.3.1-2
MAP 3 OF 3
IMPACTS TO TREES AND JURISDICTIONAL AQUATIC RESOURCES

State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

Caltrans

The understory is mostly annual grasses and weedy forbs. Many of the trees within the BSA associated with this habitat type appear to have been planted.

This vegetation type is classified as part of the *Quercus* (*agrifolia*, *douglasii*, *garryana*, *kelloggii*, *lobata*, *wislizeni*) Forest Alliance; it is not considered a sensitive natural community.

Riparian Woodland

Riparian vegetation is present along the edges of Suscol Creek in the southern part of the BSA, where the creek passes under SR 29, Devlin Road, and Soscol Creek Road. The tree canopy along the creek is dense; it completely shades the streambed in places and is open and discontinuous in other places. Dominant species include California bay and white alder. This community has been severely invaded by Himalayan blackberry (*Rubus armeniacus)*.

The riparian community along Suscol Creek is classified as an *Umbellularia californica – Alnus rhombifolia* Association within the *Umbellularia californica* Forest Alliance. This vegetation type is listed as a sensitive natural community.

Drainage Swale

A small drainage swale feature is found west of the intersection of SR 29 and SR 221. Vegetation types associated with the drainage swale and mesic meadows include *Rubus armeniacus* semi-natural shrubland stands and Typha (*angustifolia*, *domingensis*, *latifolia*) Herbaceous Alliance. None of these vegetation types are listed as sensitive natural communities.

Seasonal Wetlands

Seasonal wetlands within the BSA appear disturbed and consist of very low cover of native species with high densities of non-native hydrophytes. Dominant species in these areas include curly dock (*Rumex crispus*), pennyroyal (*Mentha pulegium*), and rabbits-foot grass (*Polypogon monspeliensis*). Native species observed include creeping wild rye (*Elymus triticoides*), fringed willowherb, and common rush (*Juncus patens*). Common associated species include Italian rye grass, prickly lettuce, wild radish, and velvet grass (*Holcus lanatus*).

Seasonal wetlands that are dominated by curly dock, pennyroyal, and rabbits-foot grass have not been classified. Based on other vegetation observed, this area may be part of a degraded *Leymus cinereus – Leymus triticoides* Herbaceous Alliance. This

alliance is a sensitive natural community, but conditions on site appear to be disturbed such that vegetation does not meet the criteria for this classification.

Northern Claypan Vernal Pool

Northern claypan vernal pools are seasonal wetlands that occupy shallow basins or channels in clay soils. These depressions hold water during the rainy season because of the dense clay substrate that impedes water percolation. A vernal pool complex is present near the eastern boundary of the BSA, along the eastern side of SR 221 north of Suscol Creek. Depending on annual rainfall, a small portion of these vernal pools may extend into the ROW and fall within the BSA. These pools do not currently extend into the project footprint. These pools are largely dominated by non-native Italian rye grass. Native species, including smooth goldfields (*Lasthenia glaberrima*), coyote thistle (*Eryngium* sp.), common spikerush (*Eleocharis macrostachya*), and curvepod yellow cress (*Rorippa curvisiliqua*), were largely restricted to the wetter parts of the pool basins. Associated vegetation in the drier areas included curly dock, Medusahead (*Elymus caput-medusae*), and lamb's quarters (*Chenopodium album*). These two vernal pools are within designated Contra Costa goldfields (CCGF) (*Lasthenia conjugens*) critical habitat and are part of the CNDDB occurrence #1. Northern claypan vernal pools are also a CDFW sensitive natural community type (CDFW 2019).

Most of the vegetation associated with the vernal pools is part of the *Lolium perenne* Herbaceous Semi-Natural Alliance, with minor components of the *Lasthenia glaberrima* Herbaceous Alliance, which is a sensitive natural community.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction and Operation

As a result of Caltrans literature review and field evaluations, several habitat types were determined to have the potential to be impacted by project activities. This section identifies direct and indirect impacts to natural communities of special concern that could be impacted by the project.

Project impacts are addressed in this chapter as either direct or indirect. Direct impacts are caused by and immediately related to the project. Indirect impacts are also caused by and related to the project but are separated from direct impacts by time and/or distance. Direct and indirect impacts may be permanent or temporary.

Direct permanent impacts are the result of the installation of permanent structures, such as culverts, pavement, or column foundations. Direct temporary impacts occur in areas that can be returned to pre-project conditions after construction (such as areas subjected to grading, installation of temporary access roads, work vehicle disturbance, etc.).

Direct impacts to vegetation types are presented in Table 2.3.1-1 and Figure 2.3.1-1.

Table 2.3.1-1 Impacts to Vegetation Types

Vegetation Type	Temporary Impacts (acres)	Permanent Impacts (acres)
California Annual Grassland	20.01	15.40
Mixed Oak Woodland	-	0.07
(Potentially CDFW-Jurisdictional) Riparian Woodland	-	0.11
Drainage Swale	-	0.02
Seasonal Wetlands	-	0.03
Northern Claypan Vernal Pools	-	0.01

Approximately 0.72 acre of potentially CDFW jurisdictional riparian habitat occurs within the project footprint. Trees directly impacted by the proposed project would either be removed or trimmed. Approximately 18 trees within the project footprint would need to be removed, of which 7 are considered riparian (Figure 2.3.1-2). In addition to tree removal, equipment may be driven within the drip lines of some of the trees within the project footprint during the process of paving or placement of shoulder backing. The repetitive load of heavy equipment could potentially damage and suffocate the root systems of trees by compacting the soil even if the trees are not removed.

The impacted riparian areas would be recontoured to match the re-established riparian corridor and affected areas would be revegetated following project completion as described In Section 1.3.2, Project Features and summarized at the end of this subsection. Riparian trees that are removed as a result of the project would be replaced in accordance with relevant permits.

The project is exempted from Napa County Water Quality and Tree Ordinance No. 1438 Section 18.108.050, Subsection D, which covers “construction and maintenance

of all public roads and any other public facilities, including flood control facilities, required by and completed under the direction of any public agency."

The project BSA includes one natural community of special concern, Northern Vernal Pool natural community (CDFW 2019). This community is east of SR 221 within the BSA, but not within the project footprint. Measures will be taken to avoid direct impacts to this natural community and known associated CCGF. No construction work is proposed on the eastern side of SR 221 in areas where CCGF could occur. Caltrans would install ESA fencing to protect known CCGF habitat. ESA fencing will remain through the duration of construction and be removed and appropriately disposed of following project completion.

Improving the Soscol Interchange will reduce some overall wildlife habitat area but would not significantly increase fragmentation or permanently impact wildlife movement corridors because it will not substantially change the existing location or nature of the roadways.

Essential Fish Habitat

The proposed project occurs within essential fish habitat (EFH) for Chinook and Coho salmon (*Oncorhynchus tshawytscha* and *O. kisutch*). This EFH unit covers parts of Alameda, Contra Costa, Marin, Napa, San Francisco, Solano, and Sonoma counties. National Oceanic and Atmospheric Association (NOAA) Fisheries has provided technical assistance to Caltrans for the project and its potential impacts to federally protected fisheries. If construction within the ordinary high water mark (OHWM) of Suscol Creek is added to the scope of the project, as may occur to improve current fish barrier conditions (see Section 2.3.5, Central California Coastal Steelhead) Caltrans will consult with NOAA Fisheries regarding potential impacts to this EFH.

Potential impacts to natural communities will be minimized with the implementation of Project Features Vegetation Control and Protection, Revegetation, Creek and Riparian Revegetation, Dust Control, Vegetation and Tree Removal, Vegetation Removal, Work Window for Creeks, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage, Maintenance, Worker Environmental Awareness Training, Construction Site Management Practices, Landscaping and Erosion Control Plan, Cleaning of Equipment, Reduce Spread of Invasive Species, Stormwater Pollution Prevention Plan (SWPPP), Erosion Control and Water Quality Protection Measures, and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features.

No Build Alternative

There are no anticipated impacts to natural communities under the No Build Alternative.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

Construction and Operation

Minimization of tree removal, both upland and riparian, will include trimming rather than removing trees wherever possible. Caltrans has designed the proposed project, including incorporated project features, to minimize riparian impacts.

Caltrans will obtain a Section 1602 Lake and Streambed Alteration Agreement from CDFW (FGC Sections 1600 through 1616) to complete construction of the proposed project. Trees, including riparian trees, would be replanted onsite throughout the project area as part of the revegetation plan that would be developed during the CDFW Section 1602 Lake and Streambed Alteration Agreement permitting process. Trees would be replanted where they fit onsite after clear recovery zones, site distances, available plantable areas, slopes, and other Caltrans Planting Policies are accounted for. Caltrans will plant trees offsite as compensatory mitigation for tree impacts as needed. No onsite compensatory mitigation for riparian tree removal is currently proposed.

No Build Alternative

Construction and Operation

There are no proposed AMMs under the No Build Alternative.

2.3.2 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 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 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 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 Caltrans, 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 through 1607 of the California FGC 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 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 that 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 Subsection 2.2.2, Water Quality and Stormwater Runoff for more details.

AFFECTED ENVIRONMENT

A wetland delineation was conducted for the formerly proposed Soscol Flyover Project in March 2008. An additional delineation was conducted in June 2013, to reassess potentially jurisdictional features. The wetland delineations were conducted according to the methods outlined in the USACE's 1987 *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Arid West Regional Supplement to the 1987 Manual* (USACE 2006) for all waters of the U.S., including wetlands.

A site visit with USACE was conducted on April 14, 2015, to verify the delineation. An approved jurisdictional determination (AJD) was issued October 05, 2016 (JD #2014-00168N) and expires October 15, 2021.

The results of the wetland delineation and the associated AJD remain valid for the currently proposed project, which is entirely within the surveyed BSA. To remain

valid through the duration of the project, the AJD will need to be recertified before it expires.

Based on the results of the wetland delineation, the current project BSA contains 0.27 acre of jurisdictional wetlands associated with depressional areas and roadside drainage features, and 0.89 acre of non-wetland waters of the U.S., including Suscol Creek as well as several ephemeral stormwater drainages and swales (Tables 2.3.2-1 and 2.3.2-2, and Figure 2.3.1-2). The wetland delineations and description of the mapped aquatic features are provided in Appendix D of the NES (Caltrans 2019). There are no anticipated impacts to wetlands that can be characterized as vernal pools because these features would be avoided during construction.

Table 2.3.2-1 Summary of Waters of the U.S. in the BSA

Aquatic Resource Type	Area (acres)
USACE Wetlands	0.27
Other Waters	0.89
Total Waters of the U.S.	1.16

Table 2.3.2-2 Detail of Waters of the U.S. in the BSA

Feature	Figure 3 Map Page	Acres	Comments
Jurisdictional Waters (Including Wetlands) of the United States			
ED-1	2	0.01	Small erosional scour channel on the western side of SR 29.
ED-2	2	0.09	Erosional scour channel on the western side of SR 29.
WL-2	1	0.13	Drainage channel characterized by dense cattail.
WL-3	1	0.14	Wetland swale between SR 12 and Delvin Road.
WL-4	2	0.01	Seasonal wetland on the eastern side of SR 29.
WUS-1	1	0.78	Suscol Creek, relatively permanent first-order tributary to the Napa River.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction and Operation

Caltrans literature review and field evaluations determined that project activities can potentially impact wetlands and other waters of the U.S. This section identifies direct and indirect impacts to these resources by the project. A description of the potential impacts and proposed project features follow.

Direct, temporary impacts to both wetlands and waters of the U.S. are anticipated. Approximately 0.22 acre of waters of the U.S. would be temporarily impacted. No waters of the U.S. would be permanently impacted (Table 2.3.2-3, Figure 2.3.1-2). Grading, clearing, and grubbing of upland areas could result in indirect temporary impacts to waters of the U.S. from increased erosion and sedimentation.

Potential impacts to waters of the U.S. will be minimized with the implementation of Project Features Revegetation, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage, Maintenance, Construction Site Best Management Practices, Landscaping and Erosion Control Plan, Reduce the Spread of Invasive Species, SWPPP, Erosion Control and Water Quality Protection Measures, Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features.

Table 2.3.2-3 Impacts to Waters of the U.S. in the Project Footprint

Aquatic Resource Type	Temporary Impact (acres)	Permanent Impact (acres)
USACE Wetlands	-	-
Other Waters	0.22	-
Total Waters of the U.S.	0.22	0

Source: Aquatic Resources Delineation Report (Appendix D of the NES) (Caltrans 2019).

No Build Alternative

Construction and Operation

There would not be any impacts to wetlands or other waters of the U.S. under the No Build Alternative.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

Caltrans would obtain the following authorizations to complete construction of the proposed project prior to the end of the PS&E phase of the project:

- Section 404 Nationwide Permit 14 from USACE (Section 404 of the CWA)
- Section 1602 Lake and Streambed Alteration Agreement from CDFW (Section 1602 of the California FGC)
- Section 401 Water Quality Certification from the RWQCB (Section 401 of the CWA)

Caltrans would establish final mitigation requirements with each agency during the respective permitting process. Please see Chapter 4 for a more detailed discussion of coordination with the agencies.

No Build Alternative

There are no proposed AMMs under the No Build Alternative.

2.3.3 Plant Species

REGULATORY SETTING

The USFWS and 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.

For this project, a plant was considered to have a special status if it met at least one of the following criteria:

- Listed, proposed for listing, or a candidate for listing, as threatened or endangered under FESA (50 CFR 17.11, 76 *Federal Register* [FR] 66370)
- Listed, or a candidate for listing, as rare, threatened, or endangered under CESA (FGC, Section 2050 et seq., 2062, 2067, and 2068)
- Species listed by California Native Plant Society (CNPS) on lists 1 or 2 in the current online version of its Inventory of Rare and Endangered Plants of California (CNPS 2019) as they meet the definition of "rare" or "endangered" under CEQA Guidelines Sections 15125 (c) and/or 15380, which can be found in Appendix H of this document

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 FESA and/or the CESA. Please see subsection 2.3.5, Threatened and Endangered Species, 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 CNPS rare and endangered plants. These species are presented in Table 2.3.3-1.

The regulatory requirements for FESA can be found at 16 USC Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California FGC, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at California FGC, Sections 1900 through 1913, and CEQA, found at California Public Resources Code, Sections 21000 through 21177.

AFFECTED ENVIRONMENT

This section addresses the special-status plant species that are documented to have occurred or have the potential to occur in the BSA, based on literature and database searches, and botanical surveys. Appendix C of the NES (Caltrans 2019) includes a complete list of special-status species for the nine U.S. Geological Survey 7.5-minute quadrangles that include and surround the project footprint. Figure 2.3.3-1 shows CNDDB occurrences for special-status plants within 5 miles of the BSA.

A species was determined to have the potential to occur within the BSA if it met at least one of the following criteria:

- Historically occurred within or adjacent to the BSA, as documented in the CDFW Biogeographic Information and Observation System or CNDDB (CDFW 2019) (Figure 2.3.3-1)
- Has a known or expected geographic range was within the vicinity of the project area
- Has known or expected habitat present within or near the BSA

Rare Plant Surveys

A rare plant habitat assessment and vegetation characterization was conducted on June 12, 2019. This included a focused survey for CCGF, a federally endangered and CNPS List 1B species, and reconnaissance-level surveys for Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*) and Callippe silverspot butterfly (CSSB) (*Speyeria callippe callippe*) host plants. The rare plant habitat assessment and vegetation characterization were conducted to determine viability for special-status plants to occur within the BSA of the proposed project.

The 2019 rare plant assessment and vegetation characterization was performed by characterizing the natural vegetation communities within the BSA and determining the potential for a special-status plant species to occur based on habitat suitability. Additional information on the methods and results of the rare plant habitat assessment are provided in Appendix E of the NES (Caltrans 2019). Subsection 2.3.5 provides detailed information specific to CCGF, VELB, and CSSB.

Suitable habitat is present with the BSA for 25 special-status plants. However, the potential to encounter these species in the BSA was determined to be low. These determinations took into account habitat conditions and that none of these species were encountered during protocol-level special-status plant surveys conducted by Caltrans biologists within the same survey area between 2008 and 2009, and the fact that environmental conditions within the BSA have not changed significantly since these surveys were performed.

During 2009 botanical surveys, CCGF were found in two vernal pools within the Caltrans ROW, but outside the currently proposed project footprint. No additional special-status plants were identified within the BSA. Protocol-level rare plant surveys will be conducted prior to construction.

Table 2.3.3-1 Non-Threatened or Endangered Special-status Plant Species with Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Status			General Habitat Requirements	Micro-habitat, Elevation Range (meters)	Blooming Period	Potential to Occur within the BSA
		FESA	CESA	CNPS				
Allium peninsulare var. *franciscanum*	Franciscan onion	-	-	1B.2	Cismontane woodland, valley and foothill grassland	Clay soils; often on serpentine; sometimes on volcanics. Dry hillsides. 5 – 320 m.	(Apr) May – Jun	**Low**. Suitable habitat is present. Nearest reported location is approximately 4.5 miles west of the BSA on the Di Rosa Preserve near Highway 12 and Duihig Road. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Amorpha californica var. *napensis*	Napa false indigo	-	-	1B.2	Broad-leafed upland forest, chaparral, cismontane woodland	Openings in forest or woodland or in chaparral. 30 – 735 m.	Apr – Jul	**Low**. Limited suitable habitat present. Nearest reported occurrence is approximately 9 miles northwest of the BSA. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Arctostaphylos bakeri ssp. *bakeri*	Baker's manzanita	-	R	1B.1	Broad-leafed upland forest, chaparral	Often on serpentine. 75 – 245 m.	Feb – Apr	**None**. Suitable habitat does not occur within the BSA.
Astragalus tener var. *tener*	Alkali milk-vetch	-	-	1B.2	Alkali playa, valley and foothill grassland, vernal pools	Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 0 – 170 m.	Mar – Jun	**Low**. Limited suitable habitat is present near Devlin Road, but is highly degraded. There was a reported occurrence of this species just north of the BSA, but the population was extirpated in 1983 by the construction of a corporate park (CDFW 2019). The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Balsamorhiza macrolepis	Big-scale balsamroot	-	-	1B.2	Chaparral, valley and foothill grassland, cismontane woodland	Sometimes on serpentine. 35 – 1,465 m.	Mar – Jun	**Low**. Suitable habitat is present, and there are four reported occurrences within 10 miles of the BSA; however, serpentine soils are not present. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Blepharizonia plumosa	Big tarplant	-	-	1B.1	Valley and foothill grassland	Dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 60 – 505 m.	Jul – Oct	**Low**. Suitable habitat occurs within the BSA; however, the species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project. The nearest CNDDB occurrence is 13 miles from the project.
Brodiaea leptandra	Narrow-anthered brodiaea	-	-	1B.2	Broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland	Volcanic substrates. 30 – 590 m.	May – Jul	**Low**. Woodland habitat at edge of BSA along SR 12/29 may be marginally suitable. Nearest known location is approximately 2.5 northeast of BSA in Skyline Park. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Calochortus pulchellus	Mt. Diablo fairy-lantern	-	-	1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland	On wooded and brushy slopes. 45 – 915 m.	Apr – Jun	**None**. Suitable habitat does not occur within the BSA.
Carex lyngbyei	Lyngbye's sedge	-	-	2B.2	Marshes and swamps (brackish or freshwater)	0 – 200 m.	Apr – Aug	**None**. Suitable habitat does not occur within the BSA.
Ceanothus confusus	Rincon Ridge ceanothus	-	-	1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland	Known from volcanic or serpentine soils, dry shrubby slopes. 150 – 1,280 m.	Feb – Jun	**None**. Suitable habitat does not occur within the BSA.
Ceanothus purpureus	Holly-leaved ceanothus	-	-	1B.2	Chaparral, cismontane woodland	Rocky, volcanic slopes. 140 – 720 m.	Feb – Jun	**None**. Suitable habitat does not occur within the BSA.
Ceanothus sonomensis	Sonoma ceanothus	-	-	1B.2	Chaparral	Sandy, serpentine or volcanic soils. 140 – 795 m.	Feb – Apr	**None**. Suitable habitat does not occur within the BSA.
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	-	-	1B.1	Valley and foothill grassland	Alkaline soils sometimes described as heavy white clay. 0 – 245 m.	May – Oct (Nov)	**Low**. Alkaline grassland near Devlin Road is highly degraded. The nearest reported occurrence is approximately 11 miles south of the BSA.

Table 2.3.3-1 Non-Threatened or Endangered Special-status Plant Species with Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Status			General Habitat Requirements	Micro-habitat, Elevation Range (meters)	Blooming Period	Potential to Occur within the BSA
		FESA	CESA	CNPS				
								The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Centromadia parryi ssp. *parryi*	Pappose tarplant	-	-	1B.2	Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland	Vernally mesic, often alkaline sites. 1 – 500 m.	May – Nov	**Low**. Suitable habitat occurs within the BSA; however, the species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project. The nearest CNDDB occurrence is over 6 miles from the project.
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	-	-	2B.1	Marshes and swamps	In fresh or brackish water. 0 – 20 m.	Jul – Sep	**None**. Suitable habitat does not occur within the BSA.
Dirca occidentalis	Western leatherwood	-	-	1B.2	Broad-leafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland	On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 20 – 640 m.	Jan – Mar (Apr)	**None**. Suitable habitat does not occur within the BSA.
Downingia pusilla	Dwarf downingia	-	-	2B.2	Valley and foothill grassland (mesic sites), vernal pools	Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1 – 490 m.	Mar – May	**Low**. Limited seasonally wetland habitat is present. Reported from just north of the BSA, but the population was extirpated in 1983 because of the construction of a corporate park. Species is also reported along SR 12/29, between Soscol and Sheehy Creeks. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Erigeron greenei	Greene's narrow-leaved daisy	-	-	1B.2	Chaparral	Serpentine and volcanic substrates, generally in shrubby vegetation. 90 – 835 m.	May – Sep	**Low**. Suitable habitat is generally absent, but there is a reported occurrence approximately 2.5 miles northeast of the BSA in Skyline Park.
Eriogonum luteolum var. *caninum*	Tiburon buckwheat	-	-	1B.2	Chaparral, valley and foothill grassland, cismontane woodland, coastal prairie	Serpentine soils; sandy to gravelly sites. 60 – 640 m.	May – Sep	**None**. Suitable habitat does not occur within the BSA.
Eryngium jepsonii	Jepson's coyote-thistle	-	-	1B.2	Vernal pools, valley and foothill grassland	Clay. 3 – 305 m.	Apr – Aug	**Low**. Marginally suitable habitat occurs within the BSA; however, the species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project. The only CNDDB occurrence within 5 miles of the project is from 1938.
Extriplex joaquinana	San Joaquin spearscale	-	-	1B.2	Chenopod scrub, alkali meadow, playas, valley and foothill grassland	In seasonal alkali wetlands or alkali sink scrub with Distichlis spicata, Frankenia, etc. 0 – 800 m.	Apr – Oct	**Low**. Limited suitable habitat near Devlin Road. Historical occurrence 2 miles north of BSA area on the western side of the Napa River. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Fritillaria liliacea	Fragrant fritillary	-	-	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland	Often on serpentine; various soils reported though usually on clay, in grassland. 3 – 385 m.	Feb – Apr	**None**. Suitable habitat does not occur within the BSA.
Helianthella castanea	Diablo helianthella	-	-	1B.2	Broad-leafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland	Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 45 – 1,070 m.	Mar – Jun	**None**. Suitable habitat does not occur within the BSA.
Hemizonia congesta ssp. *congesta*	Congested-headed hayfield tarplant	-	-	1B.2	Valley and foothill grassland	Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 5 – 520 m.	Apr – Nov	**Low**. Suitable habitat occurs within the BSA; however, the species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project. The only CNDDB occurrence within 5 miles of the project is from 1909.

Table 2.3.3-1 Non-Threatened or Endangered Special-status Plant Species with Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Status			General Habitat Requirements	Micro-habitat, Elevation Range (meters)	Blooming Period	Potential to Occur within the BSA
		FESA	CESA	CNPS				
Hesperolinon breweri	Brewer's western flax	-	-	1B.2	Chaparral, cismontane woodland, valley and foothill grassland	Often in rocky serpentine soil in serpentine chaparral and serpentine grassland. 195 – 910 m.	May – Jul	**None**. Suitable habitat does not occur within the BSA.
Horkelia tenuiloba	Thin-lobed horkelia	-	-	1B.2	Broad-leafed upland forest, chaparral, valley and foothill grassland	Sandy soils; mesic openings. 45 – 640 m.	May – Jul (Aug)	**None**. Suitable habitat does not occur within the BSA.
Isocoma arguta	Carquinez goldenbush	-	-	1B.1	Valley and foothill grassland	Alkaline soils, flats, lower hills. On low benches near drainages, and on tops and sides of mounds in swale habitat. 1 – 50 m.	Aug – Dec	**Low**. Suitable habitat occurs within the BSA; however, the species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project. The nearest CNDDB occurrence, a historical record, is over 8 miles from the project.
Juglans hindsii	Northern California black walnut	-	-	1B.1	Riparian forest, riparian woodland	Deep alluvial soil associated with a creek or stream. 0 – 640 m.	Apr – May	**Low**. Limited riparian forest in BSA. Naturally occurring stand is 12 miles north of the BSA near Circle Oaks. Planted individuals found within BSA.
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	-	-	1B.2	Marshes and swamps	In freshwater and brackish marshes; often found with *Typha, Aster lentus, Rosa californica, Juncus* spp., *Scirpus*, etc.; usually on marsh and slough edges. 0 – 5 m.	May – Jul (Aug – Sep)	**None**. Suitable habitat does not occur within the BSA.
Legenere limosa	Legenere	-	-	1B.1	Vernal pools	In beds of vernal pools. 1 – 1,005 m.	Apr – Jun	**Low**. Suitable habitat occurs within the BSA, and there is a CNDDB occurrence within the project BSA. However, the species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Leptosiphon jepsonii	Jepson's leptosiphon	-	-	1B.2	Chaparral, cismontane woodland, valley and foothill grassland	Open to partially shaded grassy slopes; on volcanics or the periphery of serpentine substrates. 55 – 855 m.	Mar – May	**Low**. Marginally suitable habitat is present in the BSA. Nearest reported occurrence is approximately 5 miles north of the BSA. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Lilaeopsis masonii	Mason's lilaeopsis	-	CR	1B.1	Marshes and swamps, riparian scrub	Tidal zones, in muddy or silty soil formed through river deposition or river bank erosion; in brackish or freshwater. 0 – 10 m.	Apr – Nov	**None.** Suitable habitat does not occur within the BSA.
Lupinus sericatus	Cobb Mountain lupine	-	-	1B.2	Chaparral, cismontane woodland, lower montane coniferous forest, broad-leafed upland forest	In stands of knobcone pine-oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine. 120 – 1,390 m.	Mar – Jun	**None**. Suitable habitat does not occur within the BSA.
Rhynchospora californica	California beaked-rush	-	-	1B.1	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps	Freshwater seeps and open marshy areas. 45 – 270 m.	May – Jul	**None**. Suitable habitat does not occur within the BSA.
Senecio aphanactis	Chaparral ragwort	-	-	2B.2	Chaparral, cismontane woodland, coastal scrub	Drying alkaline flats. 20 – 855 m.	Jan – Apr (May)	**None**. Suitable habitat does not occur within the BSA.
Sidalcea hickmanii ssp. *napensis*	Napa checkerbloom	-	-	1B.1	Chaparral	Rhyolitic substrates. 415 – 610 m.	Apr – Jun	**None**. Suitable habitat does not occur within the BSA.
Sidalcea hickmanii ssp. *viridis*	Marin checkerbloom	-	-	1B.1	Chaparral	Serpentine or volcanic soils; sometimes appears after burns. 1 – 425 m.	May – Jun	**None**. Suitable habitat does not occur within the BSA.
Spergularia macrotheca var. *longistyla*	Long-styled sand-spurrey	-	-	1B.2	Marshes and swamps, meadows and seeps	Alkaline. 0 – 220 m.	Feb – May (Jun)	**None**. Suitable habitat does not occur within the BSA.

Table 2.3.3-1 Non-Threatened or Endangered Special-status Plant Species with Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Status			General Habitat Requirements	Micro-habitat, Elevation Range (meters)	Blooming Period	Potential to Occur within the BSA
		FESA	CESA	CNPS				
Symphyotrichum lentum	Suisun Marsh aster	-	-	1B.2	Marshes and swamps (brackish and freshwater)	Most often seen along sloughs with *Phragmites*, *Scirpus*, blackberry, *Typha*, etc. 0 – 15 m.	(Apr) May – Nov	**None**. Suitable habitat does not occur within the BSA.
Trichostema ruygtii	Napa bluecurls	-	-	1B.2	Cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest	Often in open, sunny areas; also has been found in vernal pools. 30 – 680 m.	Jun – Oct	**Low**. Marginally suitable habitat occurs within the BSA, although the species generally prefers more contiguous oak woodland. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Trifolium hydrophilum	Saline clover	-	-	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools	Mesic, alkaline sites. 1 – 335 m.	Apr – Jun	**Low**. Suitable habitat is present, and this species has been reported immediately north of the BSA, but that population was extirpated in 1983 by the construction of the corporate park (CDFW 2019). The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.
Viburnum ellipticum	Oval-leaved viburnum	-	-	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest	215 – 1,400 m.	May – Jun	**None**. Suitable habitat does not occur within the BSA.

Notes:

CNPS California Rare Plant Rank:

1A Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

CNPS Threat Ranks:

1 Seriously threatened in California
2 Moderately threatened in California
3 Not very threatened in California

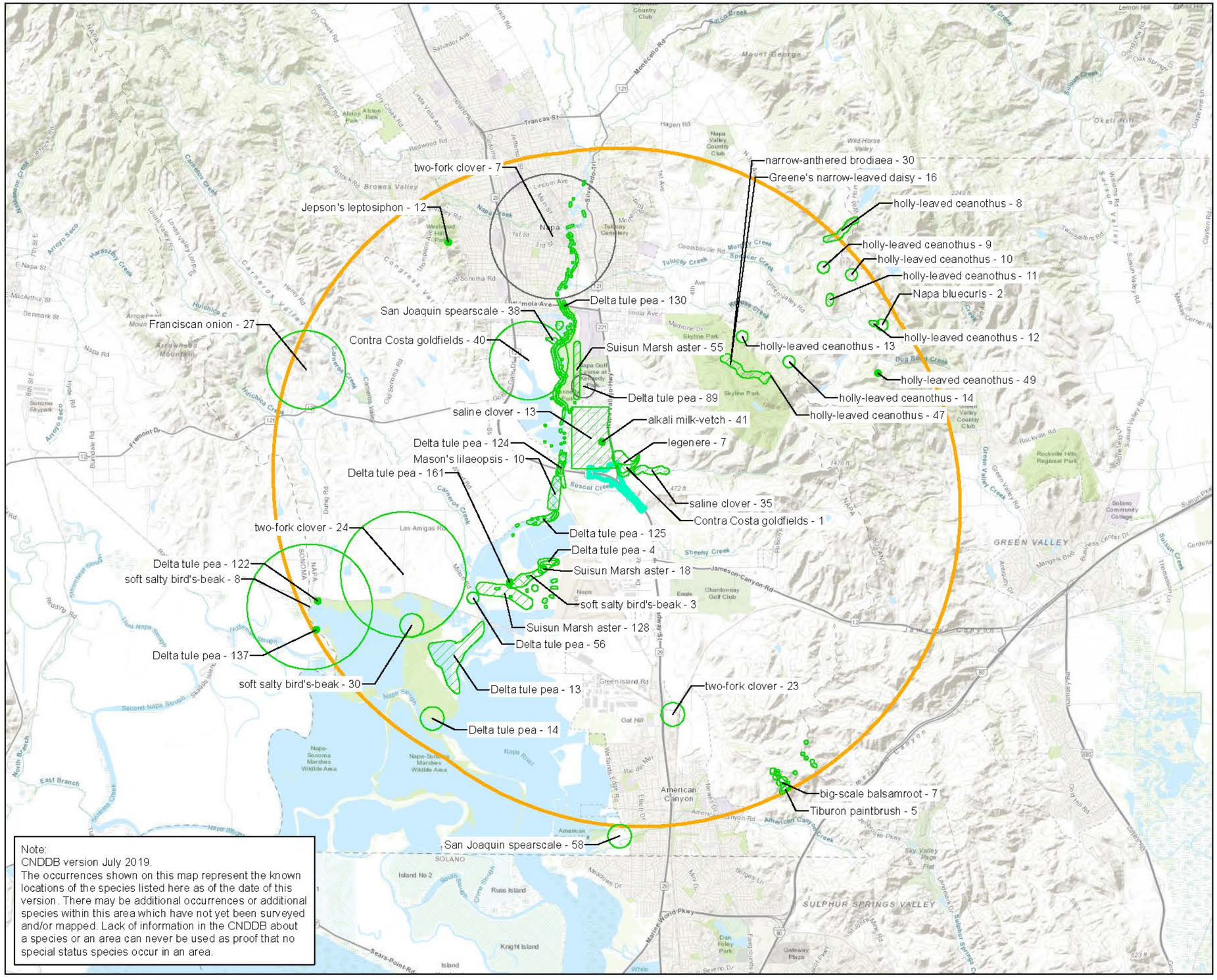
Federal Endangered Species Act (FESA) designations are as follows:

FE = Federal Endangered Species

California Endangered Species Act (CESA) designations are as follows:

CR = State Rare Species

Sources: CDFW 2019, CNPS 2019, USFWS 2019.



LEGEND

- Biological Study Area (84.29 acres)
- 5 Miles from BSA

CNDDB Occurrences

- Plant (specific bounded area with an 80-meter radius)
- Plant (specific, noncircular bounded area)
- Plant (nonspecific, bounded area)
- Plant (nonspecific, circular feature)
- Multiple (specific, noncircular bounded area)
- Multiple (nonspecific, circular feature)

Service Layer Credits:
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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Caltrans

FIGURE 2.3.3-1
CALIFORNIA NATURAL DIVERSITY DATABASE SPECIAL STATUS PLANT SPECIES WITHIN 5-MILES OF THE BSA
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

Tree Survey

A tree survey was conducted on June 27 and 28, and July 1, 2019, within the project BSA, to identify the tree species present and determine which trees would be impacted by the project. Tree diameter at breast height (dbh) measurements were collected using a tape measure and the International Society of Arboriculture standards. For trees with more than one main trunk, the diameter of each stem was recorded individually. All trees in the BSA greater than or equal to 2 inches in dbh were mapped and inventoried using a global positioning system device.

Within upland habitat, trees within the BSA consist primarily of a mix of coast live oak, valley oak, and eucalyptus. Valley oak, California bay laurel, red willow, arroyo willow, alder species (*Alnus* spp.), coast live oak, and non-native plum species (*Prunus* spp.) occur within the Suscol Creek riparian corridor. A total of 137 trees over 2 inches dbh was mapped within the BSA (Figure 2.3.1-2). A total of 18 trees occur within the project footprint; of these, 7 trees are considered to be riparian. Further details about the tree survey can be found in Appendix H from the NES (Caltrans 2019).

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction and Operation

Caltrans literature review and field evaluations determined that several special-status plant species have a low potential of occurring in the BSA. The project is not expected to impact special-status plant species, except CCGF (see Subsection 2.3.5), because only a low potential exists for them to be present in the BSA, based on results of previously conducted, protocol-level, special-status plant surveys, and because they have not previously been detected in the BSA.

Work would result in direct impacts to trees, in the form of tree removal, trimming, or grubbing of topsoil. It is currently approximated that the 18 trees within the project footprint would need to be removed, of which 7 trees are considered riparian (Figure 2.3.1-2). In addition, equipment may be driven within the drip lines of some of the trees within the project footprint during the process of paving or placement of shoulder backing. The repetitive load of heavy equipment could potentially damage the root systems of trees by compacting the soil and depriving the roots of oxygen and water, even if the trees are not removed. These impacts would be minimized to the degree possible by limiting equipment/vehicles near trees and using established access routes that minimize impacts to tree root systems, and using ESA fencing where appropriate.

Work would also result in indirect impacts to trees through habitat loss. Indirect impacts, such as habitat loss, are addressed in the descriptions of impacts to natural communities in Table 2.3.1-1 and Figure 2.3.1-1.

Potential impacts to special-status plants and trees will be minimized by implementing the same Project Features discussed in subsection 2.3.1, Natural Communities, as well as Project Feature Pre-construction Surveys, as described in Table 1-3 of Section 1.3.2, Project Features.

No Build Alternative

Construction and Operation

There would not be any impacts to trees or special-status plant species under the No Build Alternative.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

AMM BIO-1: Rare Plant and Host Plant Surveys. In addition to the pre-construction listed plant surveys in the project features, Caltrans will conduct pre-construction protocol-level surveys for rare plants and Callippe silverspot butterfly (CSSB) and valley elderberry longhorn beetle (VELB) larval host plants Johnny jump-up (*Viola pedunculata*) and elderberries that could support these listed species (see Section 2.3.5). Should rare plants, listed species, or host plants be found, these will be avoided where feasible. If not feasible to avoid, additional measures such as replanting or off-site mitigation will be developed during agency consultations.

Trees, including riparian trees, would be replanted onsite throughout the project area as part of the revegetation plan that would be developed during the CDFW Section 1602 permitting process. Trees would be replanted where they fit onsite, after clear recovery zones, site distances, available plantable areas, slopes, and other Caltrans planting policies are followed as described in Project Features.

Mitigation Measure BIO-1: Caltrans will plant trees offsite as compensatory mitigation for tree impacts as needed and in accordance with project permits.

No Build Alternative

There are no proposed AMMs under the No Build Alternative.

2.3.4 Animal Species

REGULATORY SETTING

Many state and federal laws regulate impacts to wildlife. The USFWS, the National Marine Fisheries Service, and the CDFW are responsible for implementing these laws.

Figure 2.3.4-1 shows CNDDB occurrences for special-status animals within 5 miles of the BSA. For this project, an animal species is considered special-status if it meets at least one of the following criteria:

- Species that are listed, proposed for listing, or candidates for listing as threatened or endangered under FESA (50 CFR 17.11, 76 FR 66370)
- Species that are listed or proposed for listing by the State of California as threatened or endangered under the CESA (FGC, Section 2050 et seq., 2062, 2067, and 2068)
- Species listed by CDFW as a species of special concern (SSC) or fully protected (FP), which can be found in Appendix H of this document

This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under FESA or CESA. Species listed or proposed for listing as threatened or endangered are discussed in subsection 2.3.5, Threatened and Endangered Species. All other special-status animal species are discussed in this subsection, including CDFW FP species and SSC, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- NEPA
- MBTA
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- CEQA
- Sections 1600 – 1603 of the California FGC
- Sections 4150 and 4152 of the California FGC

AFFECTED ENVIRONMENT

The BSA provides sufficient habitat for various common and special-status wildlife species. This section addresses the special-status wildlife species documented to occur or considered likely to occur in the BSA.

A complete list of special-status species for the project is provided in Appendix C of the NES (Caltrans 2019). These species are presented in Table 2.3.4-1.

Raptors and Other Nesting Birds

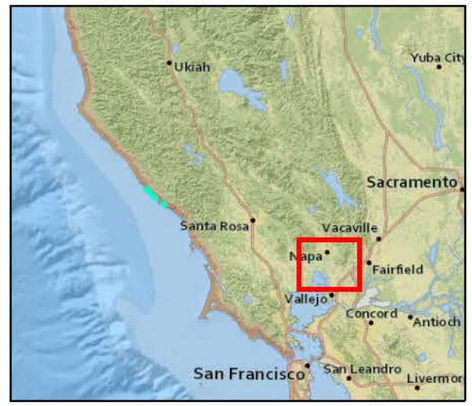
The federal MBTA (15 USC 703 – 711), 50 CFR Part 21 and 50 CFR Part 10, and the California Department of FGC Sections 3503, 3513, and 3800, protect migratory birds, their occupied nests, and their eggs from disturbance or destruction. "Migratory bird" includes all non-game, wild birds found in the United States, except the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and rock dove (*Columba livia*). The BSA and adjacent landscape provides foraging habitat for many species of birds, including those protected by the MBTA and those designated as CDFW SSC and FP species.

Special-status raptors that could potentially forage within the vicinity of the BSA during project activities include golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), white-tailed kite (*Elanus leucurus*), and northern harrier (*Circus hudsonius*). CNDDB records indicate numerous occurrences of special-status species in the vicinity of the BSA; also, a vegetation characterization and habitat assessment indicate that the BSA and surrounding areas include suitable foraging and potential nesting habitat. Potential nesting habitat includes larger trees, such as eucalyptus and riparian trees associated with Suscol Creek. No focused surveys for nesting special-status raptors have been conducted within the BSA at this time.

Bird species observed in the area during site visits include Swainson's hawk (SWHA)(*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), western scrub jay (*Aphelocoma coerulescens*), northern mockingbird (*Mimus polyglottos*), great egret (*Ardea alba*), turkey vulture (*Cathartes aura*), loggerhead shrike (*Lanius ludovicianus*), yellow warbler (*Dendroica petechia*), Nuttall's woodpecker (*Picoides nuttallii*), chestnut-backed chickadee (*Poecile rufescens*), black phoebe (*Sayornis nigricans*), Brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird (*Agelaius phoeniceus*), California towhee (*Pipilo crissalis*), European starling, American crow (*Corvus brachyrhynchos*), and house finch (*Carpodacus mexicanus*).

pallid bat - 223
American badger - 301
saltmarsh common yellowthroat - 95
western pond turtle - 584
western pond turtle - 494
white-tailed kite - 181
white-tailed kite - 181
western pond turtle - 1338
white-tailed kite - 181
western pond turtle - 493
salt-marsh harvest mouse - 119
tricolored blackbird - 244
Swainson's hawk - 1619
Swainson's hawk - 2621
Swainson's hawk - 1619
Swainson's hawk - 1718
Swainson's hawk - 1719
burrowing owl - 935
California black rail - 31
saltmarsh common yellowthroat - 37
Swainson's hawk - 2744
tricolored blackbird - 194
salt-marsh harvest mouse - 48
California Ridgway's rail - 16
tricolored blackbird - 243
California red-legged frog - 1062
vernal pool fairy shrimp - 232
tricolored blackbird - 832
foothill yellow-legged frog - 2341
California red-legged frog - 896
steelhead - central California coast DPS - 4
California red-legged frog - 228
steelhead - central California coast DPS - 19
longfin smelt - 26
western pond turtle - 538
pallid bat - 73
saltmarsh common yellowthroat - 94
American badger - 203
Swainson's hawk - 2743
pallid bat - 330
pallid bat - 71
California freshwater shrimp - 5
steelhead - central California coast DPS - 7
pallid bat - 221
pallid bat - 44
pallid bat - 58
pallid bat - 57
Swainson's hawk - 1717
salt-marsh harvest mouse - 146
San Pablo song sparrow - 16
California Ridgway's rail - 13
saltmarsh common yellowthroat - 36
salt-marsh harvest mouse - 27
California black rail - 30
tricolored blackbird - 203
San Pablo song sparrow - 44
burrowing owl - 1178
western snowy plover - 121
burrowing owl - 1179
western pond turtle - 552
northern harrier - 29
San Pablo song sparrow - 17
California Ridgway's rail - 22

Note:
CNDDB version July 2019.
The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.



LEGEND

- Biological Study Area (84.29 acres)
- 5 Miles from BSA

CNDDB Occurrences

- Animal (specific bounded area with an 80-meter radius)
- Animal (specific, noncircular bounded area)
- Animal (nonspecific, bounded area)
- Animal (nonspecific, circular feature)
- Multiple (nonspecific, circular feature)

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FIGURE 2.3.4-1
CALIFORNIA NATURAL DIVERSITY DATABASE SPECIAL STATUS ANIMAL SPECIES WITHIN 5-MILES OF THE BSA
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

Table 2.3.4-1 Non-Threatened or Endangered Special-status Animal Species with Potential to Occur in the Biological Study Area

Species	Scientific Name	Common Name	Status			General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA
			FESA[a]	CESA[b]	CDFW			
Amphibians	*Dicamptodon ensatus*	California giant salamander	-	-	SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County.	Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	**None**. Suitable habitat does not occur within the BSA.
Amphibians	*Taricha rivularis*	Red-bellied newt	-	-	SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County.	Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 kilometer to breed, typically in streams with moderate flow and clean, rocky substrate.	**None**. Suitable habitat does not occur within the BSA.
Birds	*Aquila chrysaetos*	Golden eagle	-	-	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**Moderate**. Could potentially forage in the BSA. Nesting is documented within 2 miles of BSA.
Birds	*Athene cunicularia*	Burrowing owl	-	-	SSC	Open, dry annual, or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Moderate**. Suitable habitat is present within the BSA.
Birds	*Circus hudsonius*	Northern harrier	-	-	SSC	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.	Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	**Moderate**. Could potentially forage in the BSA. Nesting habitat is not present.
Birds	*Coturnicops noveboracensis*	Yellow rail	-	-	SSC	Summer resident in eastern Sierra Nevada in Mono County.	Freshwater marshlands.	**None**. Suitable habitat does not occur within the BSA.
Birds	*Cypseloides niger*	Black swift	-	-	SSC	Coastal belt of Santa Cruz and Monterey counties; central and southern Sierra Nevada; San Bernardino and San Jacinto mountains.	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.	**Low**. Foraging habitat is present within the BSA. Nesting habitat is not present.
Birds	*Elanus leucurus*	White-tailed kite	-	-	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Low**. Foraging habitat is present within the BSA. Nesting habitat, in the riparian corridor along Suscol Creek or in denser oaks, is present, but limited.
Birds	*Geothlypis trichas sinuosa*	Saltmarsh common yellowthroat	-	-	SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes.	Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**None**. Suitable habitat does not occur within the BSA.
Birds	*Melospiza melodia maxillaris*	Suisun song sparrow	-	-	SSC	Resident of brackish-water marshes surrounding Suisun Bay.	Inhabits cattails, tules and other sedges, and Salicornia; also known to frequent tangles bordering sloughs.	**None**. Suitable habitat does not occur within the BSA.
Birds	*Melospiza melodia samuelis*	San Pablo song sparrow	-	-	SSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays.	Inhabits tidal sloughs in the Salicornia marshes; nests in Grindelia bordering slough channels.	**None**. Suitable habitat does not occur within the BSA.

Table 2.3.4-1 Non-Threatened or Endangered Special-status Animal Species with Potential to Occur in the Biological Study Area

Species	Scientific Name	Common Name	Status			General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA
			FESA[a]	CESA[b]	CDFW			
Birds	*Xanthocephalus xanthocephalus*	Yellow-headed blackbird	-	-	SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds.	Nests only where large insects, such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	**None**. Suitable habitat does not occur within the BSA.
Fish	*Pogonichthys macrolepidotus*	Sacramento splittail	-	-	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay, and associated marshes.	Slow-moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	**None.** Suitable habitat does not occur within the BSA.
Mammals	*Antrozous pallidus*	Pallid bat	-	-	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate**. Bat roosting habitat is present within the BSA, at the Suscol Creek bridge.
Mammals	*Nyctinomops macrotis*	Big free-tailed bat	-	-	SSC	Low-lying arid areas in Southern California.	Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	**None**. Suitable habitat does not occur within the BSA.
Mammals	*Sorex ornatus sinuosus*	Suisun shrew	-	-	SSC	Tidal marshes of the northern shores of San Pablo and Suisun bays.	Require dense, low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging.	**None**. Suitable habitat does not occur within the BSA.
Mammals	*Taxidea taxus*	American badger	-	-	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Low**. Marginal habitat present. No evidence of badgers has been observed during site visits; however, no badger surveys have been conducted. The only CNDDB records in Napa County, both of which are within 5 miles of the BSA, are historical occurrences from 1911 and 1937.
Reptiles	*Emys marmorata*	Western pond turtle	-	-	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg laying.	**High**. The species is more likely to occur downstream of the project, where it is more likely to find sufficiently deep pools within Suscol Creek.

Notes:

[a] USFWS designations:

CT = Candidate Threatened
DL = Delisted
FE = Endangered (any species in danger of extinction throughout all or a significant portion of its range)
FT = Threatened (any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range)

[b] CDFW designations:

CT = Candidate Threatened
SE = Endangered (any species at risk of becoming extinct in all or a significant portion of its range)
SSC = Species of Special Concern
ST = Threatened (any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range)

Sources: California Natural Diversity Database (CDFW 2019), National Marine Fisheries Service species list (NOAA Fisheries 2019), Information for Planning and Conservation (USFWS 2019), which can be found in Appendix H of this document.

Bat Species

Bat species (suborder Microchiroptera) have the potential to use highway structures, such as bridges, if conditions for roosting are appropriate (Erikson et al. 2003, H.T. Harvey and Associates 2004). California provides habitat for 24 bat species in the families Phyllostomidae, Vespertillionidae, and Mollossidae. All but the nectivorous *Choeronycteris mexicana* of southern California are insectivorous (Erickson et al. 2003). Fifteen are rare and/or considered mammal SSC by CDFW, and/or species of concern by the USFWS or the U.S. Forest Service (Erickson et al. 2003). All of these species are known to have behavioral and ecological interactions with the transportation system, directly or indirectly (Erickson et al. 2003). Four species, pallid bat (*Antrozus pallidus*), big brown bat (*Eptisicus fuscus*), Yuma myotis (*Myotis yumanensis*), and Mexican free-tailed bat (*Tadarida brasiliensis*), commonly use bridges; and eight other species sometimes use bridges (Erickson et al. 2003).

On July 2, 2019, a project biologist conducted a daytime bat roost habitat assessment within the BSA. Survey results are described below. Additional details about the methodology and results of the bat habitat assessment can be found in Appendix I of the NES (Caltrans 2019).

The Suscol Creek Bridge was found to have suitable night roost, and possible day and maternity roost habitat, and a significant amount of guano and staining was observed below the bridge. Suitable crevice roost habitat was observed in the form of gaps and cracks along the bridge abutments, crevices formed by cracking or rotting tree limbs and trunks, and flaking tree bark. Crevice roosting bat species (such as pallid bat [*Antrozous pallidus*], California SSC) as well as myotis species (*Myotis* spp.) are known to use cracks and crevices in bridge structures for maternity roosts during the spring and summer months in California. Multiple potential bat night and day roost types were surveyed, including foliage, cavity, and crevice roost habitat types. One myotis pup carcass was observed below the suspected maternity roost location at the Suscol Creek Bridge. No live bats were observed in any crevice roost habitat during the survey.

Potentially suitable foliage roost habitat is found throughout the Suscol Creek riparian corridor. In addition, multiple oaks within the BSA had leaf clusters that would be potentially suitable for foliage roosting species. Clusters of leaves and vines provide suitable maternity roost habitat for foliage roosting bats (such as, western red bat [*Lasiurus blossevillii*], California SSC). No bats were observed using foliage roosts during the survey.

Western Pond Turtle

The western pond turtle (WPT) (*Emys marmorata*) federal listing status is under review under FESA as of April 10, 2015 (80 FR 192590 19263). CDFW lists the WPT as a California SSC.

WPT range throughout the state of California, from southern coastal California and the Central Valley, east to the Cascade Range and Sierra Nevada. The two subspecies, northwestern and southwestern, are believed to integrate over a broad range in the Central Valley (Jennings and Hayes 1994). This species occurs in a variety of permanent and intermittent aquatic habitats, such as ponds, marshes, rivers, streams, and ephemeral pools. Pond turtles require suitable basking and haulout sites, such as emergent rocks or floating logs, which they use to regulate their temperature throughout the day (Holland 1994).

No protocol-level WPT surveys were conducted for this project, although a CNDDB database search and visual habitat assessment to evaluate the potential for WPT in the BSA were conducted. The nearest known occurrence is within 2 miles of the project, to the north, associated with the Napa River. There is no breeding habitat or ponds within the BSA that have suitable nesting habitat; however, pools within Suscol Creek, downstream of the project might provide suitable habitat. There is a potential for this species to be found in creeks, ditches, and drainages near and in the BSA.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction and Operation

As a result of Caltrans literature review and field evaluations, several species were determined to have the potential to be impacted by project activities. This section identifies direct and indirect impacts to special-status species that could be impacted by the project. A further description of the species, potential impacts, and proposed project features follow.

Impacts to General Wildlife

Construction lighting and permanent lighting have the potential to result in additional light pollution and disruption of nocturnal wildlife activity. The Project Features Construction Lighting and Nighttime Lighting have been augmented below with **AMM BIO-2**.

Impacts to Raptors and other Nesting Birds

Potential project impacts include temporary impacts to foraging habitat and temporary or permanent loss of potential nesting habitat, by way of tree removal. Potential indirect effects to nesting birds would include those resulting from construction noise and general construction activities (such as, workers on foot, machinery movements and noise, and nighttime work).

Impacts to special-status birds, including raptors, would be minimized by implementing Project Features Revegetation, Worker Environmental Awareness Training, Pre-construction Surveys for Nesting Birds, and Nighttime Lighting Restrictions described in Table 1-3 of Section 1.3.2.

Impacts to Bat Species

Up to 0.38 acres of tree removal is anticipated; this area includes trees that could provide potential roosting habitat. Loss of these trees would be considered a permanent impact. Approximately 0.13 acres of habitat that may include trees with suitable roosting habitat would be temporarily impacted as a result of construction activity at the Suscol Creek Bridge (Figure 2.3.4-2). Temporary impacts are defined as those created when potentially suitable bat roost habitat would be unavailable to bats during construction activities and not permanently altered. Permanent impacts are those that occur when areas defined as potentially suitable bat habitat areas are permanently modified.

Indirect impacts could occur during night work over the bridge. Night roost disturbance could come in the form of habitat degradation, such as light and noise disturbance. Most insectivorous bats rely on hearing the returning echoes of their ultrasonic echolocation calls to orientate, detect prey, and communicate. Night construction noise may mask prey-generated sounds and the lower frequency components of echolocation calls (Altringham and Kerth 2016). Light can also attract some bat species, particularly open-air foragers (Rydell 1992, Blake et al. 1994) because short-wavelength light attracts insect prey. Bats exploiting insect swarms around (night) construction lights may be at greater risk of collision with traffic (Altringham and Kerth 2016).

Stream crossings are particularly important foraging areas and commuting routes for bats. Potential impacts to bats will be minimized with the implementation of Project Feature Nighttime Lighting, as described in Table 1-3 of Section 1.3.2, Project Features, which would reduce impacts to bats feeding around nighttime construction lights, and incorporation of the **AMM BIO-2** below.

Western Pond Turtle

Potential project impacts to WPT would include direct impacts (potential loss of individuals during grading and heavy equipment movement, and temporary disturbance to seasonal habitat), as well as indirect impacts resulting from potential sedimentation of aquatic habitat.

Potential impacts to WPT will be minimized with the implementation of Project Features Wildlife Exclusion Fencing, Worker Environmental Awareness Training, Pre-construction Surveys, Handling of Listed Species, Avoidance of Entrapment, Stormwater Best Management Practices, and Construction Site Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features.

No Build Alternative

Construction and Operation

There would not be any impacts to special-status animal species under the No Build Alternative.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

Raptors and Other Nesting Birds

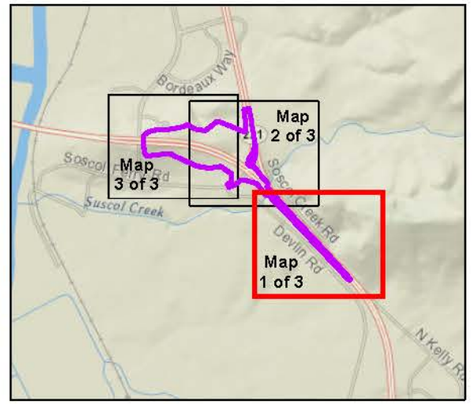
With the implementation of preconstruction nesting bird surveys and buffer establishment (50 feet for non-game migratory birds and 300 feet for raptors except for SWHA as specified in Section 2.3.5), Caltrans does not anticipate adverse direct or indirect impacts to bird species, and no additional AMMs are proposed.

No compensatory mitigation is proposed. Potential mitigation would depend on whether nesting activity occurs within or in the vicinity of the project footprint. If nesting activity occurs, Caltrans would implement AMMs and consult with CDFW or USFWS to determine the best course of action.

Bat and Wildlife Species

Caltrans proposes the following AMMs for the proposed project:

AMM BIO-2 Light Restrictions: To reduce the potential for disturbance of roosts, flight routes and feeding sites, lighting will be directed down toward the road surface or shielding provided as needed. Temporary project lighting on the surface of the road shall be directed towards the road surface and shall not be directed into areas outside of the road surface to prevent additional light pollution and disruption of nocturnal wildlife activity. Baffles and various shading devices may be employed.



LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile
- Potential Roosting Bat Habitat (3.43 acres)
- Permanent (0.38 acre)
- Temporary (0.13 acre)

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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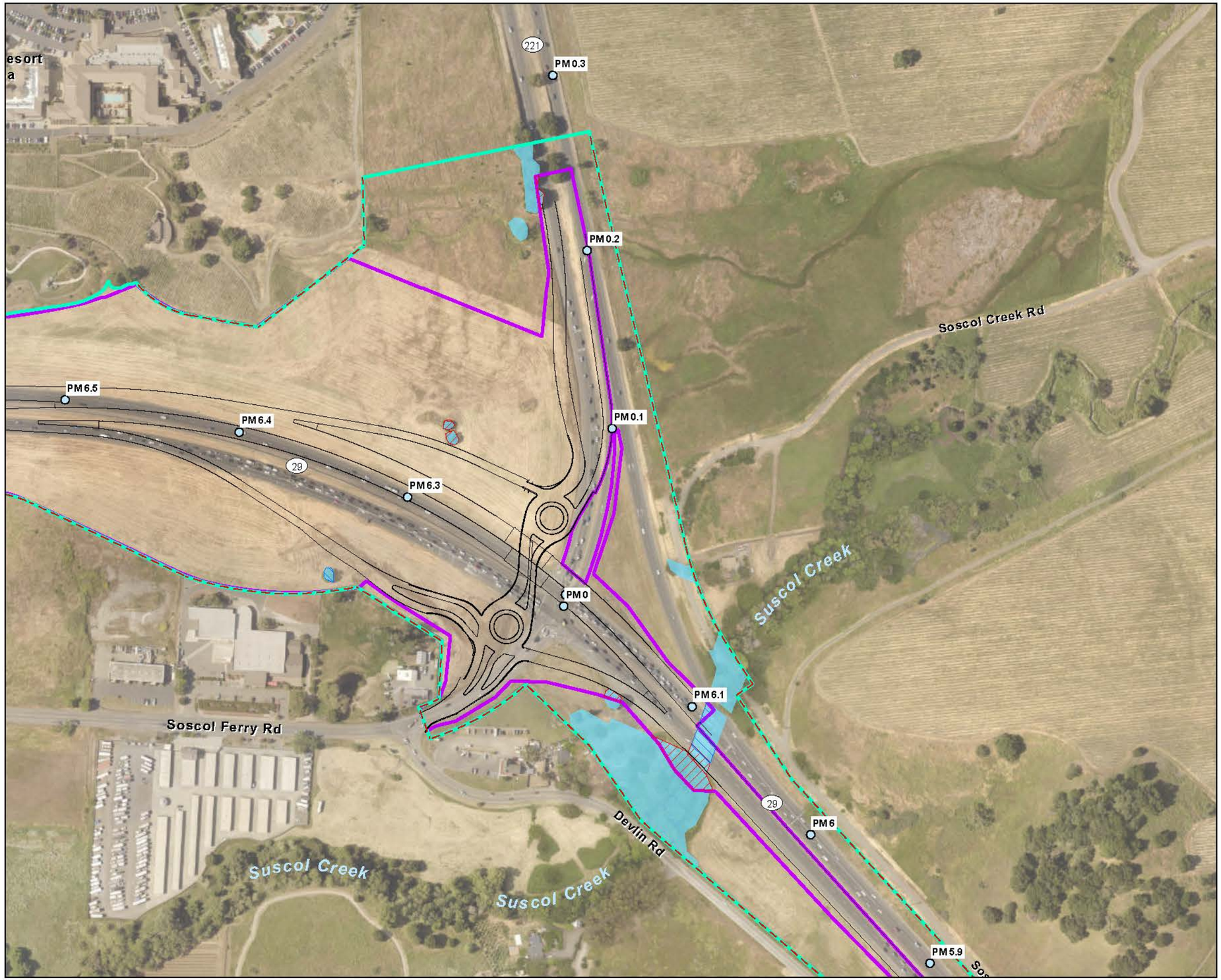
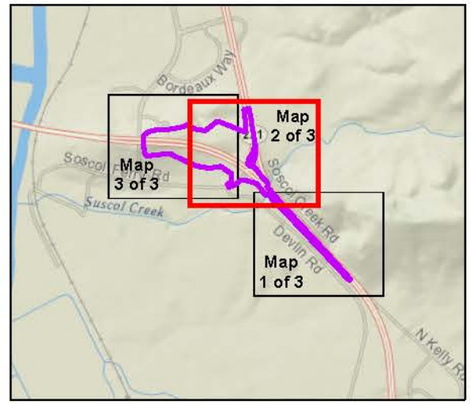
FIGURE 2.3.4-2
MAP 1 OF 3
IMPACTS TO BAT ROOSTING HABITAT WITHIN THE BSA
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California





LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile
- Potential Roosting Bat Habitat (3.43 acres)
- Permanent (0.38 acre)
- Temporary (0.13 acre)

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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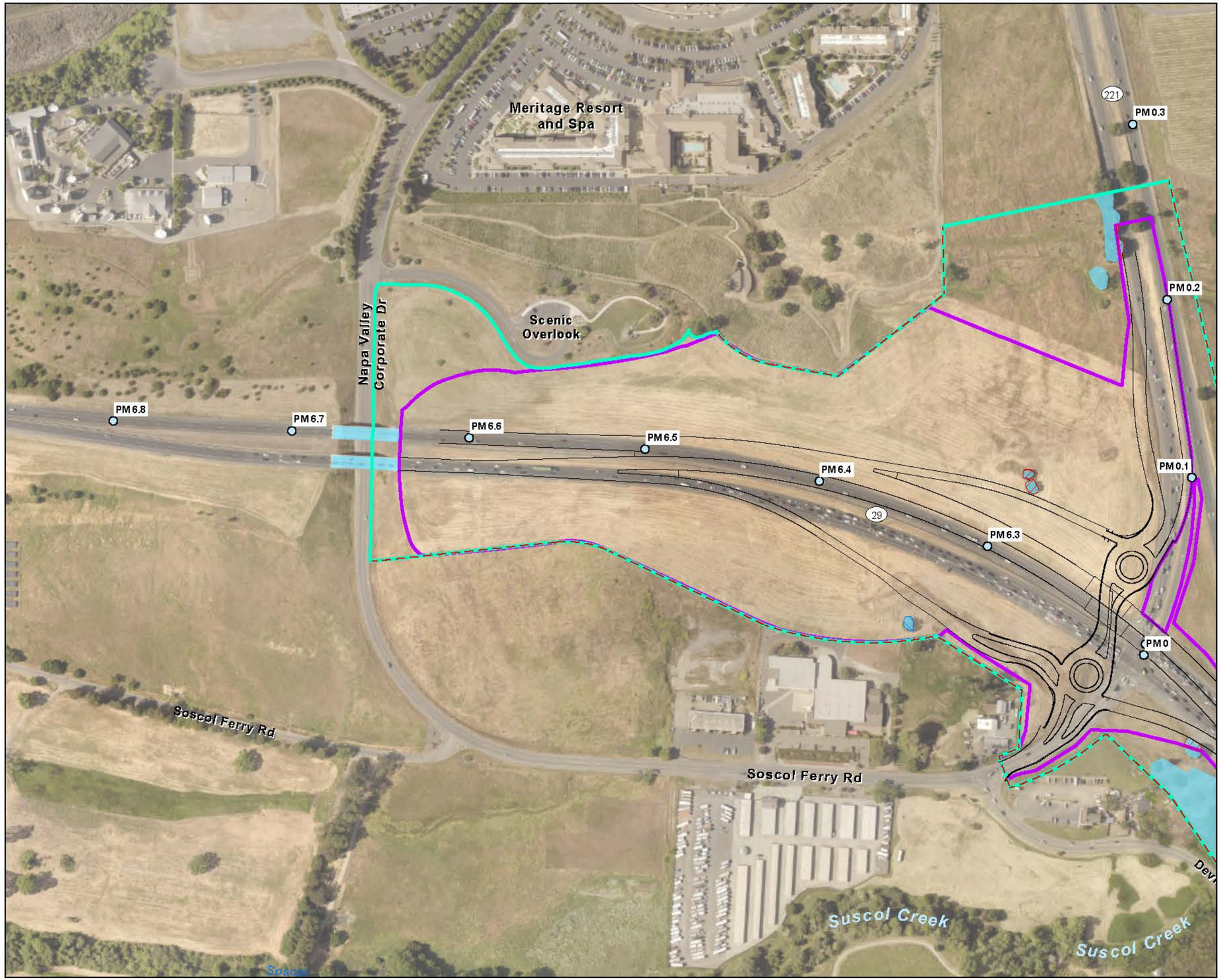
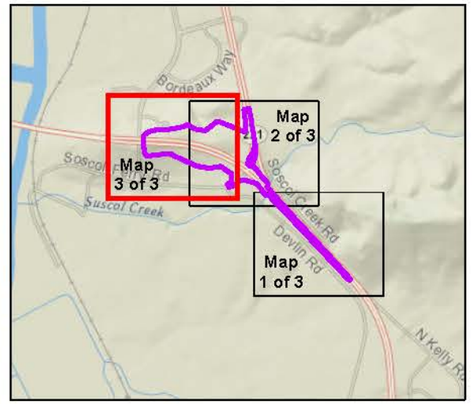
FIGURE 2.3.4-2
MAP 2 OF 3
IMPACTS TO BAT ROOSTING HABITAT WITHIN THE BSA
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California





LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
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- Post Mile
- Potential Roosting Bat Habitat (3.43 acres)
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FIGURE 2.3.4-2
MAP 3 OF 3
IMPACTS TO BAT ROOSTING HABITAT WITHIN THE BSA
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

As permanent lighting design is developed, shielding and other measures will be evaluated, and effects will be assessed in coordination with the resource agencies.

- **AMM BIO-3 Future Studies and Bat Roost Deterrents**: Additional acoustic monitoring, and night roosting surveys will be conducted during PS&E to determine bat species presence and how they are utilizing the bridge. Surveys will occur from March 1 to October 15, or as needed, to determine roost utilization. If bats are found to be using the structure, then roosting deterrent measures may be utilized, in coordination with CDFW. These may include the following:

    - Cavities, that may be used by roosting bats will be filled with foam or other sealant during the winter season (October 16 through February 1) when the bats are not occupying the roost. The structure will be inspected for bats prior to foam application. The foam sealant will be inspected and replaced throughout the construction period to prevent cracks or openings that may be used by bats. Foam sealant will be removed from the cavities following completion of all construction activities on or near Suscol Creek Bridge.

There is no proposed compensatory mitigation for bat species.

Western Pond Turtle

The following AMM is proposed to minimize impacts to WPT:

- **AMM BIO-4 Western Pond Turtle Preconstruction Surveys**: An approved biologist will conduct preconstruction surveys for WPT as needed. A visual encounter survey will be conducted immediately before ground-disturbing activities. Suitable habitat within the project footprint will be visually inspected. If a WPT is found within the project footprint and at risk of harm, the WPT will be relocated outside of the project footprint by the approved biologist.

Caltrans does not anticipate impacts to WPT with the implementation of Project Features and special-status species AMMs; therefore, no compensatory mitigation is proposed.

No Build Alternative

Construction and Operation

There are no proposed AMMs under the No Build Alternative.

2.3.5 Threatened and Endangered Species

REGULATORY SETTING

The primary federal law protecting threatened and endangered species is the FESA: 16 USC, Section 1531, et seq. See also 50 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 FHWA (and Caltrans, as assigned), are required to consult with USFWS and NOAA Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations that are 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 "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 CESA, California FGC, 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. CDFW is responsible for implementing CESA. Section 2080 of the California FGC prohibits take of any species determined to be endangered or threatened. "Take" is defined in Section 86 of the California FGC as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by 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 FGC.

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: (1) 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 (2) exclusive fishery management authority beyond the exclusive economic zone over

such anadromous species, continental shelf fishery resources, and fishery resources in special areas.

This section considers species that meet at least one of the following criteria:

- Species that are listed, proposed for listing, or candidates for listing as threatened or endangered under FESA (50 CFR 17.11, 76 FR 66370)
- Species that are listed or proposed for listing by the State of California as threatened or endangered under the CESA (FGC, Section 2050 et seq., 2062, 2067, and 2068)

AFFECTED ENVIRONMENT

Contra Costa Goldfields

CCGF (*Lasthenia conjugens*) were federally listed as endangered on June 18, 1997 (62 FR 33029) and are a CNPS List 1B species. CCGF is a showy, annual herb in the aster family (Asteraceae). The blooming period is from March through June, depending on environmental conditions. CCGF grows in vernal pools, swales, and other depressions in open grassland and woodland communities, often in alkaline soils (USFWS 2006a). Historically, CCGF were found in the counties surrounding San Francisco Bay and along the coast, from Santa Barbara to Mendocino County. Many historical populations are considered extirpated (USFWS 2006b).

Loss of vernal pool communities through increasing development and drainage of wet areas are the greatest threats to CCGF. The nearest known CCGF population (CDFW 2019) extends to within the project BSA and Caltrans ROW (Figure 2-1).

During the June 12, 2019 rare plant habitat assessment, a reconnaissance-level survey for CCGF was conducted in the project BSA, including at known CCGF occurrence locations to the east of SR 221, outside of the project footprint. No special-status plants, including CCGF, were observed. Multiple surveys, including a protocol-level rare plant surveys were conducted between 2004 and 2012 within the same survey area for the formerly proposed Soscol Flyover Project (Appendix D of the NES) (Caltrans 2019). On April 24, 2009, one population, totaling 20 CCGF plants, was identified in one vernal pool within the ROW on the eastern side of SR 221, but outside the current project footprint. On April 25, 2012, Caltrans biologists observed two unidentified goldfield plants (*Lasthenia* sp.) beyond the ROW fence, also east of SR 221.

The known occurrence of CCGF that intersects the BSA but is outside the planned project footprint is located in vernal pool habitat east of SR 221 near the junction of Soscol Ferry Road and SR 221 (Figure 2.3.5-1) (CDFW 2019). Vineyards and grassland surround the northern and eastern sides of this grassland and vernal pool complex, and Soscol Creek Road forms the southern boundary. This vernal pool complex is within CCGF Critical Habitat Unit 3, Napa River Unit (USFWS 2006a) (Figure 2.3.5-2). The BSA of the proposed project includes 20.46 acres of Critical Habitat Unit 3. Of that area, only 0.09 acre is considered to be suitable for CCGF.

An additional 0.28 acre of potentially suitable habitat for CCGF occurs outside of designated critical habitat within the BSA (Table 2.3.5-1 and Figures 2.3.5-1 and 2.3.5-2).

Table 2.3.5-1 CCGF Suitable Habitat within the BSA

CCGF Suitable Habitat	Acres
CCGF Suitable Habitat within Designated Critical Habitat	0.09
CCGF Suitable Habitat Outside Designated Critical Habitat	0.28
Total Suitable Habitat within the BSA	**0.37**

CCGF Critical Habitat

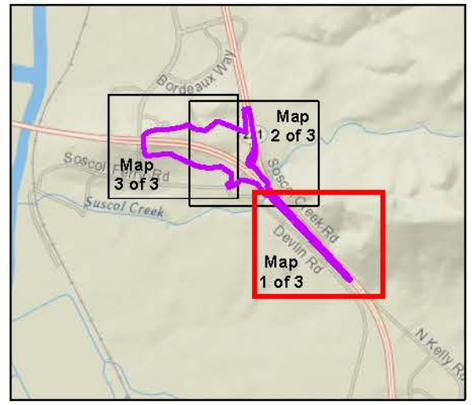
Portions of the proposed project are within CCGF Critical Habitat Unit 3, Napa River Unit. This critical habitat area is 534 acres (USFWS 2006a). Figure 2.3.5-2 shows the BSA and current project footprint in relation to CCGF critical habitat.

Vernal pools within Critical Habitat Unit 3 occur on Hambright rock-outcrop complex soils. This unit is ecologically important to the recovery of this species because this is the only location where CCGF are found on this soil type (USFWS 2005b).

The BSA includes 20.46 acres of designated critical habitat. This acreage includes pavement and other permanent, constructed structures. Only a small portion of this area (0.09 acre, as shown in Table 2.3.5-1) contains wetlands with suitable CCGF habitat elements (USFWS 2006a).

Callippe Silverspot Butterfly

The CSSB (*Speyeria callippe callippe*) is a nymphalid butterfly that occurs in coastal grasslands where its larval food plant, Johnny jump-up, grows. Although it was



LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile
- Contra Costa Goldfield Critical Habiat
- Contra Costa Goldfields Critical Habitat Within BSA (20.46 acres)

Contra Costa Goldfield Habitat

- Suitable (0.28 acre)

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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FIGURE 2.3.5-1
MAP 1 OF 3
IMPACTS TO CONTRA COSTA GOLDFIELD HABITAT
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

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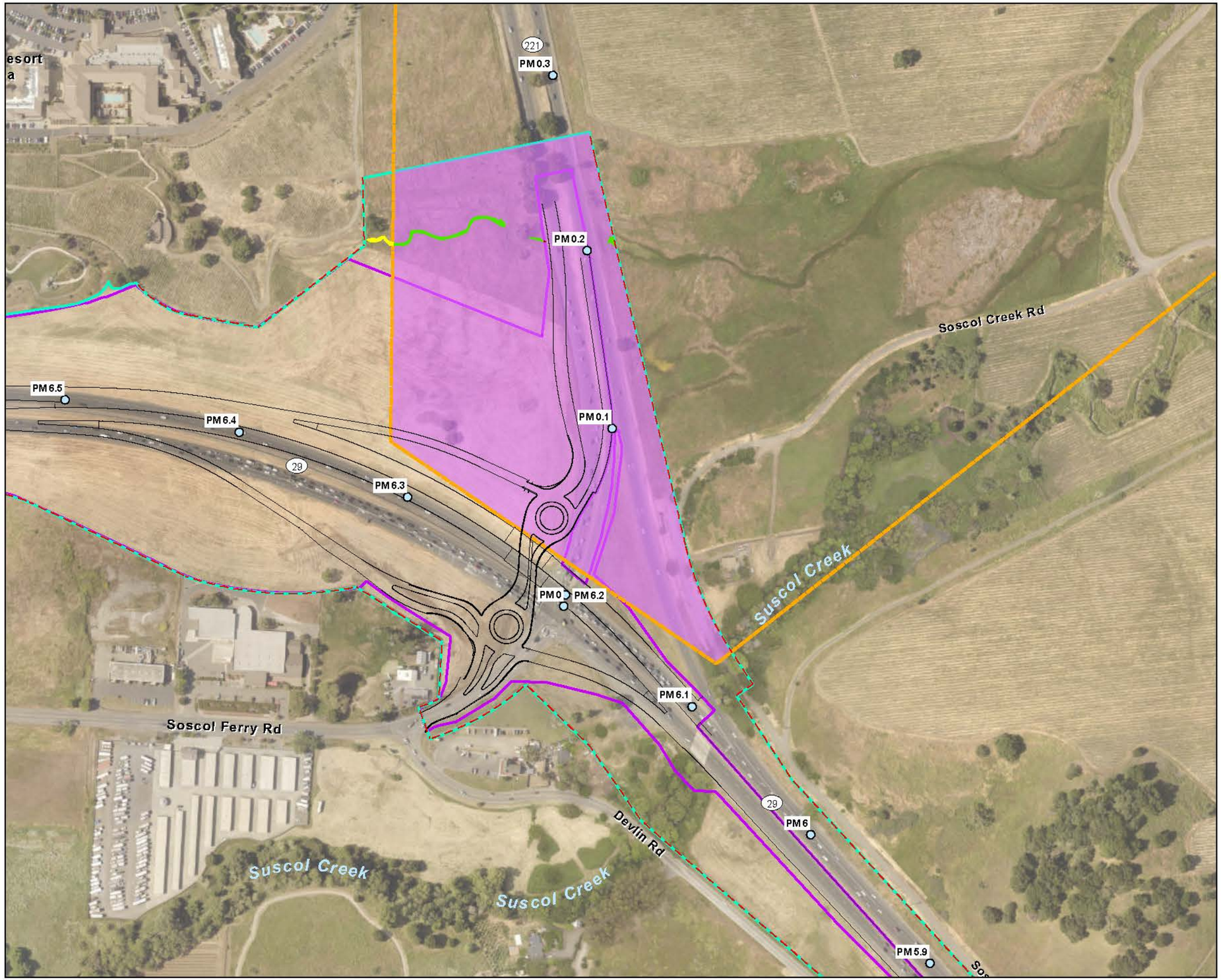

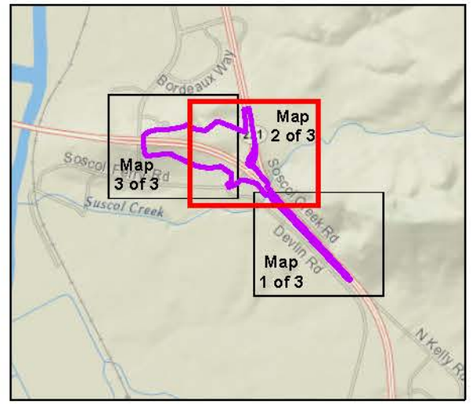

LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile
- Contra Costa Goldfield Critical Habiat
- Contra Costa Goldfields Critical Habitat Within BSA (20.46 acres)

Contra Costa Goldfield Habitat

- Suitable (0.28 acre)
- Suitable, Critical (0.09 acre)
- Suitable, Critical, Within Cut and Fill (0.00 acre)

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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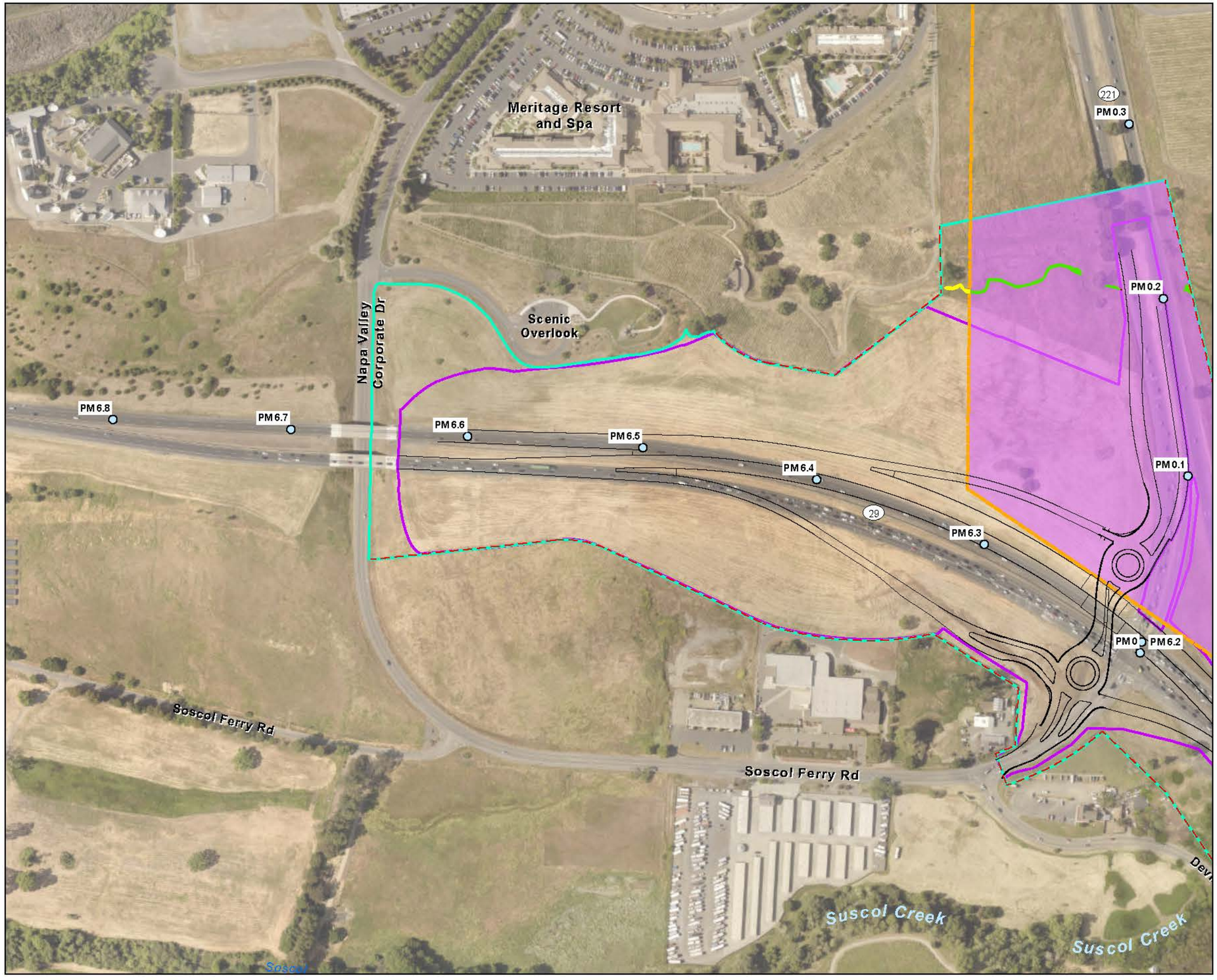
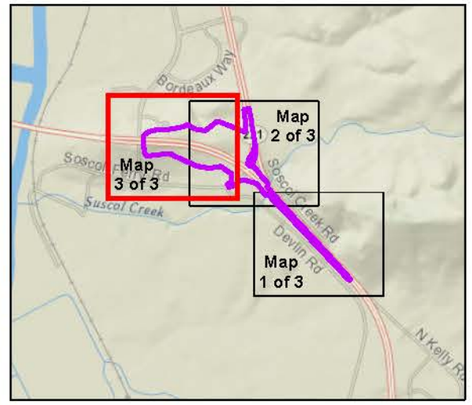
FIGURE 2.3.5-1
MAP 2 OF 3
IMPACTS TO CONTRA COSTA GOLDFIELD HABITAT
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California





LEGEND

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Contra Costa Goldfield Habitat

- Suitable (0.28 acre)
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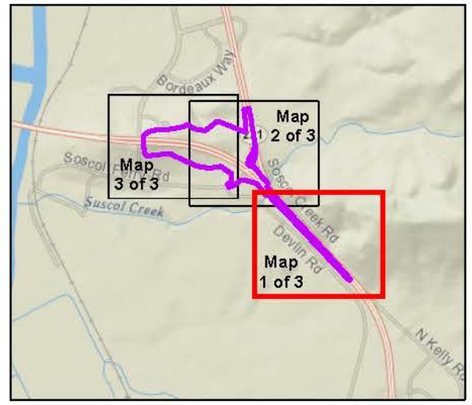
FIGURE 2.3.5-1
MAP 3 OF 3
IMPACTS TO CONTRA COSTA GOLDFIELD HABITAT
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California



LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile

Designated Critical Habitat

- Central California Coast Critical Habitat Within BSA (330 linear feet)
- Central California Coast Critical Habitat Within Project Footprint (153 linear feet)
- Contra Costa Goldfields Critical Habitat Within BSA (20.46 acres)

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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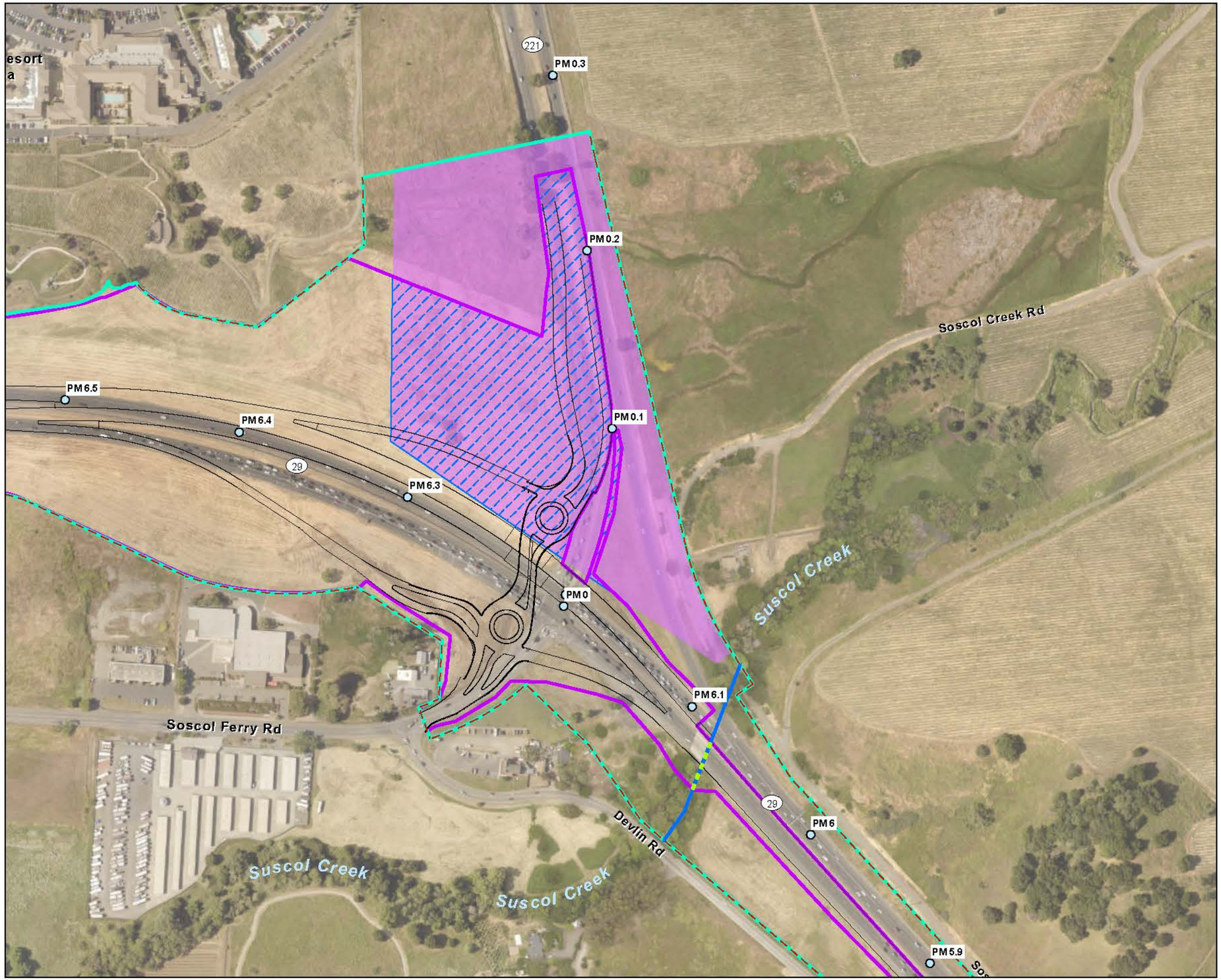
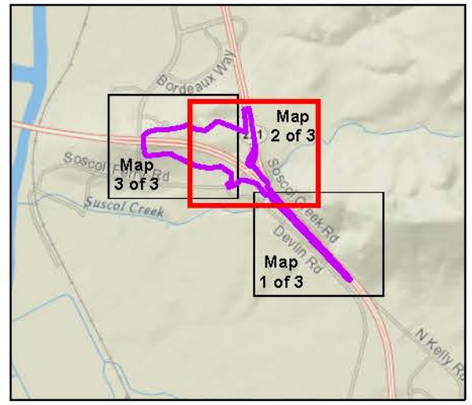
FIGURE 2.3.5-2
MAP 1 OF 3
DESIGNATED CRITICAL HABITAT WITHIN THE BSA
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California





LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile

Designated Critical Habitat

- Central California Coast Critical Habitat Within BSA (330 linear feet)
- Central California Coast Critical Habitat Within Project Footprint (153 linear feet)
- Contra Costa Goldfields Critical Habitat Within BSA (20.46 acres)
- Contra Costa Goldfields Critical Habitat Within the Project Footprint (10.08 acres)

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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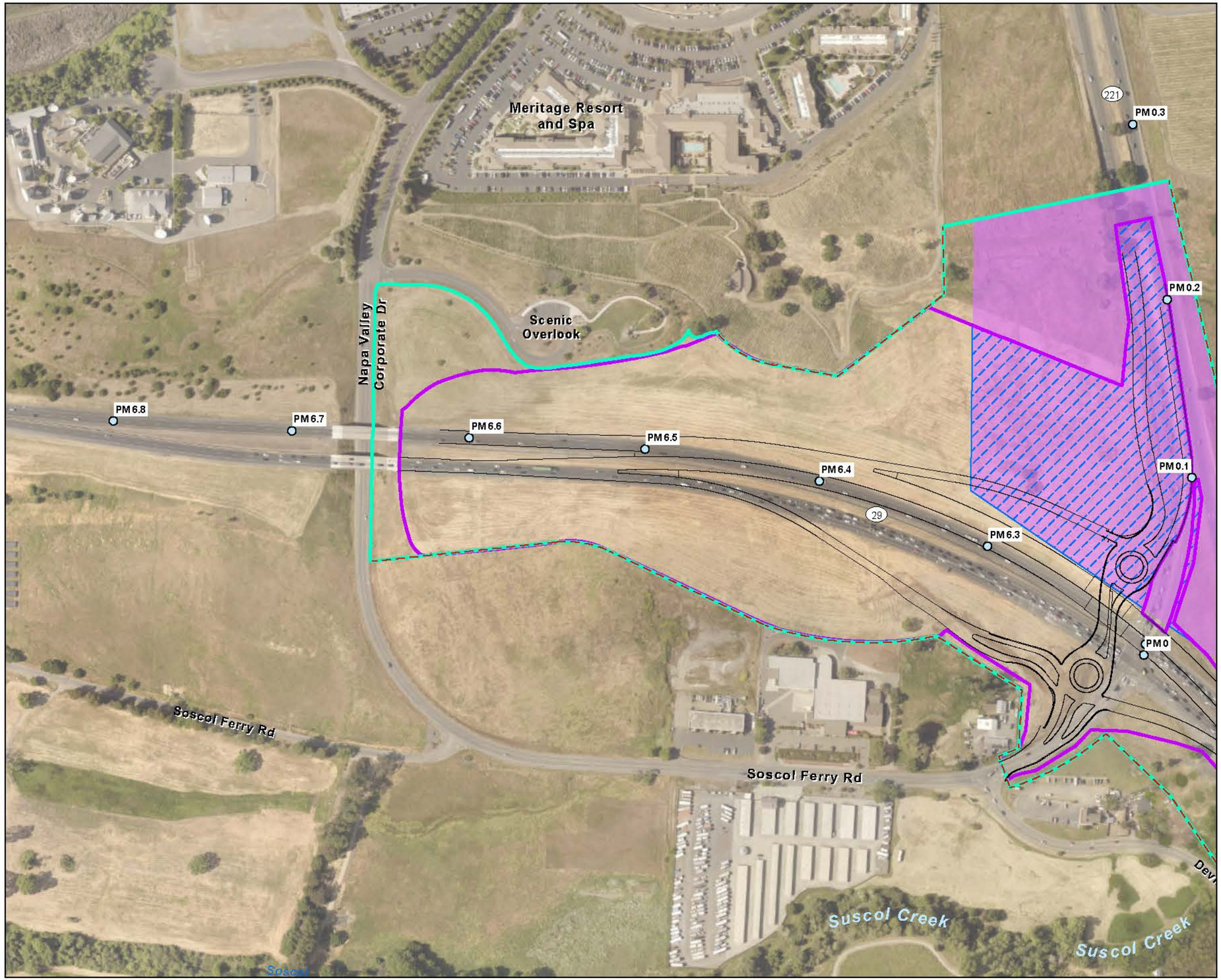
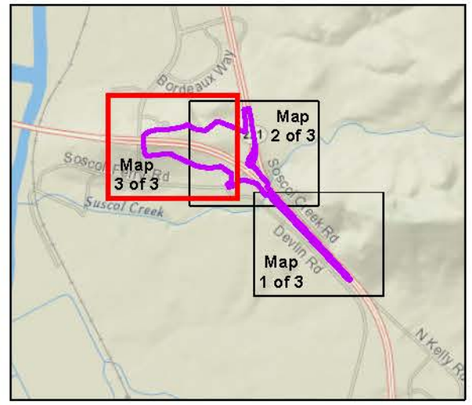
FIGURE 2.3.5-2
MAP 2 OF 3
DESIGNATED CRITICAL HABITAT WITHIN THE BSA
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California





LEGEND

- Biological Study Area (84.29 acres)
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- Edge of Pavement, Curb/Gutter or Bridge
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- Contra Costa Goldfields Critical Habitat Within BSA (20.46 acres)
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Caltrans

FIGURE 2.3.5-2
MAP 3 OF 3
DESIGNATED CRITICAL HABITAT WITHIN THE BSA
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

formerly widely distributed throughout the San Francisco Bay Area, the CSSB was, until recently, known only from San Bruno Mountain in San Mateo County and the Joaquin Miller and Redwood Regional Park areas in Oakland (Arnold 1981). New populations have been detected in the Tri-City area (Vallejo, Benicia, and Fairfield) of Solano County at King-Swett Ranches, Lake Herman, St John's Mine Road, and Hunter Hill (USFWS 2009). These sites are approximately 10 miles southeast of the project BSA. Populations that are somewhat intermediate between the CSSB and related subspecies (*S. callippe liliana* and *S. callippe comstockii*) are known from the American Canyon area in southeastern Napa County (Arnold 1983, 1985). The USFWS considers these intermediate populations as part of the endangered CSSB.

The CSSB has five basic habitat requirements (USFWS 2009):

- Presence of grassland with proper topography in the San Francisco Bay Area
- Sufficient larval host plant
- Adequate nectar sources
- Location within an area influenced by coastal fog
- Hilltops for mating congregation

Reconnaissance surveys for CSSB host plants on June 12, 2019 found no Johnny jump-ups within the BSA. The nearest CNDDB records for CSSB are approximately 8 miles southeast of the BSA and were most recently updated in 2009. These occurrences are associated with the Cordelia Hills population, one of two extant populations recognized by the USFWS (USFWS 2009).

Surveys for CSSB were conducted in 2005 and 2006 for the formerly proposed Soscol Flyover Project, within the same survey area as the BSA of the currently proposed project. The 2005 survey included survey for a previously documented occurrence of Johnny jump-up (3 to 4 individuals), an assessment of nearest suitable habitat for the species, and a survey for the species itself. No Johnny jump-ups were observed or CSSB individuals were observed at that time. Apart from a few individuals of milk thistle (*Silybum marianum*), no nectar plants for the CSSB were noted. The 2005 survey concluded that the quality of breeding, foraging, and mate location habitats within the project BSA are very poor, as determined by the small number of potentially viable larval host plants, the project's isolation from the nearest known nectar plants, and the surrounding unsuitable habitats and land uses. Habitat conditions within the Soscol Junction project BSA have not changed significantly since these initial surveys were performed. Although CSSBs are strong fliers, the

project BSA is located over 10 times the maximum observed flight distance of 1 mile (references within USFWS 2009b) from the nearest known extant population in the Tri-City area of Solano County.

Valley Elderberry Longhorn Beetle

The VELB was listed as a threatened species on August 8, 1980 (FR 45: 52803-52807). This insect is fully protected under the FESA (16 USC 1531 et seq.). The VELB is completely dependent on its host plant, elderberry (*Sambucus* spp.), which is a common component of the remaining riparian forests and adjacent upland habitats of California's Central Valley (USFWS 2006b). The beetle's presence is hard to detect because often the only exterior evidence of the beetle is an exit hole in the elderberry, created as larva emerge (USFWS 2006b). The life cycle takes 1 or 2 years to complete. The animal spends most of its life in the larval stage, living within the stems of an elderberry plant. Adult emergence is from late March through June, about the same time the elderberry produces flowers (USFWS 2006b). The adult stage is short lived. In addition, USFWS issues a "Framework for assessing impacts to VELB" (USFWS, 2017). This framework provides information on how to assist agencies in elevating potential effects to the species.

According to the CNDDB, VELB has been reported from southeastern Napa County at Wooden Valley Creek, approximately 8.5 miles away from the BSA; however, this observation is based only on exit holes. Elderberry, where it occurs in VELB range, typically occurs in moist valley oak riparian woodlands, along the margins of rivers and streams in the lower Sacramento and upper San Joaquin Valley.

Critical habitat was designated for the VELB on August 8, 1980 (45 FR 52803 52807). The USFWS designated two critical habitat areas along the American River in the Sacramento area. According to the recovery plan for the species (USFWS 1984), an area along Putah Creek in Solano County and an area west of the Nimbus Dam along the American River Parkway in Sacramento County are considered essential habitat. There is no critical habitat present within the BSA.

Because of known occurrences within 10 miles of the project, a reconnaissance-level survey for VELB and elderberry host plants was conducted within the project BSA on June 12, 2019. No host plants were observed. Previous surveys for host plants and VELB individuals conducted within the same survey area in 2005 yielded similar results. As a result, it was determined that VELB is not expected to occur within the BSA.

California Freshwater Shrimp

The California freshwater shrimp (CFWS) (*Syncaris pacifica*) is endemic to perennial lowland streams in Sonoma, Marin, and Napa counties. Most of these have a gentle gradient of less than 1 percent; no shrimp have been found higher than approximately 580 feet above sea level (USFWS 2011). CFWS are found along the edges of stream pools, in areas away from the main current, where there are often undercut banks and exposed root systems. The preferred habitat contains adventitious roots that develop on the submerged portions of some herbaceous plants and shrubs that hang into the water (Eng 1981). This shrimp species prefers pools approximately 1 to 4 feet deep. In times of heavy discharge associated with storm events, they are thought to avoid high flows by moving underneath the banks or staying close to sturdy tree roots along the edges of the pools. During the summer dry season, they can survive as long as some water remains in the pools, even if there is no longer any surface flow between the pools (Serpa 1991).

Originally known from nine streams, CFWS was thought to have been extirpated from six of them by 1975, apparently leaving populations only in Lagunitas Creek (Marin County) and East Austin and Salmon creeks of Sonoma County (Hedgpeth 1975). By 1981, CFWS had also been discovered in Sonoma Creek (Sonoma County) and Huichica Creek (Napa County). Since that time, they were rediscovered in Napa County in the Napa River near Calistoga, and in Garnett Creek. The nearest known population to the proposed project is in Huichica Creek, located approximately 5.1 miles from the BSA. Suscol Creek has no connectivity with Huichica Creek and the two creeks occur in different watersheds.

No protocol-level surveys for CFWS have been conducted for the proposed project. Additional preconstruction surveys for CFWS will be conducted, as described in the AMMs.

A survey for CFWS was conducted by a project biologist on May 15, 2006, within the same survey area as the current BSA. At that time, no CFWS were observed, habitat quality was determined to be low, and the species was determined as unlikely to occur. Environmental conditions within the current project BSA have not changed significantly since this survey was conducted. The best habitat for CFWS, if any, has been determined to be located upstream of Suscol Creek Bridge.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp (VPFS) (*Branchinecta lynchi*) is a federally threatened species endemic to California and has an ephemeral life cycle. It inhabits only cool-water vernal pools or vernal pool-like habitats.

The project location is adjacent to the current edge of the known range of VPFS. The only known Napa County occurrence is approximately 2 miles south of the BSA (CDFW 2019).

The BSA of the proposed project is not near the known range of two additional listed branchiopod species, Conservancy fairy shrimp (*B. conservatio*) and vernal pool tadpole shrimp (*Lepidurus packardi*). The nearest occurrences of these species are approximately 15 and 19 miles away, respectively (CDFW 2019).

Protocol-level surveys for vernal pool branchiopods were conducted between 2007 and 2008 for the formerly proposed Soscol Flyover Project. No vernal pool branchiopods, including VPFS, were observed during these surveys; and there was determined to be low potential for the species to occur within the BSA. No additional protocol-level surveys for branchiopods have been conducted for the proposed project, because environmental conditions onsite have not changed significantly, and Caltrans has determined there is low potential for VPFS to occur. Habitat characterization surveys were conducted in 2019; no suitable habitat is found within the current project BSA, and no further surveys are proposed. Additional details regarding the methodologies and results of the initial vernal pool branchiopods survey are in Appendix G of the NES (Caltrans 2019).

California Red-Legged Frog

The CRLF (*Rana draytonii*) is federally listed as a threatened species and state listed as a SSC. CRLF are typically found from sea level to elevations of approximately 5,000 feet. Non-breeding CRLF can occupy both aquatic and upland habitats. The majority of individuals prefer dense, shrubby or emergent vegetation, closely associated with deep (greater than 2.3 feet), still, or slow-moving water. Juvenile frogs seem to favor open, shallow aquatic habitats with dense submergents (Hayes and Jennings 1988, Jennings and Hayes 1994). Although CRLF can occur in ephemeral or permanent streams or ponds, populations probably cannot be maintained in ephemeral streams in which surface water disappears (Jennings and Hayes 1994). CRLF usually breed between late November and late April (Storer 1925, Jennings and Hayes 1994).

Some individual adults use non-aquatic habitats, seeking cover in ground squirrel burrows, under boulders and logs, and in non-native grasslands (Tatarian 2008). Upland refugia habitat includes areas up to 295 feet from a stream corridor or breeding pond and includes natural features such as boulders, rocks, trees, shrubs, and logs. In general, terrestrial areas within the riparian corridor provide important sheltering habitat during the winter flooding of the streams (Tatarian 2008).

CRLF movements from one aquatic water body to another typically occur to and from breeding habitats. Movement may occur before or after egg laying, or when the breeding pond is drying. Radio-tracking in Contra Costa County (Tatarian 2008) and Marin County (Fellers and Kleeman 2007) reveal that distances varied between 300 feet and 1.75 miles, typically in a relatively straight line. While many movements occurred across distances of 330 and 650 feet in open grasslands, other movements taking more than one night were along riparian corridors (Fellers and Kleeman 2007).

The USFWS (2010) definitions summarize the ecological conditions that describe suitable habitat conditions throughout the range of the species:

1. Aquatic breeding habitat – Fresh water source capable of holding water for 20 weeks in all but the driest years.

2. Non-breeding aquatic habitat – Fresh water bodies and riparian habitat that provide shelter, foraging, predator avoidance, and aquatic dispersal for juveniles and adults.

3. Upland habitat – Habitat adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat, up to 1 mile from aquatic breeding and non-breeding habitat. Upland habitat includes grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance (shade, moisture, cooler temperatures, prey base, foraging opportunities, and refugia for predator avoidance). Upland habitat should include structural features, such as boulders, rocks and organic debris (such as downed trees and logs), small mammal burrows, or moist leaf litter.

4. Dispersal habitat – Accessible upland or riparian habitat within and between occupied or previously occupied sites that are located within 1 mile of each other, and that support movement between such sites. Dispersal habitat includes various natural habitats and altered habitats, such as agricultural fields, which do not contain barriers (such as heavily traveled roads without bridges or culverts) to

dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete. Such habitat also does not include large lakes or reservoirs larger than 50 acres, or other areas that do not contain those features identified in PCE 1, 2, or 3 as essential to conservation of the species.

CRLF habitat assessment surveys were initially performed on October 18, 2005, October 4, 2007, and June 5, 2013 for the formerly proposed Soscol Flyover Project using the methods described in the *Revised Guidelines on Site Assessments and Field Surveys for the California Red- Legged Frog* (USFWS 2005a). These assessments were performed because the Soscol Flyover Project was within the known range of CRLF (Caltrans 2013, Stebbins 1985) and the fact that there were recorded CNDDB observations of the species within 5 miles. The conditions within the current project BSA, and the proximity to known occurrences have not changed since the initial surveys (CDFW 2019).

The 2005, 2007 and 2013 assessments describe habitat within the BSA that might support CRLF (Appendix F of the NES) (Caltrans 2019). The assessments were reviewed in 2019, and an updated desktop review of known occurrences was performed to evaluate the potential impacts to suitable habitat from the proposed project. The closest CRLF occurrence is 3.5 miles south of the BSA (CNDDB 2019). Caltrans has not observed CRLF within the BSA to date.

Detailed information on the methods and results of the initial habitat assessment are provided in the NES.

The nearest CNDDB documented occurrence to the project is Occurrence #1062, 2.1 miles south of the BSA in North Slough Creek, near the city of American Canyon (CDFW 2019). The pond located upstream of this locality contains good-quality breeding habitat (CDFW 2019). Although SR 29 and commercial and urban development serve as potential dispersal barriers between this occurrence and the project, Suscol Creek is a potential dispersal corridor from this observation west into the BSA at the Suscol Creek Bridge.

Within the BSA, Suscol Creek provides aquatic habitat for CRLF with low potential for CRLF breeding. This site is within the historical range for CRLF and contains year-round water for basic behavioral requirements; however, within the BSA, Suscol Creek is expected to flow too swiftly during the breeding season to support successful

CRLF breeding and likely contains fish that would prey on egg masses and tadpoles (J. Mitchell 2019 pers. comm.).

The BSA overlaps with a portion of USFWS CRLF Core Recovery Area 15 (Fagan-Jameson Canyon-Lower Napa River). Core recovery areas represent a system of areas that, when protected or managed for CRLF, would allow for long-term viability of existing populations and re-establishment of populations within the historical range. CRLF core recovery areas are selected because either they represent viable populations, or the location contributes to the connectivity of habitat and would increase dispersal opportunities between populations (USFWS 2002).

The USFWS assigned the Fagan-Jameson Canyon-Lower Napa River location as a core area based on the following:

- This area is considered currently occupied by CRLF.
- This area supports a source population of CRLF.
- This location provides connectivity between known populations of CRLF.

Given the overlap of CRLF Core Recovery Area 15 and the eastern limits of the BSA, and the extension of SOL-2 CH (USFWS 2010), it is reasonable to conclude that the BSA potentially could provide suitable CRLF upland aestivation and dispersal habitat.

At that time of the initial habitat assessments for CRLF, within the same survey area as the proposed project, presence was inferred based on the presence of suitable habitat, proximity to the species' known range (Stebbins 1985), and proximity to recorded observations (CDFW 2019). To date, no CRLF have been observed within the project BSA. Because conditions within the project BSA have not changed significantly since the initial surveys, Caltrans will continue to infer CRLF presence for the proposed project. Detailed information on the methods and results of the initial habitat assessment are in Appendix F of the NES (Caltrans 2019).

Central California Coastal Steelhead

CCCS (*Oncorhynchus mykiss irideus*) are the anadromous form of the rainbow trout, a salmonid species, which is native to western North America and the Pacific coast of Asia. CCCS is a subspecies of steelhead found in watersheds from the Russian River, Sonoma County, California to Aptos Creek, Santa Cruz County, California, and the San Francisco Bay and San Pablo Bay basins (Moyle et al. 2008).

CCCS are born in fresh water, emigrate to the ocean for 2 to 3 years to complete most of their growth cycle, and then return to fresh water to spawn. In California, most CCCS spawn from December through April in small streams and tributaries where cool, well-oxygenated water is available year-round. The length of time for egg hatching depends primarily on water temperature. Fry emerge from the gravel about 4 to 6 weeks after hatching, but factors, such as the depth of the redd (spawning nest), gravel size, siltation, and water temperature, could speed up or retard this time (Moyle et al. 2008).

The newly emerged fry move to the shallow, protected areas associated with the margins of the stream (McEwan 2001). The fry soon move to other areas of the stream and establish feeding locations that they defend (McEwan 2001). Most juveniles inhabit riffles, but some of the larger ones inhabit pools or deeper runs (McEwan 2001).

Juvenile CCCS generally rear in freshwater between 1 to 3 years, and both adults and juveniles are variable in the amount of time they spend in fresh and salt water (McEwan 2001, Moyle et al. 2008).

Review of online databases and discussions with CDFW, NOAA Fisheries, and the Napa Resource Conservation District concluded that Suscol Creek contains National Marine Fisheries Service (NMFS) -designated critical habitat for CCCS and that the creek has a resident CCCS population (Figure 2.3.5-2). Portions of Suscol Creek may provide as much as 6 miles of habitat for CCCS but are partially or completely blocked by as many as 5 in-stream fish passage barriers. The Caltrans structure at the SR 29 crossing of Suscol Creek crossing is one of these barriers. As mentioned in the project description (Section 1.3.1), three culvert/bridge structures make up the SR 29 Suscol Creek crossing, all of which act as a partial fish passage barrier. Fish passage is limited by a 2- to 4-foot jump at the downstream end of the concrete apron, high water flow velocities resulting from slope of the concrete apron, and shallow sheet flow depths in all three structures. These conditions are identified in the State Wide FishPAC database (CAFishPAC 2019).

Field reviews with CDFW and RWQCB and conversations with NOAA Fisheries indicate that state and federal agencies would anticipate that the project to address some of the fish passage issues at the Suscol Creek Bridge. During a field review (on June 25, 2019) with a CDFW representative various possible methods were discussed to partially address fish passage, and the limitations based on the project site

conditions. As of this time, no specific method or design for fish passage improvements have been added to the project. Additional studies to assess fish passage and partial fish passage improvements at Suscol Creek Bridge would be conducted during later project phases. Given the nature of the complexity of fish movement at the Suscol Creek area, Caltrans is studying the feasibility of the fish passage solution and will formulate strategies at the PS&E of the project.

Swainson's Hawk

In California, the SWHA is a state threatened species (Steinhart 1990). It is offered protection under the CESA and the MBTA (USC 1918).

The SWHA is a summer resident and breeding bird throughout much of the United States west of the Mississippi River. In recent history, breeding SWHAs have been reported extirpated from southern coastal California but continued to breed regularly in the Central Valley (Remsen 1978). This species occurs in southern California as a spring and fall migrant.

Historically, SWHA probably occurred over perennial grasslands and scrublands associated with riparian areas (Grinnell and Miller 1944). Currently, they forage over agricultural fields, including alfalfa, grain, and row crops (Steinhart 1990). Nesting habitat includes tall sycamores, cottonwoods, and other trees (Grinnell and Miller 1944, Steinhart 1990), located in various habitat types, including urban/suburban areas (England et al. 1995). SWHA feed on large insects and small mammals (Ryser 1985). In California, they are often observed foraging behind farm equipment as fields are tilled, planted, or harvested (Steinhart 1990).

As a result of dense vegetative cover and low prey density, vineyards do not typically provide good forage for SWHAs (Estep 1989, CDFW 1994, Smallwood 1995). However, SWHAs have been documented foraging along the edges of vineyard rows (Anderson et al. 2008) and following tractors during disking and mowing in vineyards, presumably foraging for fleeing rodents (Swolgaard et al. 2008).

Nest sites may be found in mature riparian forest, lone trees or groves of oaks, other trees in agricultural fields, and mature roadside trees (Cahill 2014, Inselmen et al. 2015), and in urban areas (England et al. 1995). Some mature landscape trees in residential areas can provide nest sites although foraging areas must occur in proximity to the nest trees. Valley oak, Fremont cottonwood, walnut, and large willow, with an average height of about 58 feet and range from 41 to 82 feet, are the most commonly used nest trees in central California.

Several known SWHA nesting trees occur within 0.25 mile of the BSA, including at Devlin Road and Soscol Ferry Road (CDFW 2019). Four historical SWHA nests occur within 0.8 mile or less of the BSA (CNDDB #1619, 1717, 1718, and 1719; CDFW 2019). The latest documented activity at the nests was from 2008 (CNDDB #1717, 1718; CDFW 2019).

Reconnaissance surveys for SWHA and potential active nesting trees within the BSA were conducted on June 13 and 14, 2019, and July 12, 2019. SWHA were observed soaring in the vicinity of the project during field visits, but, to date, no active nests have been observed. Only one potential SWHA nest was observed within the BSA in 2019, although it was inactive and did not appear maintained or recently used. Additionally, several red-tailed hawks were observed to be active in the area, potentially limiting the nesting habitat for SWHA.

Protocol-level surveys have not been conducted for SWHA or other nesting birds for the proposed project. Protocol-level surveys for SWHA are proposed for early 2020, during the appropriate seasons.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction and Operation

As a result of Caltrans literature review and field evaluations, several threatened and endangered species were determined to have the potential to be impacted by project activities: CCGF, CRLF, SWHA, and CCCS (Table 2.3.5-3). This subsection identifies direct and indirect impacts to listed species that could be impacted by the project. Further descriptions of the species and their habitats, as well as the potential impacts and proposed project features follow.

Contra Costa Goldfields

The nearest known occurrence of CCGF is east of SR 221 (near the junction of Soscol Ferry Road and SR 221) and is outside of the project footprint. All work is being conducted downhill from the area known to support CCGF. No individual plants, populations or sub-populations, or suitable habitat within designated CCGF critical habitat would be disturbed, destroyed, or removed by construction activities. No construction activities are designated east of SR 221 where the known CCGF population occurs. All work would be conducted downgradient from the area known to support CCGF. All suitable and potentially occupied habitat within the project footprint would be designated as ESAs during PS&E and avoided during construction.

Table 2.3.5-3 Threatened and Endangered Plant Species with Potential to Occur in the Biological Study Area

Scientific Name	Common Name	Status			General Habitat Requirements	Micro-habitat, Elevation Range (meters)	Blooming Period	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
		FESA	CESA	CNPS					
Blennosperma bakeri	Sonoma sunshine	E	E	1B.1	Vernal pools, valley and foothill grassland	Vernal pools and swales. 10 – 290 m.	Mar – May	**Low**. Suitable habitat occurs within the BSA; however, the species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project. The nearest CNDDB occurrence is over 10 miles from the project.	No effect
Castilleja affinis var. *neglecta*	Tiburon paintbrush	E	T	1B.2	Valley and foothill grassland	Rocky serpentine sites. 120 – 400 m.	Apr – Jun	**None**. Suitable habitat does not occur within the BSA.	No effect
Chloropyron molle ssp. *molle*	soft salty bird's-beak	E	R	1B.2	Coastal salt marsh	In coastal salt marsh with Distichlis, Salicornia, Frankenia, etc. 0 – 5 m.	Jun – Nov	**None**. Suitable habitat does not occur within the BSA.	
Chorizanthe valida	Sonoma spineflower	E	E	1B.1	Coastal prairie	Sandy soil. 5 – 50 m.	Jun – Aug	**None**. Suitable habitat does not occur within the BSA.	
Holocarpha macradenia	Santa Cruz tarplant	T	E	1B.1	Coastal prairie, coastal scrub, valley and foothill grassland	Light, sandy soil or sandy clay; often with nonnatives. 10 – 275 m.	Jun – Oct	**None**. Suitable habitat does not occur within the BSA.	No effect
Lasthenia conjugens	Contra Costa goldfields	FE	-	1B.1	Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland	Vernal pools, swales, low depressions, in open grassy areas. 1 – 450 m.	Mar – Jun	**High**. A known population occurs within the Caltrans ROW east of SR 221, and was confirmed during protocol-level surveys for the Soscol Flyover Project. Critical Habitat Unit 3 overlaps with the BSA. Suitable habitat would be avoided during construction.	May affect, not likely to adversely affect
Trifolium amoenum	two-fork clover	FE	-	1B.1	Valley and foothill grassland, coastal bluff scrub	Sometimes on serpentine soil, open sunny sites, swales; most recently sighted on roadside and eroding cliff face. 5 – 310 m.	Apr – Jun	**Low**. Suitable habitat is present, but only reported occurrences are from the early 1950s from “Napa” and “Napa Junction”. Nearest reported location is approximately 0.3 mile southwest of the BSA near Buchli Station. The species was not observed during protocol-level rare plant surveys for the initial Soscol Flyover Project.	No effect

Notes:

CNPS California Rare Plant Rank:

1A Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

CNPS Threat Ranks:

1 Seriously threatened in California
2 Moderately threatened in California
3 Not very threatened in California

FESA designations are as follows:

FE = Federal Endangered Species

CESA designations are as follows:

CR = State Rare Species

Sources: CDFW 2019, CNPS 2019, USFWS 2019

Direct effects to CCGF populations and/or suitable habitat east of the project footprint may occur as a result of dust impacts from nearby construction. Dust has the potential to affect plant photosynthesis, plant pollinators, and vernal pool sedimentation. All of these have the potential to disturb the reproductive abilities of individual plants and populations by decreasing seed production, thereby resulting in decreased numbers and/or distribution of plants over time.

Potential impacts to CCGF will be minimized with the implementation of Project Features Dust Control, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage Sites, Worker Environmental Awareness Training, Pre-construction Surveys, and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features.

CCGF Critical Habitat

Approximately 10.08 acres of CCGF critical habitat, as designated by USFWS, would be directly impacted by the proposed project (Figures 2.3.5-1 and 2.3.5-2). However, the area of critical habitat impacted by the project does not contain PCEs for CCGF (USFWS 2006a). In FESA, adverse modification to critical habitat is defined as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species." Given the lack of critical habitat PCEs within the project footprint and the small percentage of area loss within Critical Habitat Unit 3 overall, the project effects would not rise to the level of adverse modification.

Suitable habitat (or individual CCGF plants, populations, or sub-populations) within CCGF critical habitat would not be disturbed, destroyed, or removed by construction activities. No direct construction-related activities (such as, construction, construction materials staging, and equipment storage) would occur within critical habitat that is suitable for CCGF (USFWS 2006a). CCGF suitable habitat areas within designated critical habitat in the project footprint would be protected from construction activities with ESA fencing.

Impacted areas within CCGF critical habitat do not contain the PCEs for CCGF occurrence (USFWS 2006a) and are considered not suitable for the species. In addition, Critical Habitat Unit 3 is 534 acres in size. The proposed project would result in impacts to 10.08 acres, or 1.9 percent of the total area within Unit 3. Caltrans would avoid direct and indirect impacts to CCGF critical habitat that do contain PCEs (east of SR 221) with the implementation of the proposed project features and AMMs.

Potential impacts to suitable CCGF critical habitat will be minimized with the implementation of Project Features Dust Control, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage Sites, Maintenance, Construction Site Management Practices, Reduce Spread of Invasive Species, and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features.

Callippe Silverspot Butterfly

Based on the lack of a basic habitat requirement for CSSB within the BSA (sufficient quantities of larval host plants), Caltrans does not anticipate that the project would impact this species. Should any host plants be found during the planned pre-construction surveys, measures in **AMM BIO-1** will be implemented to avoid any significant impacts.

Valley Elderberry Longhorn Beetle

Based on the lack of elderberry plants within the BSA (VELB host plant), Caltrans does not expect the project would impacts this species. Should any host plants be found during the planned preconstruction surveys, measures in **AMM BIO-1** will be implemented to avoid any significant impacts.

California Freshwater Shrimp

The best habitat for CFWS, if any, is located upstream of Suscol Creek Bridge. No construction is proposed upstream of the bridge, including for potential fish passage improvements. There is a small amount of potential structural habitat in Suscol Creek within the BSA: hard roots from alders, undercuts for protection, and some adventitious roots from willows and blackberry plants. However, almost all the habitat between the bridges is poor or fair, and potential for the species to occur within the BSA is considered to be low.

While assessing the feasibility and design options for partial fish passage improvement at the Suscol Creek and SR 29 crossing, Caltrans will conduct additional surveys for CFWS within the project footprint. If no construction occurs below the OHWM of Suscol Creek as part of fish passage improvements, Project Features discussed in Section 2.3.1 would minimize any potential impacts. If construction below the OHWM of Suscol Creek is added to the scope of the project for fish passage improvements, potential impacts to CFWS that could result would be assessed based on the results of the surveys, and consultation with USFWS and CDFW would be initiated if necessary.

If the pre-construction surveys and fish passage design determine that CFWS habitat would by impacted by the project, potential impacts would be minimized with the implementation of Project Features Creek and Riparian Revegetation, Work Window for Creeks, Stormwater Best Management Practices, and Dewatering Activities and Clean Water Diversions, as described in Table 1-3 of Section 1.3.2, Project Features. Additionally, if CFWS habitat is affected by the fish passage improvements, coordination will be required with both CDFW and USFWS and measures such as incorporation of root wads into the banks of the creek would be incorporated into the restoration design as described in AMMs below.

Vernal Pool Fairy Shrimp

This project is unlikely to impact vernal pool branchiopods because they have not been detected within the project footprint. Additionally, vernal pool habitat that possesses suitable characteristics for branchiopods and intersects the BSA is outside of the project footprint (east of SR 221) and would be avoided during construction.

Potential impacts to branchiopod-suitable vernal pool habitat outside of the project footprint will be minimized with the implementation of Project Features Dust Control, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage Sites, Construction Site Best Management Practices, Landscaping and Erosion Control Plan, Erosion Control and Water Quality Protection Measures and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features. No additional AMMs are proposed specifically for VPFS.

California Red-Legged Frog

As design and construction plans are finalized during PS&E, the project footprint and the duration of use (specifically, staging areas) would be further defined. If areas are only used for one construction season and are revegetated at the end of the season, impacts would be considered temporary for CRLF. If areas are used for 2 years, the loss of habitat would be considered permanent. Currently, it is conservatively presumed that areas of CRLF upland habitat within the Project footprint would be used for up to 2 years. Based on the inferred presence of CRLF within the BSA, the estimated direct permanent and temporary impacts to CRLF habitat are summarized in Table 2.3.5-2 and Figure 2.3.5-3.

Table 2.3.5-2 Potential Impacts to CRLF Habitat

Habitat Type	Area of Effect in Acres	
	Temporary	Permanent
Potential Aquatic Habitat (non-breeding and dispersal)	0.03	0.00
Potential Upland Habitat (aestivation and dispersal)	0.11	35.41
Total	**0.14**	**35.41**

Indirect impacts to CRLF outside of directly impacted areas are not anticipated because:

- Water quality would be protected by implementing Caltrans standard BMPs.
- The project would not increase vehicle capacity and vehicle traffic is not anticipated to be greater during night hours, when CRLF typically disperse.

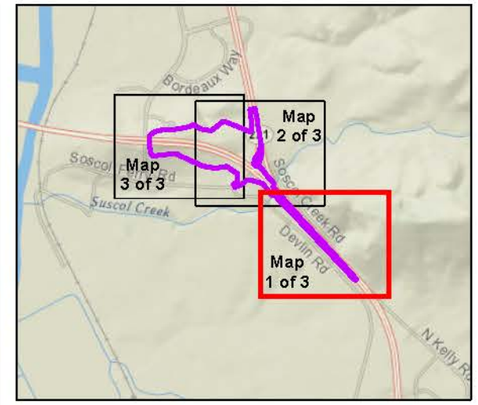
Potential impacts to CRLF will be minimized with the implementation of Project Features Wildlife Exclusion Fencing, Worker Environmental Awareness Training, Pre-construction Surveys, Avoidance of Entrapment, Special-Status Species Handling, Consultation with USFWS and CDFW, Construction Site Best Management Practices, and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features.

Central California Coastal Steelhead

No impacts to CCCS would occur in the absence of fish passage modifications, with the implementation of project features. As described in Section 1.3.1, Project Description, given the nature of the complexity of fish movement at the Suscol Creek area, Caltrans is studying the feasibility of the fish passage solution and will formulate strategies at the PS&E of the project.

If fish passage improvements are incorporated into the project, Caltrans would coordinate design and determine impacts to CCCS and CCCS critical habitat, in coordination with resource agencies.

If construction below the OHWM of Suscol Creek is added to the scope of the project, potential impacts to CCCS will be minimized with the implementation of Project Features Creek and Riparian Revegetation, Vegetation and Tree Removal, Maintenance, Stormwater Best Management Practices, and Dewatering Activities and Clean Water Diversions, as described in Table 1-3 of Section 1.3.2, Project Features.



LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile

Permanent Impact

- Aquatic Habitat (0.00 acre)
- Upland Habitat (35.52 acres)

Temporary Impact

- Aquatic Habitat (0.03 acre)
- Upland Habitat (0.11 acre)

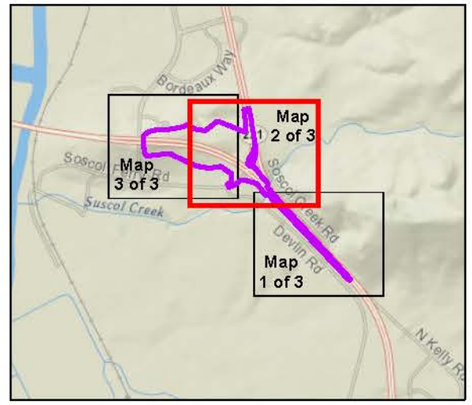
Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

N

0 200 400
Feet

Caltrans

FIGURE 2.3.5-3
MAP 1 OF 3
IMPACTS TO CRLF HABITAT
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California



LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile

Permanent Impact

- Aquatic Habitat (0.00 acre)
- Upland Habitat (35.52 acres)

Temporary Impact

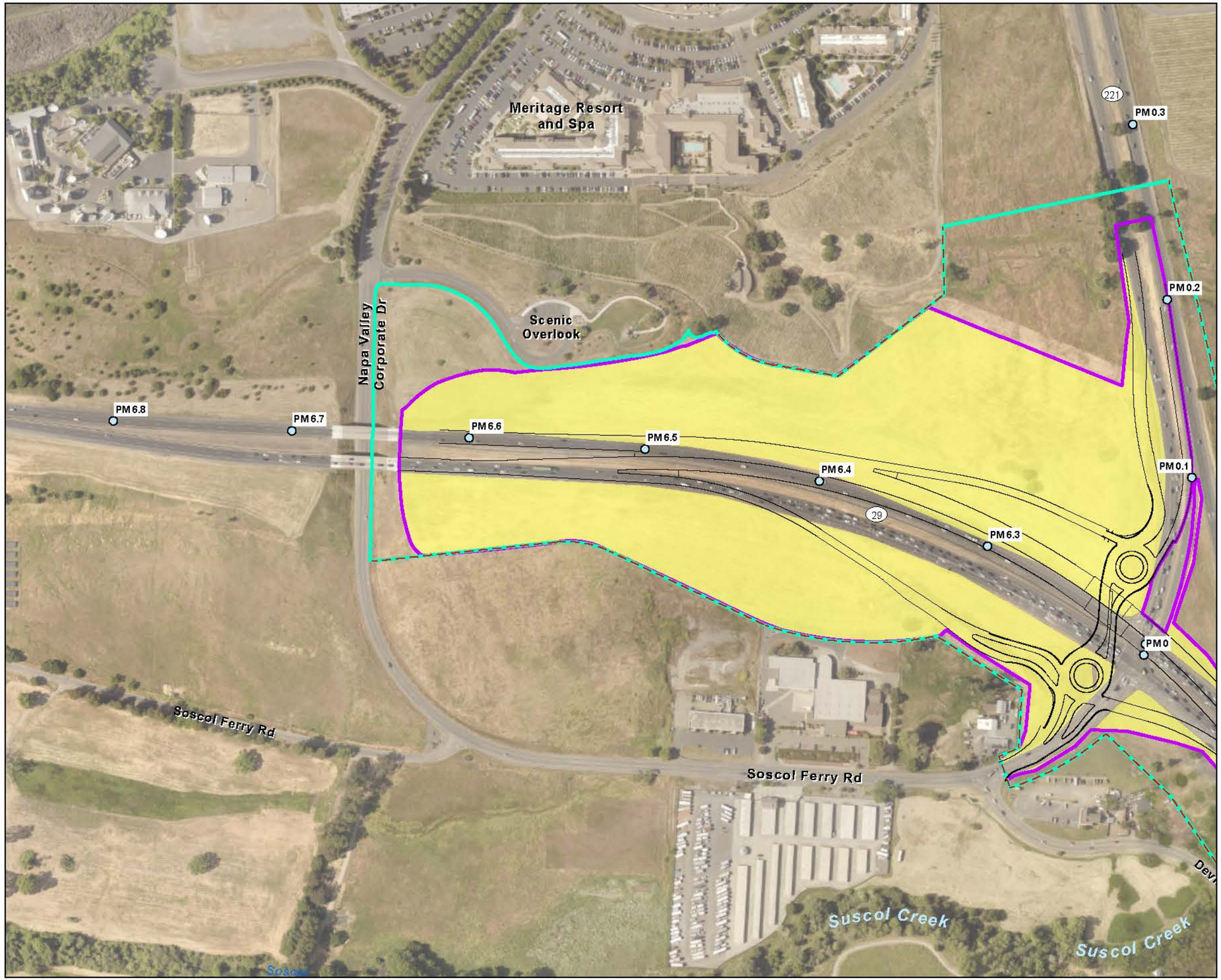
- Aquatic Habitat (0.03 acre)
- Upland Habitat (0.11 acre)

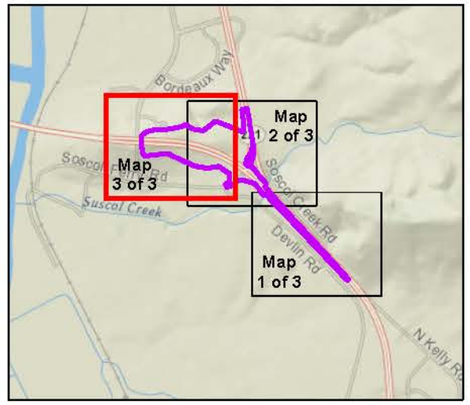
N

0 200 400
Feet

Caltrans

FIGURE 2.3.5-3
MAP 2 OF 3
IMPACTS TO CRLF HABITAT
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California





LEGEND

- Biological Study Area (84.29 acres)
- Project Footprint (50.76 acres)
- Edge of Pavement, Curb/Gutter or Bridge
- Right of Way
- Post Mile

Permanent Impact

- Upland Habitat (35.52 acres)

Service Layer Credits:
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

N

0 200 400
Feet

Caltrans

FIGURE 2.3.5-3
MAP 3 OF 3
IMPACTS TO CRLF HABITAT
State Route 29/221 Soscol Junction Improvement Project
EA 28120, NAP-29 Post Mile 5.12 / 7.05
NAP-221 Post Mile 0 / 0.55
Napa County, California

Swainson's Hawk

Potential SWHA nesting habitat would be directly impacted by the removal or trimming of large eucalyptus trees on the bank of Suscol Creek or along the ROW in the project footprint. These trees may also serve as perching sites. There would be permanent loss to a minimal amount of suitable foraging habitat (open grassland) (Figure 2.3.1-1) as a result of the construction of permanent structures and would be likely to result only in minor direct impacts to foraging. Temporary visual and noise disturbance that occurs near suitable foraging habitat would result in minor, indirect impacts to SWHA because the disturbance may cause them to avoid the area while foraging.

Potential impacts to SWHA will be minimized with the implementation of Project Feature Pre-construction Surveys for Nesting Birds, as described in Table 1-3 of Section 1.3.2, Project Features.

No Build Alternative

Construction and Operation

There would not be any anticipated impacts to threatened and endangered species under the No Build Alternative.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

Contra Costa Goldfields and CCGF Critical Habitat

No additional CCGF-specific AMMs are currently proposed. Project features described above would protect the existing CCGF populations from the potential indirect impacts from construction-related dust.

Caltrans would consult with the USFWS for CCGF under Section 7 of FESA. No specific compensatory mitigation is proposed for this species because construction would be designed to avoid CCGF individuals and CCGF suitable habitat.

The following CCGF critical habitat-specific measure would be implemented:

AMM BIO-5 Contra Costa Goldfield Site Access and Staging Areas: Construction access, staging, storage, and parking areas will be located on ruderal or developed lands within the Caltrans ROW and, where possible, will not be located in areas designated as critical habitat.

No compensatory mitigation is proposed for impacted critical habitat for this project, because there would be no adverse modification or destruction of critical habitat considered suitable for CCGF.

Callippe Silverspot Butterfly

There are no CSSB-specific AMMs for the proposed project. See **AMM BIO-1** for surveys and minimization measures for impacts to host plants if found. There would be no specific compensatory mitigation proposed for this species.

Valley Elderberry Longhorn Beetle

There are no VELB-specific AMMs for the proposed project. See **AMM BIO-1** for surveys and minimization measures for impacts to host plants if found. There would be no compensatory mitigation proposed for this species.

California Freshwater Shrimp

There are no CFWS-specific AMMs for the proposed project. If construction to correct fish passage barriers is added to the scope of the project, additional AMMs may be added and coordination would be required with both CDFW and USFWS. If construction to correct fish passage barriers is added to the scope of the project, and if impacts to CFWS are determined to be likely, consultation with USFWS and CDFW would be reinitiated and any compensatory mitigation would be determined during the consultation process. AMMs could include incorporation of specific elements designed to benefit CFWS, such as rock weirs, willow cuttings, or other in-stream structures into the restoration plan for the fish barrier work.

There is no compensatory mitigation currently proposed for CFWS.

Vernal Pool Fairy Shrimp

There are no VPFS-specific AMMs for the proposed project.

California Red-Legged Frog

Along with the project features described above and in Table 1-3 of Section 1.3.2, Caltrans proposed the following additional CRLF-specific AMMs:

Table 2.3.5-4 Threatened and Endangered Animal Species with Potential to Occur in the Biological Study Area

Species	Common Name	Status			General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
		FESA[a]	CESA[b]	CDFW				
Amphibians	Foothill yellow-legged frog	-	CT	SSC	Partly shaded, shallow streams and riffles with a rocky substrate in various habitats.	Needs at least some cobble-sized substrate for egg laying. Needs at least 15 weeks to attain metamorphosis.	**None**. Suitable habitat does not occur within the BSA.	
Amphibians	California red-legged frog	FT	-	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11 – 20 weeks of permanent water for larval development. Must have access to estivation habitat.	**Present**. Suitable aquatic, non-breeding and dispersal habitat is present within the BSA. Aquatic habitat is found along Suscol Creek.	May affect likely to adversely affect
Birds	Tricolored blackbird	-	CT	SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**None**. Suitable habitat does not occur within the BSA.	
Birds	Swainson's hawk	-	CT	-	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	Requires adjacent suitable foraging areas, such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Present**. Nesting pairs have been observed within 0.25 mile of the BSA as recently as 2013. No active nests were observed during 2019 reconnaissance surveys; however, several individuals were observed soaring in the project area.	
Birds	Western snowy plover	FT	-	SSC	Sandy beaches, salt pond levees, and shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	**None**. Suitable habitat does not occur within the BSA.	No effect
Birds	California black rail	-	CT	FP	Inhabits freshwater marshes, wet meadows, and shallow margins of salt water marshes bordering larger bays.	Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**None**. Suitable habitat does not occur within the BSA.	
Birds	California Ridgway's rail	FE	CE	FP	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.	Associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	**None**. Suitable habitat does not occur within the BSA.	No effect
Birds	Bank swallow	-	CT		Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, and ocean to dig nesting hole.	**None**. Suitable habitat does not occur within the BSA.	
Birds	California least tern	FE	CE	FP	Nests along the coast from San Francisco Bay south to northern Baja California.	Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**None**. Suitable habitat does not occur within the BSA.	No effect
Birds	Northern spotted owl	FT	CT	-	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees	High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	**None**. Suitable habitat does not occur within the BSA.	No effect

Table 2.3.5-4 Threatened and Endangered Animal Species with Potential to Occur in the Biological Study Area

Species	Common Name	Status			General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
		FESA[a]	CESA[b]	CDFW				
Invertebrates	Conservancy fairy shrimp	FE	-	-	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools.	Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, and that last until June.	**Low.** Although suitable habitat occurs within the BSA, none occurs within the project footprint based on 2019 habitat surveys. The species was not observed during protocol-level surveys conducted between 2007 and 2008 for the Soscol Flyover Project. Additional details regarding the methodologies and results of the initial vernal pool branchiopods survey can be found in Appendix G. The nearest known CNDDB occurrence is approximately 15 miles east of the project, in Solano County.	No effect
Invertebrates	Vernal pool fairy shrimp	FT	-	-	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools.	Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**Low**. Suitable habitat occurs within the BSA; however, the species was not observed during protocol-level surveys conducted between 2007 and 2008 for the Soscol Flyover Project. Conditions within the BSA of the proposed project have not changed significantly, and Caltrans has determined that there is low potential for VPFS to occur. Additional details are in Appendix G.	No effect
Invertebrates	San Bruno elfin butterfly	FE	-	-	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County.	Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is *Sedum spathulifolium*.	**None**. Suitable habitat does not occur within the BSA, and the project is outside of the known range for the species.	No effect
Invertebrates	Valley elderberry longhorn beetle	FT	-	-	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*).	Prefers to lay eggs in elderberries 2 – 8 inches in diameter; some preference shown for "stressed" elderberries.	**None**. Suitable habitat does not occur within the BSA, and the BSA is outside of the known species' range. A presence-absence survey conducted for the Soscol Flyover Project in 2005 and reconnaissance survey in 2019 found no VELB or host plants within the BSA. It was determined that VELB is unlikely to occur within the BSA.	No effect
Invertebrates	Callippe silverspot butterfly	FE	-	-	Restricted to the northern coastal scrub of the San Francisco Peninsula.	Hostplant is *Viola pedunculata*. Most adults found on E-facing slopes; males congregate on hilltops in search of females.	**None**. A habitat assessment performed for the Soscol Flyover Project indicates poor quality habitat, lacking sufficient host plants.	No effect
Invertebrates	California freshwater shrimp	FE	CE	-	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low-gradient streams where riparian cover is moderate to heavy.	Shallow pools away from main streamflow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	**Low**. Poor quality habitat occurs within the BSA; however, the species was not observed during protocol-level surveys for the initial Soscol Flyover Project and are not known to occur in Suscol Creek. Caltrans to conduct additional surveys to update previous status of the habitat.	No effect
Fish	Delta smelt	FT	CE	-	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay.	Seldom found at salinities > 10 parts per thousand. Most often at salinities < 2 parts per thousand.	**None.** Suitable habitat does not occur within the BSA.	No effect

Table 2.3.5-4 Threatened and Endangered Animal Species with Potential to Occur in the Biological Study Area

Species	Common Name	Status			General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
		FESA[a]	CESA[b]	CDFW				
Fish	Steelhead - central California coast DPS	FT	-	-	From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins.		**Present**. NOAA Fisheries and the Napa Resource Conservation District concluded that Suscol Creek has a resident steelhead population and Suscol Creek is within the critical habitat for this DPS. As currently designed, no effects would occur to the Creek fish habitat. If construction to improve fish passage at Suscol Creek and the SR 29 crossing is added to the scope of the project, species effects would be re-evaluated and consultation with NOAA Fisheries would be reinitiated.	No effect with current project design, if construction within the OHWM of Suscol Creek is added to the scope of the project, Caltrans would consult with NOAA Fisheries regarding potential impacts to EFH.
Fish	Longfin smelt	FC	CT		Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15 – 30 parts per thousand but can be found in completely fresh water to almost pure sea water.	**None.** Suitable habitat does not occur within the BSA.	
Mammals	Salt-marsh harvest mouse	FE	CE	FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries.	Pickleweed is primary habitat; but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow; builds loosely organized nests. Requires higher areas for flood escape.	**None**. Suitable habitat does not occur within the BSA.	
Reptiles	Alameda whipsnake	FT	CT	-	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats.	Mostly south-facing slopes and ravines, with rock outcrops, deep crevices or abundant rodent burrows, where shrubs form a vegetative mosaic with oak trees and grasses.	**Low**. Habitat within the BSA lacks species' preferred conditions and is outside of the species' expected range.	

Notes:

DPS = Distinct Population Segment

[a] USFWS designations:

CT = Candidate Threatened
DL = Delisted
FE = Endangered (any species in danger of extinction throughout all or a significant portion of its range)
FT = Threatened (any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range)

[b] CDFW designations:

CT = Candidate Threatened
SE = Endangered (any species at risk of becoming extinct in all or a significant portion of its range)
SSC = Species of Special Concern
ST = Threatened (any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range)

Sources: California Natural Diversity Database (CDFW 2019), National Marine Fisheries Service species list (NOAA Fisheries 2019), Information for Planning and Conservation (USFWS 2019), which can be found in Appendix H of this document.

AMM BIO-6 Pre-construction Surveys: Agency-approved biologists will conduct preconstruction surveys for CRLF no more than 10 days ahead of the start of construction. A visual survey will be conducted the morning before ground-disturbing activities. Suitable habitat within the project footprint, including refugia habitat (such as under shrubs, downed logs, and small woody debris) will be visually inspected. If a CRLF is observed, the individual will be evaluated and relocated in accordance with the protocol outlined below. Fossorial mammal burrows will be visually inspected for signs of frog use, to the extent practicable.

AMM BIO-7 Work Windows: For seasonal avoidance of CRLF, construction within Suscol Creek will not occur during the wet season. Except for limited vegetation clearing (necessary to minimize impacts to nesting birds), work in the creek will be limited to June 1 to October 31. Limited vegetation clearing (non-ground disturbing) from November 1 through May 31 may only be conducted under the supervision of an onsite biological monitor.

AMM BIO- 8 Wildlife Exclusion Fencing: Caltrans will consult with USFWS to determine the need for WEF during the PS&E phase. If deemed necessary, WEF will be installed in areas where CRLF are most likely to occur before construction begins. The WEF will remain in place as long as active construction is anticipated. The final project plans will depict the locations where WEF will be installed, the type of materials to be used, and how it will be assembled or constructed.

AMM BIO-9 Biological Monitoring: The USFWS-approved biologist will be present during construction activities where take of CRLF could occur. Through communication with the resident engineer or designee, the USFWS-approved biologist may stop work when safe to do so, if deemed necessary for any reason to protect listed species and will advise the resident engineer or designee on how to proceed accordingly.

AMM BIO-10 Protocol for Species Observation: All CRLF encountered in the project area will be relocated by the agency-approved biologist to a USFWS-approved location. Biologists will take precautions to prevent introduction of amphibian diseases to the project area by disinfecting equipment and clothing as directed in the California tiger salamander survey protocol entitled, *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS 2003) and the recommended equipment decontamination procedures within the USFWS's *Revised Guidance on*

Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005a).

AMM BIO-11 CRLF- Specific Light Restrictions: Construction personnel will turn portable tower lights on no more than 30 minutes before the beginning of civil twilight, and off no more than 30 minutes after the end of civil sunrise. Portable tower lights will have directional shields attached to them, and personnel will only direct lights downward and toward active construction and staging areas, and away from ESAs. Lighting per portable tower light will not exceed 2,000 lumens. Personnel will only use enough coverage to light the travel way, median, and staging areas.

Caltrans will be seeking a Biological Opinion for the proposed Project from USFWS, and CRLF mitigation will be coordinated during this process.

Mitigation Measure BIO-2: Permanent impacts to CRLF habitat would be mitigated at a 3:1 ratio, at an approved mitigation bank, in accordance with the Biological Opinion.

Central California Coastal Steelhead

If no fish passage improvements are included, no AMMs are required.

If construction to correct fish passage is added to the scope of the project, as described in Section 1.3.1, additional CCCS-specific construction measures may be required. These measures will be discussed with NOAA Fisheries, USFWS, and CDFW. These may include, but not be limited to, measures for dewatering and handling similar to that below:

- Prior to construction, Caltrans would develop a detailed dewatering and species rescue plan to be approved by NOAA Fisheries, USFWS, RWQCB, and CDFW. The plan will guide approved biologists in the monitoring, capture, removal, and relocation of CCCS, and other protected aquatic species, should they be encountered.

The purpose of construction below the OHWM of Suscol Creek would be to improve fish passage. Any temporary impacts to CCCS that may result from these activities would be offset by a net benefit to the fish; therefore, Caltrans does not propose additional compensatory mitigation for CCCS at this time.

Swainson's Hawk

The following SWHA-specific AMMs have been proposed for the project:

AMM BIO-12 Preconstruction surveys: Caltrans will conduct preconstruction protocol-level SWHA surveys in 2020 during the PS&E phase using guidelines set forth by the CDFW (1994) and the SWHA Technical Advisory Committee (2000). If a nest is discovered within 0.5 mile of project footprint, Caltrans will coordinate with CDFW for further guidance.

Protocol-level surveys will be performed in 2020. CDFW will be consulted and an ITP will be prepared if needed. Caltrans is not proposing any compensatory mitigation for potential impacts to foraging habitat for SWHA. Mitigation for impacts to SWHA nesting habitat will be determined through the ITP permitting process, if necessary.

No Build Alternative

There are no proposed AMMs under the No Build Alternative.

2.3.6 Invasive Species

REGULATORY SETTING

On February 3, 1999, President William J. Clinton signed 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." 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 NEPA analysis for a proposed project.

AFFECTED ENVIRONMENT

A vegetation characterization survey was conducted on June 12, 2019, within the BSA. Five distinct vegetation communities were identified within the BSA; these are described in Section 2.3.1, Natural Communities.

Several nonnative, invasive plant species are present within or adjacent to the project area, as listed in Table 2.3.6-1. These species dominate much of the roadway landscape along the project area as a result of much of the landscape being affected by grading, filling, or spraying, or being left abandoned or ungrazed.

Table 2.3.6-1 Invasive Plant Species Present within the Project Area

Common Name	Scientific Name	Location Where Observed	Ecological Impact*	Invasive Potential*
Wild oats	*Avena fatua*	Ruderal grassland	B	B
Mediterranean mustard	*Hirschfeldia incana*	Ruderal grassland	B	B
Common mustard	*Brassica rapa*	Ruderal grassland	C	B
Slender wild oat	*Avena barbata*	Ruderal grassland	B	B
Sweet fennel	*Foeniculum vilagare*	Ruderal grassland	A	B
Yellow star thistle	*Centaurea solstitialis*	Ruderal grassland	A	B
Italian thistle	*Carduus pycnocephalus*	Ruderal grassland	B	B

*A = severe, B = moderate and C = limited, as derived from the California Invasive Plant Council

Source: NES (Caltrans 2019) and http://www.cal-ipc.org/ip/inventory/weedlist.php

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction and Operation

In compliance with EO 13112 on invasive species, and guidance from the FHWA, the landscaping and erosion control included in the project will not use species listed as invasive. None of the species on the California list of invasive species is used by Caltrans for erosion control or landscaping.

Potential impacts resulting from the spread of invasive species will be minimized with the implementation of Project Features Revegetation, Creek and Riparian Revegetation, Landscaping and Erosion Control Plan, Cleaning of Equipment, and Reduce Spread of Invasive Species, as described in Table 1-3 of Section 1.3.2, Project Features.

No Build Alternative

Construction and Operation

There are no anticipated impacts regarding invasive species under the No Build Alternative.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

No additional AMMs are proposed because the project already contains project features specifically intended to reduce the spread of invasive species.

No Build Alternative

No AMMs are proposed under the No Build Alternative.

2.4 Cumulative Impacts

This section provides information regarding past, present, and reasonably foreseeable development projects dating from 2010 onward, which, together with the proposed SR 29/SR 221/Soscol Junction Improvement Project, could potentially have a substantial or considerable contribution to cumulative environmental impacts in the respective resource study area. While the past is generally represented by the current existing condition, this analysis reviews known projects that have resulted in recent changes in the previous 10 years. The reasonably foreseeable future is generally a 20-year timeframe.

Incremental impacts that may result from the project are considered in the context of the cumulative condition that exists from previous human actions and in light of other reasonably foreseeable future actions. The analysis proceeds as follows: (1) determine which resources would be significantly impacted by the project; (2) determine whether there is a detrimental condition or deterioration in health of a resource within the context of impacts from past, present, and other reasonably foreseeable future actions; and (3) determine whether, collectively, the proposed project and the foreseeable condition combine to result in a cumulative impact.

The proposed project footprint is within the same footprint of the formerly proposed Soscol Flyover project. From a cumulative resource perspective, the environmental setting for the proposed project has not changed since the environmental resources were last studied for the Soscol Flyover project. The proposed Build Alternative and the previous proposed project are entirely within the existing Caltrans right of way. The studied limits of the former project were considered when creating a new design for the currently proposed project. The proposed project survey area for all resources has decreased from the previous project.

Caltrans, in partnership with NVTA, has worked together to include input from the local community and has incorporated multimodal design elements, including bicycle and pedestrian improvements into the proposed project.

The findings of technical studies for the formerly proposed project remain relevant for the currently proposed project and are referenced in this document. These findings remain accurate, and also reflect updated database searches for various resources.

2.4.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with potential impacts of this 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 time.

Cumulative impacts to resources in the study 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.

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 NEPA can be found in 40 CFR Section 1508.7.

2.4.2 Resources Analyzed

The *Interim Guidance: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process Guidance for Preparers of Cumulative Impact Analyses* (FHWA 2003) describes how the cumulative impact analysis should focus on: (1) resources substantially impacted by the proposed project, or (2) resources currently in poor or declining health. The resources that are evaluated in this Draft IS/MND/EA and meet these criteria are:

- Cultural Resources
- Visual/Aesthetics resources along the SR 29/221 corridor in the Resource Study Area

- Biological Resources (Wetlands and California Red-legged Frog (CRLF)
- Water Quality Resources

If a proposed project would not result in a direct or indirect adverse effect on a resource, then it would not contribute to a cumulative impact on that resource and does not need to be further evaluated. In the initial phases, the following resources were determined not to have a resulting adverse effect from the proposed project: growth, land use, wild and scenic rivers, coastal zone, agricultural resources/farmlands/timberlands, environmental justice, community impacts, energy, mineral resources, utilities/emergency services, relocations and real property acquisitions and biological resources (special-status plant species, special-status animal species, with the exception of CRLF); therefore, these resources would not contribute to a cumulative impact. Through the evaluation in the preceding sections of Chapter 2 of this Draft IS/MND/EA, the proposed project was also determined to result in less than significant impacts, with incorporation of project features and AMMs, and therefore not result in cumulative impacts, on the following resources: traffic and transportation/pedestrian and bicycle facilities, air quality, noise, hazardous waste/materials, and hydrology/floodplains.

Certain resources are not vulnerable to incremental/cumulative impacts. Examples include geologic and seismic hazards related to future developments in the project Resource Study Area. Geologic and seismic hazards are site specific and relate to the type of building or structure proposed and soil composition and slope of a given site. None of the other planned projects in the vicinity would interact with the proposed SR 29 bridge structure to increase the risk of geologic or seismic hazards; therefore, no further cumulative impact analysis is warranted.

2.4.3 Resource Study Areas

Table 2.4-1 lists all resource areas included in the cumulative analysis, as well as the Resource Study Area that corresponds to the cumulative analysis for each resource. The resource study areas in the context of the cumulative analysis are different than the "study areas," which are defined in the preceding sections of this Draft IS/MND/EA for analyzing the direct and indirect impacts to each resource area. This difference is because a cumulative impact analysis reviews the resources in the project vicinity as a whole, rather than merely the potential range of direct and indirect impacts from the project.

Table 2.4-1 Cumulative Impact Analysis by Resource Area

Resource Area	Inclusion in Cumulative Analysis	Resource Study Area
Cultural Resources	Yes	Southern Napa River watershed
Visual/Aesthetics	Yes	State Scenic Highway eligible portions of SR 29 and SR 221 in Napa County
Biological Environment (Wetlands and CRLF)	Yes	Wetlands: subwatersheds South Creek, Suscol Creek, Sheehy Creek and Napa River Marshes-East. CRLF: American Canyon watersheds (Fagan-Jameson Canyon – Lower Napa River)
Water Quality	Yes	Local Watershed: Napa River-San Pablo Hydraulic Sub-Area

Caltrans has a large number of current, planned, and future projects in Napa County (see Figures 2.4-1 and 2.4-2). These projects are considered, along with past projects and the proposed Build Alternative, in the following cumulative impact analysis.

2.4.4 Resource Trends/Historical Context

CULTURAL RESOURCES

The Resource Study Area for cultural resources is the southern Napa River watershed, which includes a number of small tributary creeks and is defined on the north by Milliken Creek and reservoir, and Salavador and Pickle creeks; to the east by Murphy and Spencer Creeks to the south the lower limits of the Napa River; and Huichica Creek to the west. The southern Napa River watershed has had numerous archaeological research investigations over the past eight decades. Previous research has identified a range of prehistoric sites in the area, including large residential sites, such as ethnographic villages, quarries, and other task-specific and historic archaeological sites, both buried and on the surface. The exact number of resources present within this watershed is unknown, but most likely exceeds one hundred sites. While parts of this watershed have been heavily surveyed, there is the chance that construction activities could lead to discovery of unrecorded buried and surface sites.

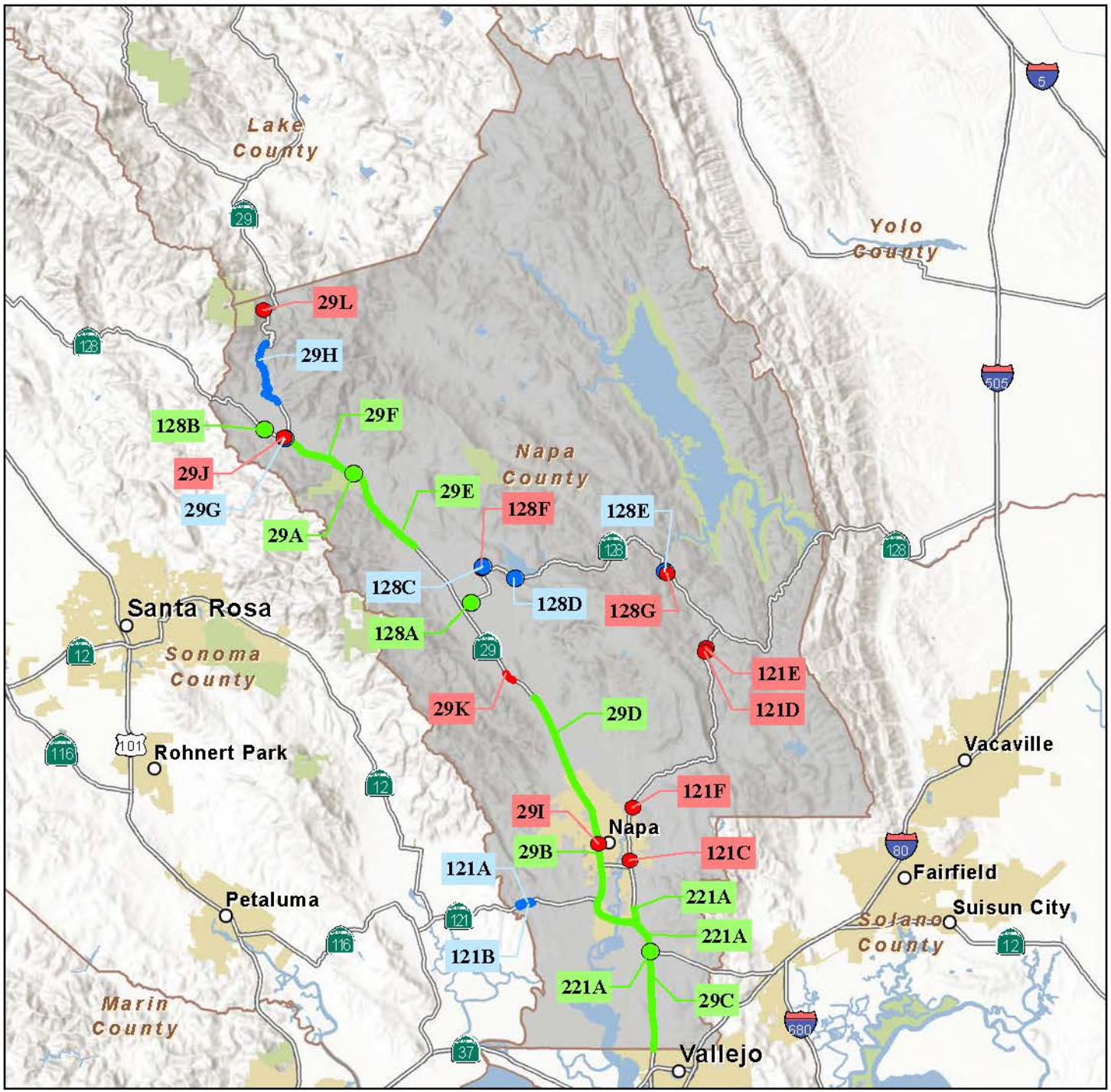


FIGURE 2.4-1A
Napa Active Projects
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California

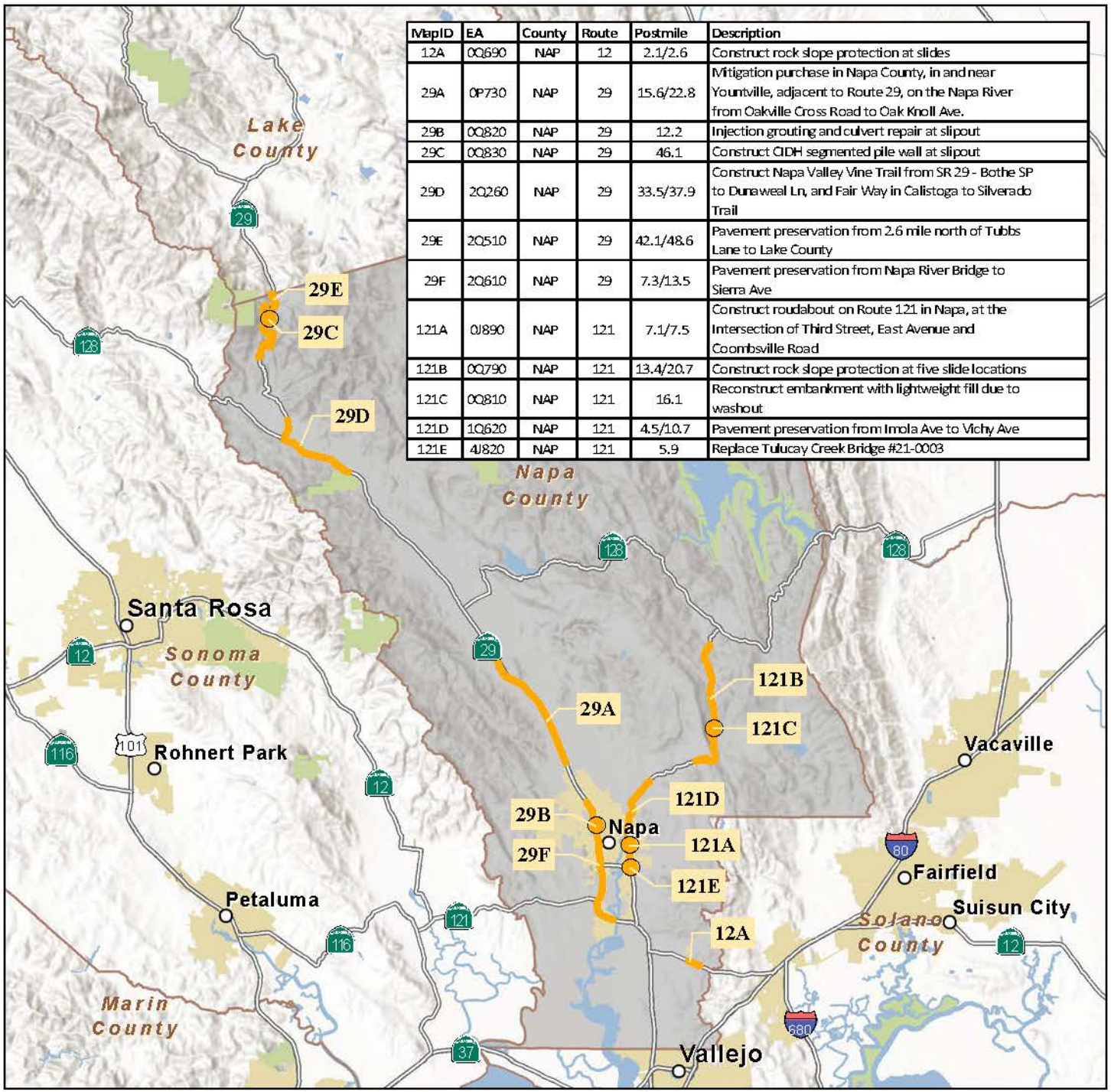
Napa County Active Projects

March 2019

Map ID	EA	County	Route	PM	Description	Capital Cost Estimate ($k)	Construction Begin	Construction End	Projects Phase
29A	4J990	NAP	29	33.1	Remove and Replace Ritchie Creek Bridge #21-0057, and upgrade two bridges in Bothe-Napa State Park	$8,156	Fall 2022	Fall 2023	Environmental
29B	0K000	NAP	29	0.0 / 14.6	Upgrade Curb Ramps at the intersection of NAP 29	$1,069	Winter 2021	Summer 2023	Environmental
29C	4J410	NAP	29	1.7 / 5.1	Rehab two culverts at Rio Del Mar and Sheehy Creek	$3,630	Winter 2022	Summer 2022	Environmental
29D	0K630	NAP	29	14.1 / 19.0	Bridge Rail Replacement at Dry Cr #21-0014, California Dr UC #21-0047, Craig Cr #21-0048, and Perfume Cr #21-0051 bridges	$8,472	Fall 2022	Fall 2024	Environmental
29E	2K150	NAP	29	28.4 / 29.3	Bridge Rail Replacement at Sulfur Creek #21-0016 & York Creek #21-0017 bridges	$4,936	Fall 2023	Fall 2025	Environmental
29F	4J300	NAP	29	29.3 / 36.9	Pavement Preservation (CAPM)	$9,667	Spring 2021	Fall 2022	Environmental
128A	4J830	NAP	128	5.1	Replace Hopper Slough #21-0019 bridge	$9,378	Spring 2023	Fall 2024	Environmental
128B	3K540	NAP	128	3.5 / 3.7	Widen shoulders and install shoulder rumble strips	$436	Spring 2021	Summer 2025	Environmental
221A	28120	NAP	12 29 221	0.0 5.0 / R6.7 0.0 / 0.7	Construct Connector Ramp at intersection of SR 12, 29 and 221	$22,200	TBD	TBD	Environmental
29G	3G64A	NAP	29	37.0	Plant Establishment Project for Napa River Bridge #21-0018	$585	Fall 2019	Winter 2022	Design
29H	2J88U	NAP	29	38.9 / 42.9	Bridge Scour Repair at Garnett Creek #21-0005, Garnett Creek Branch #21-0111, and No Name Creek #21-0100 bridges	$6,110	Fall 2020	Fall 2021	Design
121A	4G210	NAP	121	0.5 / 1.1	Widen roadway at Huichica Creek #21-0001 bridge	$14,099	Winter 2021	Fall 2026	Design
121B	4G21A	NAP	121	0.5 / 1.1	Plant Establishment Project for Huichica Creek #21-0001 bridge	$1,000	Fall 2023	Fall 2033	Design
128C	1G43A	NAP	128	7.4	Plant Establishment Project for Conn Creek #21-0021 bridge	$250	Fall 2022	Winter 2027	Design
128D	2K420	NAP	128	9.2	Construct Rock Slope Protection at roadway slipout and upgrade drainage	$795	Winter 2021	Fall 2021	Design
128E	4G84A	NAP	128	20.1	Plant Establishment Project and Mitigation for Capell Creek #21-0078 bridge	$1,276	Spring 2022	Summer 2026	Design
29I	2J100	NAP	29	11.4	Construct Roundabout at Northbound Ramps, First St, Second St, and California Blvd	$4,060	Spring 2019	Fall 2021	Construction
29J	3G641	NAP	29	37.0	Replace Napa River Bridge #21-0018 in Calistoga	$10,433	Spring 2017	Fall 2019	Construction
29K	2594A	NAP	29	20.4 / 20.8	Replacement highway planting for pavement project	$464	Fall 2019	Summer 2022	Construction
29L	4A09A	NAP	29	47.0 / 47.2	Plant Establishment project for Troutdale Creek #21-0004 bridge	$158	Spring 2017	Spring 2019	Construction
121C	4G920	NAP	121	6.4	Replace bridge girders at Tulucay Creek #21-0003 bridge	$3,878	Fall 2018	Fall 2019	Construction
121D	2A11A	NAP	121	20.2 / 20.4	Highway plant revegetation for Capell Creek #21-0009 bridge	$319	Spring 2015	Fall 2020	Construction
121E	2J570	NAP	121	20.5 / 20.7	Enbankment stabilization and culvert repair	$3,298	Fall 2018	Spring 2020	Construction
121F	2A32A	NAP	121	9.2 / 9.4	Plant Establishment Project for Sarco Creek #21-0117 bridge	$348	Spring 2019	Summer 2023	Construction
128F	1G430	NAP	128	7.4	Replace Conn Creek #21-0021 bridge	$19,177	Spring 2019	Fall 2020	Construction
128G	4G840	NAP	128	20.1 / 20.4	Replace Capell Creek #21-0078 bridge	$27,489	Spring 2019	Fall 2021	Construction

FIGURE 2.4-1B
Napa Active Projects
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\C\CALTRANS\28120_SOSCOL_INTERCHANGE\GIS\MAPS\REPORT\2019\ISMNDEA\AUG\FIG2.4-1B_NAPA_ACTIVE_PROJECTS_8X11_TABLE.MXD CARCHER 9/10/2019 11:55:39 AM



MapID	EA	County	Route	Postmile	Description
12A	0Q690	NAP	12	2.1/2.6	Construct rock slope protection at slides
29A	0P730	NAP	29	15.6/22.8	Mitigation purchase in Napa County, in and near Yountville, adjacent to Route 29, on the Napa River from Oakville Cross Road to Oak Knoll Ave.
29B	0Q820	NAP	29	12.2	Injection grouting and culvert repair at slipout
29C	0Q830	NAP	29	46.1	Construct CIDH segmented pile wall at slipout
29D	2Q260	NAP	29	33.5/37.9	Construct Napa Valley Vine Trail from SR 29 - Bothe SP to Dunaweal Ln, and Fair Way in Calistoga to Silverado Trail
29E	2Q510	NAP	29	42.1/48.6	Pavement preservation from 2.6 mile north of Tubbs Lane to Lake County
29F	2Q610	NAP	29	7.3/13.5	Pavement preservation from Napa River Bridge to Sierra Ave
121A	0J890	NAP	121	7.1/7.5	Construct roudabout on Route 121 in Napa, at the Intersection of Third Street, East Avenue and Coombsville Road
121B	0Q790	NAP	121	13.4/20.7	Construct rock slope protection at five slide locations
121C	0Q810	NAP	121	16.1	Reconstruct embankment with lightweight fill due to washout
121D	1Q620	NAP	121	4.5/10.7	Pavement preservation from Imola Ave to Vichy Ave
121E	4J820	NAP	121	5.9	Replace Tulucay Creek Bridge #21-0003

LEGEND

Projects in Planning Phase

0 7 Miles

Caltrans

FIGURE 2.4-2
Napa Projects in Planning Phase
State Route 29/State Route 221 Soscol Junction Improvement Project
EA 28120, 04-NAPA-29 PM R5.6/R6.7; 221 PM 0.0/0.4
Napa County, California

VISUAL/AESTHETICS

The landscape along the SR 29 and SR 221 highway corridors features sparse development within a mostly open, rural setting. These features include gently rolling, grass-covered hillsides, dotted with native oak trees, vineyards, and occasional groves of eucalyptus trees. The flat plain of the Napa River and its wetlands east of SR 29 and south of the City of Napa is also a prominent attribute of the surrounding landscape.

Although some development has occurred in the project vicinity over time, the area has undergone little visual change. Newer development outside of the two highway corridors has occurred to the south, in the vicinity of the Napa County Airport and the City of American Canyon. Other recent development has occurred to an area north of SR 29 between Napa River and SR 221. This area is not highly exposed to viewers traveling along SR 221. The project would be visible to SR 29 motorists at a distance of 0.5 to 1 mile while traveling on the George Butler Bridge and in distant views from near the southern fringe of the City of Napa.

BIOLOGICAL RESOURCES

Wetlands and Waters of the U.S.

The Resource Study Area considered for wetlands and other Waters of the U.S. is the subwatersheds South Creek, Suscol Creek, Sheehy Creek, and Napa River Marshes-East.

Wetlands that compose the Resource Study Area host a unique ecological community of several special-status species, including those in the Soscol Junction Project area, which are the CRLF and Contra Costa goldfields. Additionally, thousands of migratory waterfowl and other bird species visit the watersheds during seasonal migrations along the Pacific flyway. The South Creek, Suscol Creek, and Sheehy Creek watersheds all flow into the Napa River watershed, which historically was nearly all tidal salt marsh and tidal brackish marsh, dominated by the hydrology of the lower Napa River.

Today, the majority of the wetlands in the Resource Study Area are located in an area that is relatively undeveloped, apart from some agriculture, and the inactive salt ponds on the western side of the Napa River.

Over the past 150 years, humans have considerably altered the natural systems of Napa County undesirably by land use practices that include floodplain changes,

degraded water quality, importing exotic and invasive species, and human disturbance in aquatic systems.

Since 1800, an estimated 6,500 acres of historical valley floor wetlands have been drained or filled. Uses include 19,700 acres of the watershed are now under hardened pavement or rooftops and another 26,000 acres have been used for agriculture.

Because of uncertainties in both natural and human-caused factors, monitoring changes in wetland areas is difficult. Natural events, including earthquakes, floods, and fires, and short- and long-term climate change can affect the distribution and acreage of wetlands. The overall trend has been toward a decline in wetlands resulting from urbanization and agricultural practices; however, the "no net loss" policies set forth by the EPA and USACE, require that present and future development replace any acreage of wetland or other waters lost at a minimum of a 1:1 ratio and, in most cases, a 3:1 ratio.

California Red-legged Frog

The geographic context for CRLF includes the current range distribution as designated by the USFWS. This includes the American Canyon watersheds (Fagan-Jameson Canyon – Lower Napa River), located just south of SR 12 and on the eastern side of SR 29. For the purpose of this analysis, a 2.24-mile Resource Study Area buffer was established around the project limits to evaluate any cumulative effects to the CRLF. As discussed in the NES, CRLF dispersal habitat refers to accessible upland or riparian habitat within and between occupied or previously occupied sites. CRLF are known to disperse up to 2.24 miles of breeding sites. A 2.24-mile buffer around the project limits was implemented to adequately analyze any potential direct or indirect cumulative effects from the proposed project and other projects in the area to CRLF dispersing to or from potential suitable breeding sites.

The CRLF is federally listed as threatened and is a state species of concern. The status of CRLF under federal and state provisions indicates it is experiencing cumulative impacts.

CRLF is the largest native frog found in the western United States. The CRLF requires habitat that consists of both aquatic and riparian elements. CRLF are found primarily in wetlands and streams in the coastal drainages of Central California.

Adults use dense, shrubby, or emergent vegetation closely associated with deepwater pools with fringes of cattails and dense stands of overhanging vegetation. The

shrubby riparian vegetation that structurally seems to be most suitable for CRLF is that provided by arroyo willow. However, cattails (*Typha* sp.) and bulrushes (*Scirpus* spp.) also provide suitable habitat.

The reasons for the decline of CRLF are multifaceted and include predation by the introduced exotic bullfrog (*Rana catesbeiana*) and predatory fishes such as sunfish (*Lepomis* sp.), habitat alteration, the over harvest of frogs in the 19th century, air and water pollution, solar radiation, pathogens, and parasites.

CRLF was assumed to be potentially present in the BSA based on the findings of a site assessment, which documented the presence of habitat suitable to support CRLF. The project is located within the known range of CRLF, and there are recorded observations of the species within the project area.

Within the BSA, Suscol Creek provides aquatic habitat for CRLF with low potential for CRLF breeding. This site is within the historical range for CRLF and contains year-round water for basic behavioral requirements; however, within the BSA, Suscol Creek is expected to flow too swiftly during the breeding season to support successful CRLF breeding and likely contains fish that would prey on egg masses and tadpoles (J. Mitchell 2019 pers. comm.).

The study area overlaps with USFWS CRLF core recovery area 15. Core recovery areas represent a system of areas that, when protected or managed for CRLF, allow for long-term viability of existing populations and re-establishment of populations within the historical range. CRLF core recovery areas are selected because they represent viable populations or because the location contributes to the connectivity of habitat and would increase dispersal opportunities between populations.

The USFWS assigned the Fagan-Jameson Canyon-Lower Napa River location as a core area based on the following:

- This area is considered currently occupied by CRLF.
- This area supports a source population of CRLF.
- This location provides connectivity between known populations of CRLF.

The USFWS recently approved an expansion of CRLF critical habitat in Solano County to include portions of CRLF core recovery area 15 in 2010. Thus, critical habitat unit SOL-2 is now located approximately 1.75 miles east of the SR 29/ SR 221/Soscol Junction Improvement Project area (USFWS 2010).

The project area is located near suitable aquatic CRLF breeding habitat, in the form of at least three high-quality perennial drainages. Additionally, given the overlap of CRLF Core Recovery Area 15 and the eastern limits of the study area, it is reasonable to conclude that the BSA potentially could be within suitable CRLF upland aestivation and movement habitat. At the time of the initial habitat assessments for CRLF for the Soscol Flyover project, within the same survey area as the proposed project, presence of CRLF was inferred based on the presence of suitable habitat, proximity to the species' known range (Stebbins 1985), and proximity to recorded observations (CDFW 2019). To date, no CRLF have been observed within the project BSA. Because conditions within the project BSA have not changed significantly since the initial surveys, Caltrans will continue to infer CRLF presence for the proposed project.

WATER QUALITY

The project is located within the Napa River-San Pablo Hydraulic Sub-Area 206.50, which is considered the Resource Study Area. The receiving water bodies within the project limits include Suscol Creek and Napa River. Suscol Creek is tributary to the Napa River, which flows to the San Pablo Bay and, ultimately, to the Pacific Ocean.

Napa River in this location is tidal and impaired for nutrients and pathogens, based on the 2014-2016 CWA Section 303(d) List of Water Quality Limited Segments.

The Region 2 Basin Plan establishes beneficial uses for waterways and water bodies within the region. Napa River's beneficial uses include: agriculture supply; cold freshwater habitat; migration of aquatic organisms; municipal and domestic supply; navigation; rare, threatened, or endangered species; water recreation; spawning; reproduction; and/or early development; warm freshwater habitat; and wildlife habitat. No water quality objectives (beneficial uses) are noted for Suscol Creek; however, it is considered an important Napa Valley steelhead stream with high-quality spawning and rearing habitat. Multiple barriers to steelhead migration, including the existing SR 29 culvert, exist on Suscol Creek.

2.4.5 Cumulative Impact Analysis

NO BUILD ALTERNATIVE

No construction would occur under the No Build Alternative. Existing conditions would be perpetuated, and the impacts associated with the Build Alternative identified in Chapter 2 would not occur. This would include the beneficial aspects of the Build Alternative, such as improving air quality by reducing traffic congestion

and other pedestrian and bicycle improvements at the SR 29/221/Soscol/Ferry Road intersection.

BUILD ALTERNATIVE

A cumulative analysis is required for any resource significantly impacted by a proposed project. Based on the analysis presented in Chapters 2 and 3, none of the proposed project impacts would significantly impact resources. Several resources (land use, community impacts, growth, utilities/emergency services, hazardous waste/materials, air quality, noise and plant species) would have no impact under the Build Alternative, and a few resources would be directly (or indirectly) impacted at a less than significant level (, traffic and transportation/pedestrian and bicycle facilities, geology, soils, and seismicity, hydrology and floodplain, and stormwater runoff). No cumulative impacts to natural communities, animal species, and threatened and endangered species in conjunction with project activities are anticipated with the proper implementation of project features and AMMs. However, a cumulative analysis is also required for any impacted resources that are in poor health, declining health, or at risk. Each resource category was evaluated, and three resource categories, water quality (Napa River), wetlands and waters of the U.S., and CRLF were identified as being in poor health or at risk from cumulative impacts. Cultural resources and visual/aesthetics were considered as potentially affected by cumulative impacts based on the project impacts discussed in Chapter 2 and the number of Caltrans projects proposed in the respective Resource Study Areas.

For the construction phase, one resource category, construction traffic management, was identified as potentially at risk. As stated, Caltrans has 28 active projects within Napa County, as well as 12 projects in the planning stages for multiple highway improvement and capital projects within the SR 29 and SR 221 highway corridor. Depending on delivery schedules, several of the projects along these highway corridors may occur within a similar timeframe.

Caltrans, NVTA, and the cities of Napa and American Canyon would coordinate to develop a regional TMP that would address and minimize impacts to traffic in the region resulting from construction of multiple planned transportation improvements. This regional TMP would address potential traffic impacts from a cumulative standpoint.

Cultural Resources

Archaeological Resources

An archaeological resource was identified within the files at the Northwest Information Center; the resource was determined eligible for the NRHP within the project's APE. The resource is archaeological site CA-NAP-15/H, which is a dual-component site determined eligible by consensus through the Section 106 process in 1974.

The Build Alternative is anticipated to have a Finding of Adverse Effect under Section 106 of the NHPA on the archaeological site. As of September 2019, Caltrans is consulting with the SHPO on an adverse effect determination and developing a Memorandum of Agreement (MOA) to the resolution of effects and treatment of the archaeological site. Caltrans is also continuing consultation with Native American tribes in the area regarding the treatment of the archaeological site.

Other archaeological resources could be encountered during construction of this project and/or construction of other projects planned in the project vicinity. While Caltrans has made every effort to identify historic archaeological resources, the project could potentially contribute to a cumulative impact to archaeological resources. However, AMMs, such as CULT-1 and CULT-2, and preparation of a MOA with SHPO will remediate and minimize potential inadvertent destruction of archaeological resources within the project APE and vicinity.

Architectural History

As a historic property, Caltrans identified the Soscol House as an historic and Section 4(f) resource under provisions of the U.S. Department of Transportation Act. However, the proposed project would not directly impact this property through permanent physical occupancy or temporary occupancy. The Build Alternative would cause no physical destruction or damage to the Soscol House. The building would not be altered, nor would the proposed project cause the ownership of the Soscol House to change. The project would also not cause indirect effects through alterations in visual or cultural setting of the property. Consequently, the Build Alternatives do not trigger Section 4(f) protection because the project does not permanently use the property and does not hinder the preservation of the property. The Build Alternative would not further erode the integrity of the historic setting. Because the historic Soscol House is oriented away from the project area, the Build Alternative would not introduce a new visual element that is significant enough to diminish the integrity of the property's significant historic features. Therefore, the Build Alternative would

have no adverse effect on this historic property, as defined by 36 CFR 800.5(a)(2) of the NHPA. As of September 2019, Caltrans is consulting with the SHPO and is developing a MOA and data recovery plan to satisfy both Section 106 and CEQA requirements. Because the Build Alternative would not directly or indirectly impact this historic resource, there would not be a cumulative impact to architectural historic resources within the resource study area.

Visual/Aesthetics

Cumulative impacts to visual/aesthetic resources are those resulting from past, present, and reasonably foreseeable future actions, combined with the potential visual impacts of the proposed Build Alternative.

This project is sited along highways eligible for designation as State Scenic Highways; therefore, cumulative visual impacts must be considered in relation to the scenic highway designation. To be designated under the State Scenic Highway Program, the corridor's visual quality is assessed in terms of vividness, intactness, and unity. If visual intrusions are created along more than 25 percent of the overall length of a nominated segment, those intrusions could make the segment ineligible for official designation. This is interpreted to indicate that visual intrusions that occur along more than 25 percent of the length of a designated State Scenic Highway could result in a significant cumulative visual impact (Caltrans 2008).

The eligible portion of SR 29 is from the intersection with SR 221 south to Vallejo. In this eligible segment, only one other project is planned, the rehabilitation of two culverts at Rio Del Mar and Sheehy Creek (EA 4J410), with a total length of less than 3.5 miles. These culvert repairs are not anticipated to have visible changes to the aesthetic environment of SR 29. The SR 29/SR 221 intersection improvement project would affect approximately 1.7 miles of the eligible portion of SR 29. The SR 29/ SR 221 intersection improvement project would not contribute to a cumulative impact to this eligible segment of SR 29 because both projects would not represent impacts to 25 percent of the portion of SR 29 eligible for designation as a State Scenic Highway.

The entire length of SR 221 is eligible for designation as a State Scenic Highway. The projects planned for SR 221 include the following:

- Replacement of bridge girders at Tulucay Creek Bridge #21-003 (EA 4G920)
- Highway plant revegetation for Capell Creek Bridge #21-009 (EA 2A11A)

- Embankment stabilization and culvert repair on NAP-121, PM 20.5/20.7 (EA 2J570)
- Plant establishment project for Sarco Creek Bridge #21-0117 (EA 2A32A)

All of these projects would affect small portions of SR 221 (approximately 1-mile total). The SR 29/SR 221 intersection improvement would affect less than one PM of SR 221; therefore, the SR 29/SR 221 project would not contribute to a cumulative impact to SR 221 because these projects would not represent impacts to 25 percent of the length of SR 221, which is eligible for designation as a State Scenic Highway.

Biological Resources

Wetlands and Waters of the U.S.

Table 2.4-2 shows the potential impacts of the Build Alternative on wetlands and waters of the U.S.

Table 2.4-2 Impacts to Potential Waters of the U.S. in the BSA

Aquatic Resource Type	Temporary Impact (acre)	Permanent Impact (acre)
USACE Wetlands	0	0
Other Waters	0.22	0-
Total Waters of the U.S.	**0.22**	**0**

Source: Aquatic Resources Delineation Report (Appendix D of the NES).

Impacted wetlands would be mitigated under the USACE's "no net loss policy," under the CWA 404 Nationwide Permit process. Mitigation, if required, would be determined during the USACE permitting process. This process would ensure no cumulative impacts to wetlands within the USACE-approved service area for the proposed project. With implementation of measures to avoid and minimize impacts to wetlands and waters designed into the project, onsite restoration, and offsite mitigation if necessary, the project would result in a negligible contribution to cumulative impacts on jurisdictional wetlands and waters.

CRLF

As discussed above, and based on biological surveys of CRLF suitable habitat within the BSA limits, there is an inferred presence of CRLF,; the estimated direct permanent and temporary impacts to CRLF habitat are summarized in Table 2.4-3.

Table 2.4-3 Potential Impacts to CRLF Habitat

Habitat Type	Area of Effect in Acres	
	Temporary	Permanent
Potential Aquatic Habitat (non-breeding and dispersal)	0.3	.
Potential Upland Habitat (aestivation and dispersal)	0.11	35.41
Total	**0.14**	**35.41**

Indirect impacts to CRLF outside of directly impacted (construction) areas are not anticipated because: (1) water quality would be protected using Caltrans standard BMPs; and (2) the project would not increase vehicle capacity and vehicle traffic is not anticipated to be greater during night hours, when CRLF typically disperse.

The Build Alternative is expected to have negligible contributions to cumulative impacts to CRLF and would not significantly alter the hydrology within the BSA. The project's permanent impacts would be mostly linear additions to marginally suitable habitat (ruderal roadsides). The major impacts from the proposed project would mostly occur in CRLF upland dispersal habitat adjacent to high-traffic roadways. Caltrans would restore temporary project impact areas to as close to pre-project conditions as practicable, retaining the character of the landscape.

Water Quality

The Build Alternative is located within Napa County; therefore, it is subject to the stormwater permit requirements issued by the RWQCB. The Build Alternative would add impervious surface area and potentially discharge construction and postconstruction-related stormwater pollutants to local receiving water bodies. Per the *Water Quality and Storm water Runoff Study* (May 2019), the project is located within the San Francisco Bay RWQCB, hereafter "Region 2", which is responsible for implementation of state and federal laws and regulations for water quality protection.

Protection and enhancement of existing and potential beneficial resource uses are primary goals of water quality planning. Chapters 2 and 3 outline how recreation, wildlife habitat, and endangered species would not be significantly impacted by the Build Alternative.

In the San Francisco Bay Area, the RWQCB issues 5-year municipal stormwater permits to cities, counties, and flood control districts. The most recent permit was issued in November 2015. This specified BMPs to reduce or eliminate stormwater pollution. It imposed the following stormwater reduction requirements: reduce trash discharge by 70 percent by 2017, mercury by 50 percent by 2018, and polychlorinated biphenyls by 90 percent by 2030. The permit also specified reductions in sediment from construction sites, and that all new developments should divert stormwater through a biofiltration system prior to a storm drain.

Construction impacts of the proposed project to receiving waterbodies would include turbidity and pH. These potential impacts could result from the discharge of concrete leachate and sediment beyond the construction site perimeter.

Post-construction water quality impacts would need to be addressed because the proposed project would have more than an acre of new impervious surfaces (total of 11 acres). To prevent or reduce impacts, construction site BMPs) would be deployed for sediment control and material management. These would include cover, check dam, drainage inlet protection, fiber roll, silt fence, concrete wash-out, construction entrances/exits, and street sweeping. Other BMPs would be implemented such that disturbed soil areas would be stabilized by paving, rock slope protection, or erosion control. Temporary construction roadways and dewatering may also be required.

The potential would exist for cumulative impacts from a combination of the Build Alternative and other projects previously referenced within Napa County. Caltrans alone has 28 active projects within Napa County. These include the corridor improvements along SR 29 and SR 221. However, because the proposed project and other concurrent or planned projects would be subject to stormwater permit requirements and must each implement their own BMPs, cumulative impacts to water quality are not anticipated. Through compliance with the municipal stormwater permit, stormwater discharged by these projects should meet (or exceed) the County's requirements to improve water quality within the project construction limits.

The San Francisco RWQCB adopted Order No. R2-2019-0007 (effective in February 2019), which requires Caltrans to provide trash control in areas identified as a significant trash generation area. Although there are no significant trash generation areas identified within the project limits, the Region 2 Water Board may implement a trash control requirement because the project would require Section 401 water quality certification.

Prior to commencement of construction activities, a stormwater pollution prevention plan would be prepared by the Contractor and approved by Caltrans. The stormwater pollution prevention plan would address potential construction impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable.

Regarding stormwater quality, the Build Alternative would implement BMPs to remove pollutants (including trash, mercury, and polychlorinated biphenyls) from stormwater before they discharge into Suscol Creek and Napa River. Full treatment for all new impervious surfaces is proposed, which would prevent negative impacts to water quality. Other postconstruction stormwater BMPs for the project would be evaluated and may include bioretention devices, basins, media filters, and tree well filters. BMPs would be used during construction to prevent negative impacts to water quality. These include appropriate erosion/sediment control measures and site management practices, such as a material management and a spill prevention plan. The Build Alternative would also implement source control measures, such as markers on storm drain inlets, protecting existing vegetation, and proper plant selection and pesticide management for new landscaping. With implementation of the project features, AMMs, and water quality permitting requirements, the Build Alternative would not have a cumulative impact to water quality.

Conclusion

The Build Alternative would not have a cumulatively significant impact on any impacted resources. All potential impacts will be minimized through the proposed project features and AMMs presented in Chapter 2. Based on this cumulative impact analysis, no further mitigation measures are proposed.

Chapter 3 California Environmental Quality Act Evaluation

This chapter is used to document and discuss Caltrans significance determinations under CEQA. According to CEQA Guidelines, Section 15064(b), "The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area."

The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the Project Development Team (PDT), based to the extent possible on the results of field surveys and technical studies. Because the significance of an effect may vary depending on the environmental setting, the context within which the impact takes place is critical and set rules for determining significance in every case have not been established. Some public agencies have established thresholds of significance for CEQA. Because Caltrans has statewide jurisdiction and the setting for projects varies so extensively across the state, Caltrans has not developed statewide thresholds of significance for CEQA and does not intend to. The determination of significance under CEQA is left to the internal PDT, with particular deference paid to the expertise of environmental staff and other specialists.

This chapter is largely organized around the CEQA Checklist and includes guidance to ensure consistency with Caltrans posted guidance on "Mitigation under CEQA."

A. Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project. Please see the checklist beginning on page 3-3 for additional information.

X	Aesthetics		Agriculture and Forestry	X	Air Quality
X	Biological Resources	X	Cultural Resources		Energy
X	Geology/Soils	X	Greenhouse Gas Emissions		Hazards and Hazardous Materials

X	Hydrology/Water Quality		Land Use/Planning		Mineral Resources
	Noise		Population/Housing		Public Services
	Recreation	X	Transportation/Traffic	X	Tribal Cultural Resources
	Utilities/Service Systems		Wildfire		Mandatory Findings of Significance

B. Determination

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required

Signature:	**Date:**
Printed Name:	**For:**

3.1 CEQA Environmental Checklist

04-Napa-SR 29/221	R5.6/R6.7 at SR 29 and PM 0.0/0.4 at SR 221	28120
Dist.-Co.-Rte.	P.M/P.M.	E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. 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.

Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
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?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				X

A VIA was completed by the Caltrans Office of Landscape Architecture on July 29, 2019 (Caltrans 2019d. The existing intersection of SR 29/SR 221 is located within the agricultural context of rural Napa County. SR 29 is defined as eligible for official state scenic highway designation from SR 37 near Vallejo to the south to the SR 29/SR 221 intersection at the project site. SR 221 is eligible for official state scenic highway designation for its entire length and is a Napa County scenic roadway (Napa County 2007).

The Project Features Context Sensitive Features for Overcrossing Structure, Context Sensitive Features, Guardrail Design, Vegetation Control and Protection, Construction Lighting, Slope Design Enhancement, Revegetation, Drainage, Drainage Design, Color Treatment for Drainage, Creek and Riparian Revegetation, Tree Pruning, and Fish Passage Design as described in Table 1-3 of Section 1.3.2, Project Features, would minimize specific aesthetic impacts and be designed and implemented into the project.

a) No Impact

The main elements of the Build Alternative that would result in visual changes are the SR 29 overcrossing that would be used to replace the four-way, signalized

intersection, and the two roundabouts when seen from the new overcrossing. Very little vegetation removal would occur, and no significant trees would be removed. These elements would predominantly affect the open grassland and largely undeveloped area around the overcrossing location, in a rural landscape that has been affected by roads (including SR 221, SR 29, Soscol Creek Road, and Devlin Road), parking lots, and a small number of structures set well back from the intersection.

The only scenic vista in proximity to the project area is a scenic overlook at Vista Point Park, which is located approximately 1,800 feet northwest of the existing SR 29/SR 221 intersection. Because of its elevated location (132 feet compared to the 77-foot elevation of the intersection) and the lack of intervening topography and development, Vista Point Park has panoramic views in all directions, including the project location. The park includes the iconic *The Grape Crusher* statue, depicting a vineyard worker with a wide-brimmed hat straining to operate a traditional grape crusher. This statue is approximately 18 feet tall and sits on the highest point in the park. The proposed project would not affect this scenic vista and views of the proposed project from this vista were evaluated to be low from a visual impact perspective because of the distance of the proposed project and the preservation of the overall open and panoramic views from this vista. There would be no impact to scenic vistas.

b) No Impact

No scenic resources would be affected by the proposed project. As stated above, minimal vegetation removal would occur, and no significant trees would be removed. The Villa Romano restaurant, or former historic Soscol House (eligible for listing on the NRHP), is located near the project area but would not be affected by the proposed project. Therefore, there would be no impact to scenic resources.

c) Less than Significant Impact

Overall, the proposed SR 29 overcrossing and the two roundabouts would introduce a change in the character of the highway corridor, although the effect would be limited to a small radius around the intersection (approximately 0.25 mile) because of the intervening topography. The change in visual resources varies between KVs. Views on northbound and southbound SR 221 would experience the greatest visual resource change as a result of the blocking and enclosing of the views by the new SR 29 overcrossing. This would affect the intactness and unity of the site, and the visual character of the corridor would be altered, resulting in a moderate high level of

resource change. Resource changes would also occur to a lesser extent on northbound SR 29, where distant views of the mountains would be blocked by the higher topography of the overcrossing, and from the Villa Romano restaurant parking lot adjacent to the intersection, where partial blocking of the hillsides would occur. Views on southbound SR 29 would experience changes in the visual resource in the foreground and middle ground, with the introduction of the overcrossing and roundabouts, but the views of the distant hillsides would not be affected. Although views in the project area would be altered, the proposed project would not substantially degrade the existing visual character or quality of public views from the highway corridors and its surroundings. There would be a less than significant impact.

d) No Impact

The proposed project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. The existing highways and intersection provide nighttime lighting. The signalized intersection's lights would be eliminated by the two roundabouts. Construction work is anticipated to be limited to daylight hours and would not create nighttime lighting or glare. There would be no impact.

No impacts requiring AMMs would occur related to aesthetics.

Agriculture and Forest Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
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))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

a-e) No Impact

The proposed project is located in an urban, built-out area, with no agriculture or forest resources in the project limits. The proposed project would not convert farmland to non-agricultural use or conflict with existing zoning for agricultural use, forest land or timberland. The project would have no impact.

Air Quality

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
III. 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:				
a) Conflict with or obstruct implementation of the applicable air quality plan?				X
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?				X
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				X

The Project Features Dust Control, Construction Traffic, Track-Out Reduction Measures, Unpaved Road Speed Limits, Paving and Building Pads, Idling and Access Points, Maintaining Construction Equipment and Vehicles, and Contractor Air Quality Compliance as described in Table 1-3 of Section 1.3.2, Project Features would be designed and implemented into the project and therefore minimize air quality impacts.

a, b, d) No impact

The proposed project would not conflict or obstruct the implementation of the BAAQMD Air Quality Plan. The project would have emissions less than the BAAQMD thresholds for O_3 (that is., O_3 precursors) and particulate matter (PM_{10} and $PM_{2.5}$). Therefore, the project would not contribute substantially to existing or projected violations of those standards. Roadways and intersections affected by the project would have traffic volumes less than the BAAQMD screening criteria and, therefore, would not cause a violation of an ambient air quality standard or have a considerable contribution to cumulative violations of these standards. Additionally, BAAQMD BMPs would be applied to reduce any air quality impacts, as listed in Section 2.2.6. The proposed project would not result in other emissions, such as odors, that would adversely affect nearby populations. There would be no impact.

c) Less than Significant Impact

The proposed project may expose sensitive receptors to potential airborne dust and particulate matter from construction activities, but the AMMs as described in Section 2.2.6 would be implemented to minimize these potential affects. There would be a less than significant impact.

No impacts requiring AMMs would occur related to air quality.

Biological Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		
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?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

a) Less Than Significant with Mitigation Incorporated

Special Status Plant Species

Forty-nine special-status species were initially reviewed for potential to occur in the BSA. Based on the results of protocol-level rare plant surveys conducted within the BSA in 2008 and 2009 and reconnaissance surveys conducted in 2019, only one federally listed plant species, CCGF is known to occur within the BSA, outside of the project footprint within an area that would not be disturbed during construction. A portion of the project is located within CCGF-designated critical habitat, however; this critical habitat does not contain suitable habitat for the species.

Impacts to special-status plant species would be minimized with the implementation of Project Features Dust Control, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage, Maintenance, Worker Environmental Awareness Training, Landscaping and Erosion Control Plan, Cleaning of Equipment, Reduce Spread of Invasive Species, Erosion Control and Water Quality Protection Measures, Stormwater Best Management Practices, and Pre-construction Surveys, as described in Table 1-3 of Section 1.3.2, Project Features. Significant impacts to special-status plant species would be avoided with the implementation of **AMM BIO-1 Rare Plant and Host Plant Surveys** as discussed in Section 2.3.3.

CCGF Critical Habitat

Approximately 10.08 acres of CCGF Critical Habitat Unit 3, as designated by USFWS, would be directly impacted by the proposed project (Figure 2.3.5-2). Critical Habitat Unit 3 is 534 acres in total size. The proposed project would only result in the permanent loss of 1.9 percent of the total area of this Unit 3. As mentioned, the area of CCGF Critical Habitat Unit 3 impacted by the project does not contain PCEs for the species. Suitable habitat within mapped CCGF critical habitat would be avoided during construction-related activities (USFWS 2006a).

Impacts to CCGF critical habitat would be minimized with the implementation of Project Features Dust Control, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage, Reduce Spread of Invasive Species, Erosion Control and Water Quality Protection Measures, and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features. Significant impacts to CCGF habitat would be avoided with the implementation of **AMM BIO-5 Contra Costa Goldfield Site Access and Staging Areas,** regarding site access and staging area designation would be implemented, as discussed in Section 2.3.5.

Contra Costa Goldfields

The nearest known occurrence of CCGF is outside of the project footprint. All work is being conducted to the south from the area known to support CCGF (Figure 2.3.5-1). Individual plants, populations, sub-populations, and suitable habitat within designated CCGF critical habitat would be avoided during construction.

Impacts to CCGF populations and/or suitable habitat east of the project footprint may occur as a result of dust impacts from nearby construction. Dust has the potential to affect the reproductive abilities of individual plants and populations by decreasing

seed production, thereby resulting in decreased numbers and/or distribution of plants over time.

Impacts to CCGF and CCGF suitable habitat would be minimized with the implementation of the same Project Features listed for special-status plant species above. Significant impacts to CCGF would be avoided with the implementation of the proposed **AMM BIO-1 Rare Plant and Host Plant Surveys**, as discussed in Section 2.3.3. Additionally, Caltrans would request a Biological Opinion and request concurrence with a no effect determination from USFWS, to address the potential loss of CCGF resulting from indirect effect to suitable habitat located east of project footprint.

Special Status Animal Species

Thirty-nine special-status animals species were assessed for their potential to occur within the BSA. Twelve were determined to have potential to occur, including CRLF, golden eagle, burrowing owl, SWHA, northern harrier, CCCS, pallid bat, WPT, CFWS, VPFS, CSSB, and VELB. During surveys, biologists observed one of these special-status species in the BSA, SWHA. These species are discussed in further detail below.

Raptors and Other Nesting Birds

Potential direct impacts to raptors and other nesting birds include temporary impacts to foraging habitat and temporary or permanent loss of potential nesting habitat. Indirect impacts include construction noise and general construction activities.

Impacts to raptors (other than SWHA) and other nesting birds would be minimized with the implementation of Project Features Revegetation, Worker Environmental Awareness Training, Pre-construction Surveys for Nesting Birds, and Nighttime Lighting Restrictions. Additional AMMs for raptors and other nesting birds are not currently proposed.

Impacts to Bat Species

A total of 0.38 acre of potential roosting habitat would be permanently impacted by the proposed project as a result of tree removal. Approximately 0.13 acre of habitat would be temporarily impacted as a result of construction activity at the Suscol Creek Bridge (Figure 2.3.4-2).

Impacts to bats would be minimized with the implementation of Project Feature Nighttime Lighting Restrictions as described in Table 1-3 of Section 1.3.2, Project

Features. Significant impacts would be avoided with the implementation of the proposed **AMM BIO-2 Light Restrictions** and **AMM BIO-3 Future Studies and Bat Roost Deterrents**, as described in Section 2.3.4.

Western Pond Turtle

Potential project impacts to WPT would include direct impacts (potential loss of individuals during grading and heavy equipment movement, and temporary disturbance to seasonal habitat), as well as indirect impacts resulting from potential sedimentation of aquatic habitat.

While there would be potential direct or indirect impacts associated with the project, they would be minimized with the implementation of Project Features Wildlife Exclusion Fencing, Worker Environmental Awareness Training, Pre-construction Surveys, Handling of Listed Species, Avoidance of Entrapment, Stormwater Best Management Practices, and Construction Site Best Management Practices as described in Table 1-3 of Section 1.3.2, Project Features. Significant impacts would be avoided with the implementation of the proposed WPT-specific **AMM BIO-4 Western Pond Turtle Preconstruction Surveys**, as described in Section 2.3.4.

Callippe Silverspot Butterfly

Given the apparent lack of larval host plants within the BSA, it is not expected that the CSSB would be impacted by the project. Should any host plants be found during the planned pre-construction surveys, measures in **AMM BIO-1** will be implemented to avoid any significant impacts.

Valley Elderberry Longhorn Beetle

Based on the lack of elderberry trees within the BSA, Caltrans does not anticipate any impacts to VELB as a result of the project. Should any host plants be found during the planned pre-construction surveys, measures in **AMM BIO-1** will be implemented to avoid any significant impacts.

California Freshwater Shrimp

If construction within the OHWM of Suscol Creek is not added to the scope of the project, no impacts would occur to potential CFWS habitat with implementation of project features Vegetation Control and Protection, Revegetation, Stormwater Best Management Practices, and Vegetation and Tree Removal.

If construction within the OHWM of Suscol Creek is added to the scope of the project, impacts may potentially occur to CFWS habitat. While assessing the

feasibility and design options for fish passage improvement at the Suscol Creek and SR 29 crossing, Caltrans will conduct additional preconstruction surveys for CFWS within the project footprint.

Additionally, if CFWS habitat is affected by the fish passage improvements, coordination will be required with both CDFW and USFWS and measures such as incorporation of root wads into the banks of the creek would be incorporated into the restoration design to avoid significant impacts.

If it is determined that the fish passage improvements could affect CFWS habitat, potential impacts would be minimized with the implementation of Project Features Vegetation Control and Protection, Vegetation Removal, Work Window for Creeks, Stormwater Best Management Practices, and Dewatering Activities and Clean Water Diversions, as described in Table 1-3 of Section 1.3.2, Project Features. There is no compensatory mitigation currently proposed for CFWS at this time.

Vernal Pool Fairy Shrimp

The project is unlikely to impact VPFS because they have not been detected within the project footprint during protocol-level surveys. Suitable vernal pool habitat occurs within the BSA but is outside of the project footprint (east of SR 221) and would be avoided during construction.

Impacts to habitat suitable for VPFS outside of the project footprint would be minimized with the implementation of Project Features Dust Control, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage Sites, Construction Site Best Management Practices, Landscaping and Erosion Control Plan, Erosion Control and Water Quality Protection Measures and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features. No additional AMMs are proposed specifically for VPFS.

California Red-Legged Frog

Based on the inferred presence of CRLF within the BSA, construction activities have the potential to result in disruption, injury, or mortality to juvenile or adult CRLF. The project is estimated to have direct permanent impacts on 35.41 acres of potential upland habitat and temporary impacts to 0.03 acre of potential non-breeding and dispersal aquatic habitat and 0.11 acre of potential upland habitat (Figure 2.3.5-3).

Indirect impacts to CRLF outside of directly impacted areas are not anticipated because:

- Water quality would be protected using Caltrans standard BMPs.
- The project would not increase vehicle capacity and vehicle traffic is not anticipated to be greater during night hours, when CRLF typically disperse.
- It is expected that construction for fish passage correction, when added to the scope of the project, would result in improved overall habitat for CRLF as well, but at Suscol Creek and in the adjacent riparian habitat.

Potential direct and indirect impacts to CRLF would be minimized through the implementation of Project Features Wildlife Exclusion Fencing, Worker Environmental Awareness Training, Pre-construction Surveys, Avoidance of Entrapment, Special-Status Species Handling, Consultation with USFWS and CDFW, Construction Site Best Management Practices, and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features. To avoid significant impacts to CRLF, Caltrans also proposes additional CRLF-specific AMM BIO-6 California Red-Legged Frog Preconstruction Surveys, AMM BIO-7 Work Windows, AMM BIO-8 Wildlife Exclusion Fencing, AMM BIO-9 Biological Monitoring, AMM BIO-10 Protocol for Species Observation, and AMM BIO-11 CRLF-Specific Light Restrictions, as described in Section 2.3.5.

Additionally, Caltrans would be seeking a Biological Opinion for the proposed project from USFWS, and coordinate CRLF mitigation during this process. Caltrans proposes CRLF **Mitigation Measure BIO-2**, as described in Section 2.3.5, to avoid significant impacts to CRLF.

Central California Coastal Steelhead

No impacts to CCCS would occur in the absence of fish passage modifications in Suscol Creek. If fish passage improvements are incorporated into the project, Caltrans would assess potential impacts. If fish passage improvements are added to the project, potential impacts to CCCS would be minimized with the implementation of Project Features Creek and Riparian Revegetation, Vegetation and Tree Removal, Work Window for Creeks, Maintenance, Stormwater Best Management Practices, and Dewatering Activities and Clean Water Diversions, as described in Table 1-3 of Section 1.3.2, Project Features.

If no fish passage improvements are included in the project, no AMMs are required. If work within Suscol Creek is added to the scope of the project, significant impacts

to CCCS would be avoided with the implementation of CCCS-specific **AMM BIO-12**, as described in Section 2.3.5.

If fish passage improvement at Suscol Creek is added to the scope of the project, temporary impacts to CCCS that might result would be offset by a net benefit to the fish; therefore, Caltrans does not propose additional compensatory mitigation for CCCS.

Swainson's Hawk

Potential SWHA nesting habitat would be directly impacted by the removal or trimming of large eucalyptus trees on the bank of Suscol Creek or along the ROW in the project footprint. There would be permanent loss to a minimal amount of suitable foraging habitat (open grassland) (Figure 2.3.1-1) as a result of the construction of permanent structures. Temporary visual and noise disturbance that occurs near suitable foraging habitat would result in minor indirect impacts to SWHA because the disturbance may cause them to avoid the area while foraging.

Potential impacts to SWHA would be minimized with the implementation of Project Feature Pre-construction Surveys for Nesting Birds, as described in Table 1-3 of Section 1.3.2, Project Features. In addition, Caltrans proposes SWHA-specific **AMM BIO-12 Swainson's Hawk Preconstruction Surveys**, as described in Section 2.3.5 to avoid significant impacts to the species. Mitigation for impacts to SWHA nesting habitat would be determined through the CDFW ITP permitting process, if active nests are observed during protocol-level surveys.

b) Less Than Significant with Mitigation Incorporated.

Approximately 0.72 acre of potentially CDFW jurisdictional riparian habitat and 7 riparian trees occur within the project footprint, which may be impacted as a result of construction (Figures 2.3.1-1 and 2.3.1-2). The exact extent of riparian impacts that would result from additional fish passage improvements on the downstream side of Suscol Creek Bridge are not yet known because design is still underway. All work within and adjacent to Suscol Creek would be performed with the underlying goal of improving habitat and fish passage. Both creek and riparian habitat would ultimately be improved by these activities.

According to the CDFW CNDDB, there is one natural community of special concern that is present within the project BSA, that is the Northern Vernal Pool natural community (CDFW 2019). Northern Vernal Pools is present east of SR 221 within

the BSA, outside the project footprint. No construction work is proposed on the east side of SR 221 in vernal pool habitat.

Potential impacts to riparian habitat or other sensitive natural communities would be minimized with the implementation of Project Features Vegetation Control and Protection, Revegetation, Creek and Riparian Revegetation, Dust Control, Vegetation and Tree Removal, Vegetation Removal, Work Window for Creeks, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage, Maintenance, Worker Environmental Awareness Training, Construction Site Management Practices, Landscaping and Erosion Control Plan, Cleaning of Equipment, Reduce Spread of Invasive Species, Stormwater Pollution Prevention Plan (SWPPP), Erosion Control and Water Quality Protection Measures, and Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features.

Mitigation for impacts to CDFW jurisdictional riparian habitat would be determined through the Section 1602 Lake and Streambed Alteration Agreement permitting process. In addition, Caltrans proposes **Mitigation Measure BIO-1**, as described in Section 2.3.3, to avoid significant impacts to riparian habitat, as needed.

c) Less Than Significant with Mitigation Incorporated.

Direct, temporary impacts to waters of the U.S. are anticipated as a result of the project. Approximately 0.22 acre of non-wetland waters of the U.S. would be temporarily impacted. There would be no permanent impacts to waters of the U.S. (Figure 2.3.1-2). Indirect temporary impacts resulting from grading, clearing, and grubbing of upland areas may also occur.

Potential impacts to waters of the U.S. would be minimized with the implementation of Project Features Revegetation, Designated Construction Areas, Delineated ESAs, Work Areas, and Equipment and Materials Storage, Maintenance, Construction Site Best Management Practices, Landscaping and Erosion Control Plan, Reduce the Spread of Invasive Species, SWPPP, Erosion Control and Water Quality Protection Measures, Stormwater Best Management Practices, as described in Table 1-3 of Section 1.3.2, Project Features.

Caltrans would obtain the following authorizations to complete construction of the proposed project prior to the end of the PS&E phase of the project.:

- Section 404 Nationwide Permit 14 from USACE (Section 404 of the CWA)
- Section 1602 Lake and Streambed Alteration Agreement from CDFW (Section 1602 of the California Fish and Game Code)
- Section 401 Water Quality Certification from the RWQCB (Section 401 of the CWA)

Caltrans would establish final mitigation requirements with each agency during the respective permitting processes.

d) Less Than Significant with Mitigation Incorporated.

This project may temporarily impact the movement of CRLF, WPT or both to upland dispersal habitat. However, based on the current conditions at the site, and existing roadway infrastructure, improving the Soscol Interchange but would not significantly increase fragmentation or permanently impact wildlife movement corridors. Location of roadway infrastructure following project completion would be similar to the current condition for the purposes of predicting wildlife passage and habitat fragmentation.

The proposed project occurs within EFH for chinook and coho salmon. NOAA Fisheries has provided technical assistance to Caltrans for the project and its potential impacts to federally protected fisheries. If construction within the OHWM of Suscol Creek is added to the scope of the project, Caltrans would consult with NOAA Fisheries regarding potential impacts to EFH.

e) No Impact

This project would not conflict with any local policies or ordinances protecting biological resources. The project is exempt from Napa County Ordinance No. 1438 Water Quality and Tree Protection Ordinance through Section 18.108.050, Subsection D, which covers “construction and maintenance of all public roads and any other public facilities, including flood control facilities, required by and completed under the direction of any public agency.”

f) No Impact

This project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		X		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		X		

Cultural studies have been undertaken by the OCRS for the SR 29/SR 221/Soscol Junction Improvement Project in Napa County, California. OCRS prepared the required Historic Property Survey Report and Archaeological Survey Report in 2019 and determined that a Finding of Adverse Effect is anticipated for the Build Alternative. Two resources previously individually listed or determined eligible for the NRHP were identified within the project's APE: the Soscol House, listed on the NRHP on February 28, 1979, and archaeological site CA-NAP-15/H, a dual-component site determined eligible by consensus through the Section 106 process in 1974. Properties eligible or listed on the NRHP are also eligible for listing on the CRHR.

Implementation of Project Feature Discovery of Historic and Archaeological Resources, as described in Table 1-3 of Section 1.3.2, Project Features, would address potential impacts to additional or undiscovered cultural resources associated with ground-disturbing activities during construction.

a) No Impact

Any construction noise would be temporary and minimal in nature; such minimal noise increase would neither affect the continued use of Soscol House, nor diminish the integrity of the significant historic features of the resource. In addition, the proposed project would not affect the property as a result of vibration generated during construction. The closest piles that would be driven for the proposed project would be approximately 500 feet away from Soscol House. At this distance, any vibrations would have abated far below the levels that could produce damage to the structure.

The proposed project would not further erode the integrity of the setting. The proposed project would not introduce a new visual element that is significant enough to diminish the integrity of the resource's significant historic features, particularly because the historic Soscol House is oriented away from the project area. The proposed project would have no impact on this historical resource, as defined by CCR Title 14, Section 15064.5 of CEQA.

b) and c) Less Than Significant Impact with Mitigation

The archaeological site contains a prehistoric component and historic component. The prehistoric component consists of a Native American habitation site while the historic component consists of the Soscol House and a Mexican rancho era stone foundation. While the foundation itself is reported to have been removed, deposits associated with historical Mexican and Native American use are likely still present in the site. The archaeological site has been determined eligible for both the NRHP and the CRHR because the site has been demonstrated as having the potential to yield data important in history or prehistory.

The Build Alternative would require ground disturbance and modifications that directly and adversely impact a portion of the archaeological site. This substantial adverse change would be mitigated to below the level of significance through targeted data recovery to retrieve important information from the site. As of September 2019, Caltrans is consulting with the SHPO on and is developing a Memorandum of Agreement (MOA) and data recovery plan to satisfy both Section 106 and CEQA requirements. Caltrans is also continuing consultation with Native American tribes in the area regarding the treatment of the archaeological site.

Mitigation Measures CUL-1 Establishing an ESA, **CUL-2 Phase II Data Recovery Plan**, **CUL-3 AMA Plan**, and **CUL-4 Memorandum of Agreement** are currently anticipated for the project and would address potential impacts to cultural resources associated with ground disturbance activities during construction of the proposed project.

Energy

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VI. ENERGY: Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?				X
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

a, b) No Impact

The proposed build alternative will be balancing energy used during construction and operation verses energy saved by relieving congestion and other transportation efficiencies. Therefore, the proposed project would have no energy impacts.

Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS: Would the project:				
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.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
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?			X	
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?			X	
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?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

CEQA Significance Determinations for Geology and Soils

a i and e) No Impact

There are no known fault zones within the project site; the closest fault zone to the project site is the West Napa fault zone (Browns Valley), which is located approximately 1.5 miles west of the project site. Septic tanks and alternative wastewater disposal systems are not components of the proposed project. The proposed project would have no direct or indirect substantial adverse effects

involving the rupture of a known earthquake fault or involve soils that are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.

a ii, iii, iv, b, c, and d) Less than Significant Impact

The project site is located within a seismically active region; therefore, there is the potential for seismic ground shaking, liquefaction, landslides, lateral spreading, subsidence, or collapse during the construction and operation of the proposed project. Furthermore, historic landslides have occurred at the central portion of the project site. However, the project site is not located on an unstable geologic unit, unstable soil, or expansive soil; and all components of the proposed project would be designed in accordance with standard engineering practices and Caltrans standard specifications to minimize impacts from ground shaking. Erosion control measures would be implemented during construction activities in accordance with the BMPs outlined in the SWPPP to minimize soil erosion or the loss of topsoil. Thus, impacts from the proposed project would be less than significant.

f) Less Than Significant with Mitigation

As a result of the high paleontological sensitivity of geologic formations near the project site, there is the potential for disturbing and potentially destroying paleontological resources within the project site if not handled properly. Destruction of paleontological resources would be considered a significant impact under CEQA because of the lost opportunity to preserve and study such resources. A revised PER and a PMP would be prepared when the revised limits and depth of excavation are known. The revised PER would address whether the proposed excavation would reach the potentially fossiliferous Pleistocene Sonoma Volcanics. The PMP would define the specific mitigation measures and methods to be implemented during construction of the proposed project. With the incorporation of the PMP, impacts to paleontological resources would be less than significant.

Mitigation Measure PAL-1 PER and PMP is currently anticipated for the project and would address potential impacts to paleontological resources associated with ground disturbance activities during construction of the proposed project.

Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Analysis of greenhouse gases is provided in Chapter 3.2, Climate Change.

Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				X
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?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
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?				X
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?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				X

A site investigation would need to be completed to access potential soil contamination levels in the project corridor during the PS&E stage. Additional soil from excavation would be disposed of at a landfill or used as fill material.

The Project Feature Hazardous Materials Incident Contingency Plan as described in Table 1-3 of Section 1.3.2, Project Features, would minimize specific hazards and hazardous materials impacts and be designed and implemented into the project.

CEQA Significance Determinations for Hazards and Hazardous Materials

a, b, c, d, e, f, and g) No impact

The project would not create a hazard to the public or environment through the transport, use, or disposal of hazardous materials. There are no schools within the study area. As described in Section 2.21, the SWRCB GeoTracker database and the California Department of Toxic Substances Control EnviroStor database searches did not come up with any sites containing hazardous materials around the project area. The project is not located within an airport land use plan, public airport, or private airstrip. The proposed project is designed to accommodate emergency response vehicles during and after construction. During the design phase of the project a TMP would be developed. According to CAL FIRE (CAL FIRE 2007, 2008), the project site is not located within a very high fire hazard severity zone. To minimize fire hazards in the area, vegetation is managed around the highway structures seasonally.

No impacts requiring AMMs would occur related to hazards and hazardous materials.

Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?			X	
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;			X	
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			X	
(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			X	
(iv) impede or redirect flood flows?			X	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

A *Request for Studies Memorandum* (Caltrans District 4 2019a) in addition to a WQS (Caltrans District 4 2019b) were prepared by the Office of Hydraulic Engineering at Caltrans District 4. A summary of the findings of these analyses is presented here and in Sections 2.2.1 and 2.2.2.

The Project Features SWPPP, Erosion Control and Water Quality Protection Measures, Stormwater Multiple Application and Report Tracking System, Stormwater BMPs, Dewatering Activities and Clean Water Diversions, and Low-Impact Development Controls as described in Table 1-3 of Section 1.3.2, Project Features, would minimize specific hydrology and water quality impacts and be designed and implemented into the project.

CEQA Significance Determinations for Hydrology and Water Quality

a, and b) Less than significant impact

The receiving water bodies within the project limits include Suscol Creek and Napa River. Suscol Creek is tributary to the Napa River, which flows to the San Pablo Bay and ultimately the Pacific Ocean. Potential temporary impacts to existing water quality would result from staging and active construction areas, which could result in the release of fluids, concrete material, construction debris, sediment, and litter beyond the perimeter of the project site. Sediment from construction would be minimized by the use of Caltrans construction BMPs for stormwater.

Because the potential acreage of disturbed soil area is more than 1 acre, a SWPPP would be completed to minimize pollution and stormwater runoff during construction. A SWPPP would be prepared by the contractor and approved by Caltrans, pursuant to Caltrans 2015 Standard Specification 13-3. The SWPPP would address potential temporary impacts via implementation of appropriate BMPs. Therefore, impacts to water quality would be less than significant.

The proposed project would add 10 acres of new impervious area, plus a DSA of 15 acres. Because the project area is not within a flood zone, the proposed increase in impervious area is expected to have a negligible impact on flooding and groundwater recharge. Thus, impacts to groundwater supplies or groundwater recharge would be less than significant.

c) Less than significant

The proposed project would not substantially alter the drainage pattern of the project site in a manner that would result in increased erosion and siltation from SR 29 or SR 221. Stormwater treatment would assist drainage with the added increased impervious areas. Temporary site BMPs and the SWPPP would aid in reducing erosion and water pollution. The impact would be less than significant.

d, and e) No impact

The project is not in an area that could be inundated by seiche, tsunami, or mudflow. The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. There would be no impact.

AMMs WQ-1 Restoring Disturbed Areas and **WQ-2 Turbidity and Water Quality Monitoring** are currently anticipated for the project and would address potential impacts to hydrology and water quality during construction of the proposed project.

Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?				X
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?				X

Existing land uses in the vicinity of the proposed project are primarily agriculture watershed and open space, northeast of SR 29 and SR 221; industrial, south of Soscol Ferry Road; and public institutional, south of SR 29.

a, b) No Impact

The proposed project would not divide the existing neighborhoods within the project area. There would be no impact.

The proposed project would be consistent and would not conflict with any applicable land use plan, policy, or regulation, including the MTC RTP and TIP, NVTA's Strategic Transportation Plan and County-wide Bicycle Plan, and the Napa County General Plan.

Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
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?				X

a-b) No Impact

There are no documented mineral resources within the project limits. The project does not conflict with resource recovery plans and would not result in the loss of availability of a locally important mineral resource recovery site.

Noise

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIII. NOISE: Would the project result in:				
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?				X
b) Generation of excessive groundborne vibration or groundborne noise levels?				X
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?				X

The Project Features Best Management Practices to Reduce Noise and Vibration and Delivery and Disposal Schedules as described in Table 1-3 of Section 1.3.2, Project Features, would minimize specific noise impacts and be designed and implemented into the project.

a, b, c) Noise levels are calculated to increase by up to 1 dBA over existing conditions, assuming 2045 No Build Alternative conditions. Under Build Alternative conditions, noise levels would increase by up to 9 dBA over existing and No Build Alternative conditions. These predicted noise level increases would not exceed existing noise levels by 12 dBA or more and are not considered a significant impact. Temporary vibration construction impacts can be perceptible; therefore, it is recommended to limit certain construction activities to the daytime. Napa County Airport average noise levels were studied and based on the measurements made at the short-term site, loudest hour noise levels ranged from 51 to 68 dBA $L_{eq[h]}$. The project would not expose people residing or working in the project area to excessive noise levels, either during construction or during the operation phase. There would be no impact.

AMMs NOISE-1 Sensitive Receptors and **NOISE-2 Public Involvement and Project Coordination** are currently anticipated for the project and would address potential impacts to noise from project construction.

Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING: Would the project:				
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)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

a, b) No Impact

The proposed project would not induce unplanned population growth because it does not increase the capacity of the SR 29/SR 221/Soscol Junction intersection, remove barriers to future growth, or increase population or housing growth (and demand for new housing, utilities and public services) in the City and County of Napa. The proposed project would not displace substantial numbers of people or housing. Therefore, there would be no impact to population and housing.

Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X

a) No Impact

In the project area, the proposed project would not result in the substantial alteration of government facilities, such as fire and police protection, schools, parks, or other public facilities, nor trigger the need for new government facilities or alter the demand for public services. Caltrans would prepare a TMP (**AMM TRANSPORTATION-1 TMP**) to offset temporary disruptions during construction and that ensure access is provided to emergency providers (such as police, fire, and medical responders), such that these services would not be adversely impacted by the proposed project.

Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVI. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

a-b) No Impact

There are no publicly owned parks, recreation areas, or neighborhood/community centers located within or bordering the project limits. Therefore, there would be no impact to recreation.

Traffic and Transportation

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVI. TRAFFIC AND TRANSPORTATION: Would the project:				
a) Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities			X	
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)			X	
d) Result in inadequate emergency access			X	

a) Less Than Significant Impact

The proposed project is consistent with state, regional, and local programs, plans, ordinances, and policies for the local and regional transportation system. There would generally be modest to substantial improvements in operating conditions and safety for vehicles, bicycles, pedestrians, and transit. Impacts would be less than significant.

b) Less Than Significant Impact

The December 2018 CEQA Guidelines updates are not required to be fully implemented until July 2020, therefore, an assessment of VMT was not conducted. The proposed project is not expected to influence growth and traffic forecasts from the traffic analysis in the TOAR are consistent with MTC projections for the proposed project. With no substantive changes in demand or distance traveled, VMT are not anticipated to increase. Impacts would be less than significant.

c) Less Than Significant Impact

The Build Alternative would improve safety for all users. With the construction of a grade-separated SR 29 structure for vehicular through movements, traffic conflicts and vehicular collisions would be reduced. The proposed roundabouts at the ramp terminal intersections would also reduce vehicular conflicts, and separated pedestrian/bicycle facilities would further improve safety for all multimodal users. The new diamond-interchange configuration would be designed based on current

roadway standards, and overall hazards would be reduced. Impacts would be less than significant.

d) Less Than Significant Impact

The Build Alternative would improve access and response times for emergency (fire and medical) responders, because congestion and delay would be markedly reduced. Access would be improved with the SR 29 grade separation (bridge structure). During construction, emergency access would be maintained by the contractor and managed with the strategies defined in the TMP. Impacts would be less than significant.

AMM TRANSPORTATION-1 TMP is currently anticipated for the project and would address potential impacts to traffic and transportation during construction of the proposed project.

Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		X		
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.		X		

Implementation of Project Feature Discovery of Tribal Cultural Resources, as described in Table 1-3 of Section 1.3.2, Project Features, would address potential impacts to additional or undiscovered tribal cultural resources associated with ground-disturbing activities during construction.

a and b) Less Than Significant Impact with Mitigation

The archaeological site contains a prehistoric component and historic component. The prehistoric component consists of a Native American habitation site while the historic component consists of the Soscol House and a Mexican rancho era stone foundation. While the foundation itself is reported to have been removed, deposits associated with historic Mexican and Native American use are likely still present in the site and are a significant contributing element to the eligibility of the site. The archaeological site has been determined eligible for the NRHP because it has been demonstrated that the site has the potential to yield data important in history or prehistory.

Mitigation Measures CUL-1 Establishing an ESA, CUL-2 Phase II Data Recovery Plan, CUL-3 AMA Plan, and CUL-4 Memorandum of Agreement are currently anticipated for the project and would address potential impacts to tribal cultural resources associated with ground disturbance activities during construction of the proposed project.

Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS: Would the project:				
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?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
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?				X
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?				X
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				X

The Project Feature Trash Management as described in Table 1-3 of Section 1.3.2, Project Features, would minimize specific utilities and service systems impacts and be designed and implemented into the project.

CEQA Significance Determinations for Utilities and Service Systems

a, b, c, d, and e) No Impact

The proposed project is not anticipated to require or result in the relocation or construction of utilities or service systems; the proposed lighting associated with the roundabouts would connect to and use existing electrical service and, therefore, would not require the construction of new electrical lines or the relocation of existing electrical lines. However, verification and potholing would occur during the design phase to determine the exact location for each utility present within the project site. The City of American Canyon Public Works and Napa County Water District provide water services and the Napa County Sanitation District provides wastewater services near the project site. The proposed project would not generate excessive solid waste and would comply with all management and reduction statues and regulations

regarding solid waste. The proposed project is not anticipated to have impacts on utilities and service systems.

No impacts requiring AMMs would occur related to utilizes and service systems.

Wildfire

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XX. WILDFIRE: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
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?				X
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?				X
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?				X

CEQA Significance Determinations for Wildfire

a, b, c, and d) No Impact

The project site is not located within a very high fire hazard severity zone according to CAL FIRE (CAL FIRE 2007, 2008). The proposed project would not impair an adopted emergency response or evacuation plan. The proposed project would not require installation or maintenance of infrastructure that may exacerbate wildfire risks. The proposed project would not expose people or structures to significant risks resulting from downslope or downstream flooding or landslides from runoff, post-fire slope instability, or drainage changes.

Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
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?				X
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)?				X
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				X

CEQA Significance Determinations for Mandatory Findings of Significance

a, b, and c) No Impact

The proposed project would not result in significant impacts to biological resources in the project area or the surrounding environment. Project features and AMMs would be implemented to minimize potential biological or water quality impacts. Although there are historical resources (Soscol House) within the APE of the project area, this cultural resource would not be affected and there would be no impact. With implementation of the proposed project, there would be no cumulative impacts in the project study area.

The proposed project would result in temporary construction activities; however, the project would implement noise and air quality project features and AMMs to address dust and noise impacts. A detour would be provided during construction to minimize impacts to motorists traveling through the vicinity of the proposed project. These temporary construction-related activities and the detour would not result in permanent or significant impacts to human beings.

3.2 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 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 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 CO_2, methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), and various hydrofluorocarbons (HFCs). CO_2 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 CO_2.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." GHG 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.

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.

NEPA (42 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 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).[6] 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.)[7] 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 Standards. This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy program on the basis of 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[8], in conjunction with the National Highway Traffic Safety Administration, is responsible for setting GHG emission standards for new cars and

[6] Federal Highway Administration. 2019. *Sustainability*. https://www.fhwa.dot.gov/environment/sustainability/resilience/. Last updated February 7, 2019. Accessed: August 21, 2019.

[7] Federal Highway Administration (FHWA). No date. *Sustainable Highways Initiative*. https://www.sustainablehighways.dot.gov/overview.aspx August 21, 2019.

[8] U.S. Environmental Protection Agency (U.S. EPA). 2009. *Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act*. https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean. Accessed: August 21, 2019.

light-duty vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. The current standards require vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. EPA and National Highway Traffic Safety Administration are currently considering appropriate mileage and GHG emissions standards for 2022–2025 light-duty vehicles for future rulemaking.

National Highway Traffic Safety Administration and EPA issued a Final Rule for "Phase 2" for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO_2 emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

State

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and 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 AB 32 in 2006 and SB 32 in 2016.

- **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 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 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 low carbon fuel standard 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.

- **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):** This EO 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).** This EO 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 ($MMTCO_2e$).[9] Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

[9] GHGs differ in how much heat each trap in the atmosphere (global warming potential). CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the global warming potential of other gases is assessed as multiples of CO_2.

- **SB 32, Chapter 249 (2016).** This SB 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).** This SB declares "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).** This AB 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.

- **Senate Bill 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.

- **Senate Bill 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.

- **Executive Order 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.

ENVIRONMENTAL SETTING

The proposed project is in the southern portion of unincorporated Napa County. Northeast of SR 29 and SR 221, land uses are primarily agriculture, and open space. Southwest of the intersection, south of SR 29, land uses are urban, industrial, and public institutional. The local economy is based on agriculture and tourism. SR 29 runs generally north-south between I-80 and SR 20, serving popular wine-country

destination towns; in the project vicinity, however, it runs east-west. SR 221 also runs north-south, parallel to SR 29 except at the project location, where it intersects SR 29 and forms the north leg of the intersection; Soscol Ferry Road forms the south leg. Both SR 29 and SR 221 are terminal access routes for STAA trucks, and both highways are major interregional routes serving the neighboring counties. Currently, the existing SR 29/SR 221/Soscol Ferry Road intersection experiences extensive queues and delays during a.m. and p.m. peak hours, operating at LOS F.

Napa Valley's VINE bus provides service along SR 29 and SR 221. SR 221 serves as a bike route to the city of Napa; bicycle travel is not permitted on SR 29 in the project area. The Metropolitan Transportation Commission' regional transportation plan/sustainable communities strategy (RTP/SCS) guides transportation development in Napa County and the San Francisco Bay 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. The EPA is responsible for documenting GHG emissions nationwide, and the ARB does so for the state, as required by Health and Safety Code Section 39607.4.

National GHG Inventory

The 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 CO_2, CH_4, N_2O, HFCs, perfluorocarbons, SF_6, and nitrogen trifluoride. It also accounts for emissions of CO_2 that are removed from the atmosphere by "sinks" such as forests, vegetation, and soils that uptake and store CO_2 (carbon sequestration). The 1990–2016 inventory found that of 6,511 $MMTCO_2e$ GHG emissions in 2016, 81 percent consist of CO_2, 10 percent are CH_4, and 6 percent are N_2O; the balance consists of fluorinated gases (EPA 2018a).[10] In 2016, GHG emissions from the transportation sector accounted for nearly 28.5 percent of U.S. GHG emissions (EPA 2018).

[10] U.S. Environmental Protection Agency (EPA). 2018. Inventory of U.S. Greenhouse Gas Emissions and Sinks. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

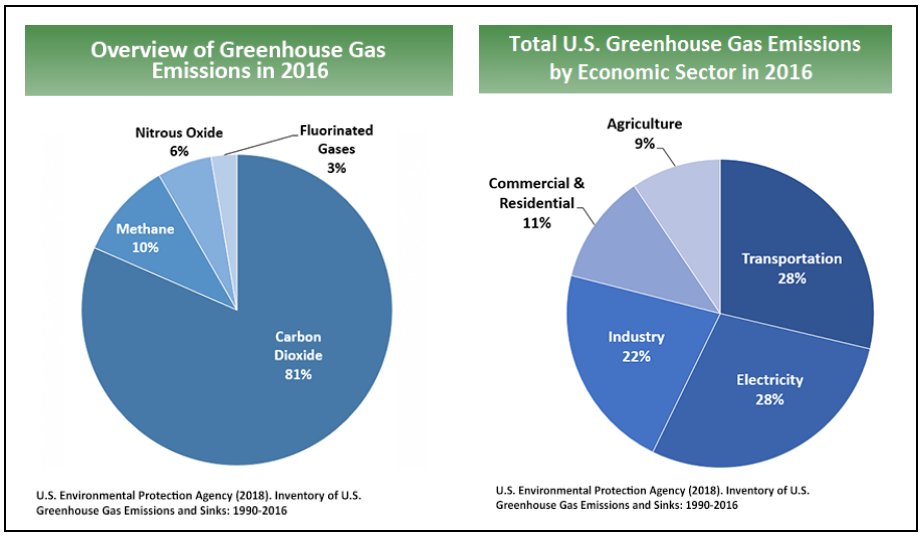


Figure 3-1 Overview of U.S. 2016 Greenhouse Gas Emissions

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 $MMTCO_2e$ 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[11]).

[11] California Air Resources Board (ARB). 2019a. *California Greenhouse Gas Emissions Inventory–2019 Edition*. https://ww3.arb.ca.gov/cc/inventory/data/data.htm. Accessed: August 21, 2019.

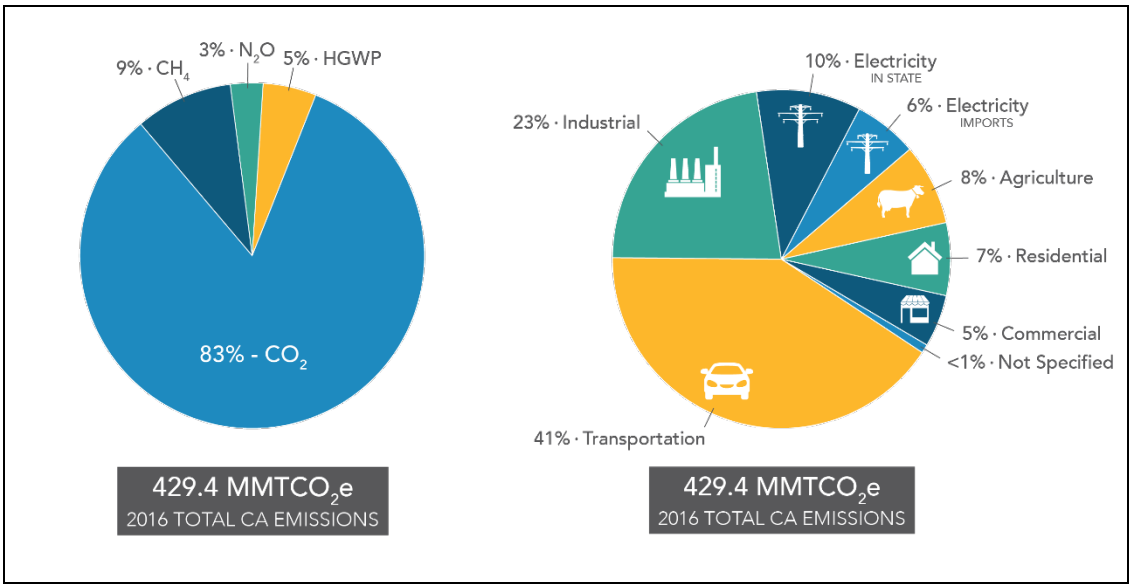
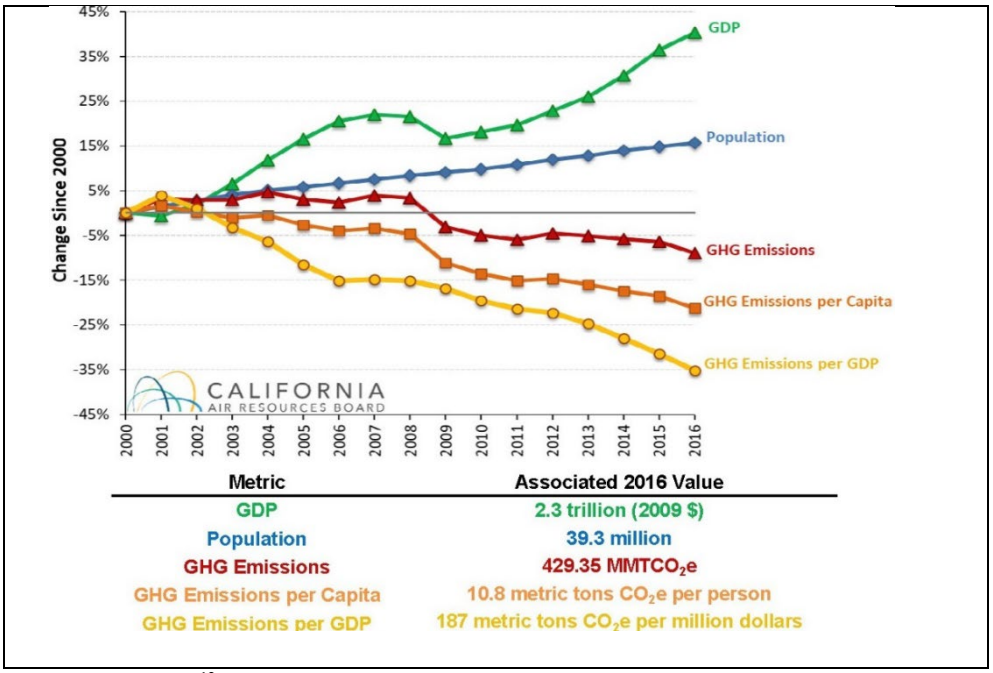


Figure 3-2 California 2016 Greenhouse Gas Emissions



Source: ARB 2019b[12]

Figure 3-3 Change In California GDP, Population, and GHG Emissions Since 2000

[12] California Air Resources Board (ARB). 2019b. *California Greenhouse Gas Emissions for 2000 to 2017. Trends of Emissions and Other Indicators*. https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf. Accessed: August 21, 2019.

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 RTP/SCSs 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 proposed project is included in Plan Bay Area, the RTP/SCS for the Metropolitan Transportation Commission and Association of Bay Area Governments (MTC/ABAG). The regional reduction target for MTC/ABAG is 10 percent by 2020 and 19 percent by 2035 (ARB 2019c). The RTP/SCS aims to reduce per-capita delay and CO_2 emissions.

The Napa County General Plan (Napa County 2008) addresses climate change in the project area by promoting sustainability throughout the document. The Circulation element encourages energy-efficient forms of transportation. The Conservation element targets reducing emissions of GHGs, in part by perpetuating policies in support of alternative modes of transportation, including transit, paratransit, walking, and biking. Napa County also produced a draft climate action plan that proposes 16 on-road transportation GHG reduction measures including TR-1, Update Transportation System Management Ordinance (for employers), to reduce commute-related vehicle trips and vehicle miles traveled (VMT) (Napa County 2019: 3-15).

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 CO_2, CH_4, N_2O, and HFCs. CO_2 emissions are a product of the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of CH_4 and N_2O are emitted during fuel combustion. In addition, a small amount of HFC emissions are included in the transportation sector.

The CEQA Guidelines generally address GHG 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 GHGs must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

The purpose of the proposed project is to improve traffic operations and provide bicycle and pedestrian connectivity by reconfiguring the SR 29/SR 221 intersection. The project would not add travel lanes to either roadway and would not increase vehicle miles traveled. The project design includes two multilane roundabouts. Roundabouts have been found to reduce traffic CO_2 emissions by up to 69 percent compared to a stop-controlled intersection, depending on specific local factors (Caltrans 2019). Construction of a separated shared-use path for bicyclists and pedestrians would improve safety and encourage non-motorized travel. Overall, the substantial reduction in peak hour delays and idling traffic would likely reduce GHG emissions during operation over the long term.

Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

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

Construction-related GHG emissions were calculated using the Road Construction Emissions Model (RCEM), version 8.1.0, provided by the Sacramento Metropolitan

Air Quality Management District. It was estimated that for 12-month duration of construction, the total amount of CO_2 produced would be 1447.45 tons, or 1,325.45 metric tons of CO_2e. (For this calculation, CO_2e consists of CO_2, CH_4, and N_2O,).

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. All travel lanes would remain open during peak periods during construction. A construction TMP would reduce potential impacts of lane closures during off-peak and nighttime construction.

CEQA Conclusion

While the proposed 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 proposed 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.

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*.

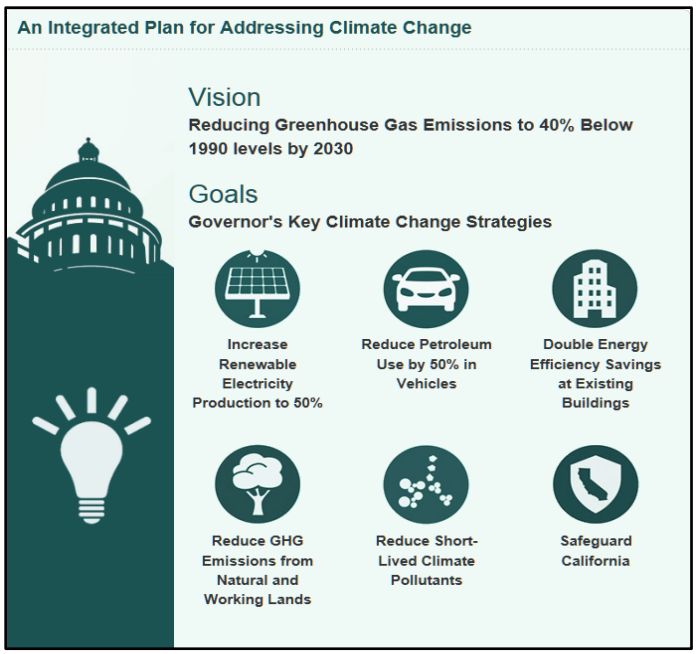


Figure 3-5 California Climate Strategy

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 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)[13].

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

[13] State of California. 2019. *California Climate Strategy*. https://www.climatechange.ca.gov/. Accessed: August 21, 2019.

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* (Caltrans, 2016a), which establishes a new model for developing ground transportation systems, consistent with CO_2 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 Caltrans policy that will ensure coordinated efforts to incorporate climate change into Caltrans 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 will also be implemented in the project to reduce GHG emissions and potential climate change impacts from the project.

- The project design includes two multilane roundabouts. Roundabouts have been found to reduce traffic CO_2 emissions by up to 69 percent compared to a stop-controlled intersection, depending on specific local factors (Caltrans 2019).
- The project design includes a separated shared-use path for bicyclists and pedestrians that would improve safety for these modes and encourage non-motorized travel.
- The contractor will implement a construction transportation management plan during off-peak and nighttime lane closures plan to reduce congestion and delays and associated GHG emissions.

Construction contractors will comply with Caltrans Standard Specifications Section 7-1.02A and 7-1.02C, Emissions Reduction, and Section 14-9.02, Air Pollution Control, which requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes.

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 delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (15 USC. chapter 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).[14]

USDOT Policy Statement on Climate Adaptation in June 2011 committed the department to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of USDOT 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)[15]

[14] U.S. Global Change Research Program (USGCRP). 2018. Fourth National Climate Assessment. https://nca2018.globalchange.gov/. Accessed: August 21, 2019.
[15] U.S. Department of Transportation (U.S. DOT). 2011. *Policy Statement on Climate Change Adaptation*. June. https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm Accessed: August 21, 2019.

FHWA order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events,* December 15, 2014)[16] 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. (FHQA 2019)[17]

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 latest 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.

[16] https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm

[17] Federal Highway Administration. 2019. *Sustainability*. https://www.fhwa.dot.gov/environment/sustainability/resilience/ Last updated February 7, 2019. Accessed: August 21, 2019.

- *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.[18]

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*

[18] http://www.opc.ca.gov/updating-californias-sea-level-rise-guidance/

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 Towards 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 were 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 Analysis

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

Projects in Floodplains

FEMA floodplain maps show that the project site is within a Zone X floodplain. Zone X is defined as the areas outside the 0.2% annual chance (500-year) floodplain, which is an area of minimal flood hazard. Flood risk is discussed in Section 2.2.1, Hydrology and Floodplain.

The District 4 Climate Change Vulnerability Assessment indicates the potential for an up to 9.9 percent increase in 100-year storm precipitation depth in the project vicinity by 2085 (Caltrans 2018: 54)[19].

[19] California Department of Transportation (Caltrans). 2018. *Climate Change Vulnerability Assessments. District 4 Technical Report*. January. On file at Caltrans.

Chapter 4 Agency Coordination and Public Involvement

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for the proposed project have been accomplished through a variety of formal and informal methods, including project development team meetings, interagency coordination meetings, and correspondence with other interested parties. This chapter summarizes the results of Caltrans efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

4.1 Coordination and Consultation with Regulatory Agencies, Public Agencies, and Native American Stakeholders

During the preparation of this document, the following agencies were consulted:

- Regional Water Quality Control Board
    - On (April 10, 2019), Robert Blizard and Kit Chan (Caltrans) conducted a field review with Derek Beauduy (RWQCB) and Robert Stanley (CDFW)
- U.S. Fish and Wildlife Service
    - On June 13, 2019, Caltrans staff Robert Blizard and Cristan Caviel conducted a field review with John Cleckler (USFWS) to discuss the Project and potential impacts to CRLF and CCGF.
- California Department of Fish and Wildlife
    - On June 25, 2019, Robert Blizard and Melinda Molnar (Caltrans) conducted a field review with Rick Macala (CDFW) to discuss possible methods to address fish passage improvements and the limitations of the Project site conditions. As of this date, no specific method for addressing fish passage existed. CDFW is aware that fish passage improvements will have future implications for the Project, and that consultation will continue through PS&E.

  - On April 10, 2019, Caltrans staff Robert Blizard and Cristan Caviel conducted a field review and preliminary fish passage assessment with Robert Stanley (CDFW) to discuss the potential for adding fish passage improvements to the Project.

- California Office of Historic Preservation
- Napa Valley Transportation Authority
- Napa County
- National Oceanic Atmospheric Administration, National Marine Fisheries
  - NOAA Fisheries has provided technical assistance to Caltrans for the Project and its potential impacts to federally protected fisheries.
- City of Napa
- City of American Canyon

Correspondence with the interested Native American parties began early in the planning phase for the project. Caltrans consulted with the following Native American tribes and council:

- Mishewal-Wappo Tribe of Alexander Valley
- Cortina Rancheria-Kletsel Dehe Band of Wintun Indians
- Middletown Rancheria
- Yocha Dehe Wintun Nation
- Rumsey Indian Rancheria of Wintun Suscol Intertribal Council
- Ya-Ka-Ama

In January 22, 2019, the NAHC was contacted for an updated search of their Sacred Lands database as well as an updated list of interested Native American Contact List. The NAHC responded on January 29, 2019, with a positive search result for the Sacred Lands database and a Native American contact list. Individuals on that list were contacted on February 5, 2019. Mr. Burnam Lowell, Sr., Tribal Historic Preservation Officer for the Yocha Dehe Wintun Nation responded on February 22,

2019, confirming that the project area was within the tribe's traditional territory and requesting to be kept informed about the project. Consultation remains ongoing.

For the previous proposed Soscol Flyover project, initial correspondence with the NAHC began on July 26, 2000, and occurred subsequently on June 29, 2004, and January 22, 2019. Letters and maps were sent to Native American individuals on a contact list provided by the NAHC in September 2004 and February 2019.

Charlie Toledo, Director of the Suscol Intertribal Council met with Jennifer Darcangelo of Caltrans, and David Glover of the Archaeological Research Center, California State University in Sacramento at the site of CA-NAP-15/H in order to assist in the documentation of the previous archaeological work near the site.

Additional communication with other Native American groups resulted in a meeting at the site on May 20, 2005, with Jennifer Darcangelo of Caltrans and Bill Combs of the Cortina Band of Wintun Indians to visit the site and discuss potential impacts of the flyover project.

An additional letter and map depicting the project area, dated September 9, 2005, were sent to the NAHC, requesting a review of their Sacred Lands database and a Native American contact list for the project vicinity. The NAHC responded to a faxed letter dated September 21, 2005, indicating that a records search of the Sacred Lands file failed to indicate the presence of Native American cultural resources in the immediate project area.

4.2 Public Involvement

On August 16, 2018, Caltrans held a public outreach meeting with NVTA to present and solicit public input on the two roundabout alternatives at the NVTA boardroom in Napa County. The presentation also included advantages and disadvantages of the proposed roundabout alternatives versus the previous proposed project flyover alternatives. About 30 people attended this meeting and consisted of members of the public, Mayor of City of Napa, City officials, NVTA officials, bicycle/pedestrian interest groups, Napa Valley winery owners, and the local press. A question and answer session followed the formal presentation. Caltrans distributed comment cards in two languages, English and Spanish, among the guests and encouraged them to participate in the public outreach process by submitting comment cards at the meeting or sending emails and letters to Caltrans. The majority of the comments received were in support of the roundabout designs; specifically, 30 comments were received, with

26 people in favor of the roundabout alternatives and 4 people opposed to the roundabouts. People who are opposed to the roundabout alternative suggested that SR 29 be widened by two more lanes. The single roundabout design option was eliminated because construction staging could not be accommodated for the overcrossing. The design option with two roundabouts allowed for more staging opportunities and options for movement, as well as the ability to expand in the future; therefore, this option was carried forward as the current proposed Build Alternative.

Chapter 5 List of Preparers

The primary persons responsible for contributing to, preparing, and reviewing this report are listed in Table 5-1.

Table 5-1 List of Preparers and Reviewers

Organization	Name	Role
Caltrans	Wesley Bexton	Landscape Associate
Caltrans	Helen Blackmore	Senior Environmental Planner (Historic Architecture)
Caltrans	Robert Blizard	Senior Environmental Planner (Biologist)
Caltrans	Cristan Caviel	Associate Environmental Planner (Biologist)
Caltrans	Kit Chan	Transportation Engineer (401 Certification)
Caltrans	Cindy Fong	Associate Environmental Planner
Caltrans	Jake Freedman	Associate Transportation Planner
Caltrans	Evelyn Gestuvo	Senior Transportation Engineer
Caltrans	Hillal Hamdan	Design Branch Chief
Caltrans	Kelly Hirschberg	Project Manager
Caltrans	Trang Hoang	Transportation Engineer (Water Pollution Control)
Caltrans	Kevin Krewson	Senior Transportation Engineer (Air Quality/Noise and Vibration)
Caltrans	Daisy Laurino	Transportation Engineer (Air Quality/Noise and Vibration)
Caltrans	Susan Lindsay	Senior Landscape Architect
Caltrans	Wilfung Martono	Senior Transportation Engineer (Stormwater)
Caltrans	Kristina Montgomery	Associate Environmental Planner (Archaeologist)
Caltrans	Chris Okpalaugo	Project Engineer
Caltrans	Joaquin Perdin	Landscape Associate
Caltrans	Brenda Powell Jones	Senior Environmental Planner
Caltrans	Wahida Rashid	Senior Environmental Planner
Caltrans	Kathleen Reilly	Senior Transportation Engineer

Table 5-1 List of Preparers and Reviewers

Organization	Name	Role
Caltrans	Chris Risden	Senior Transportation Engineer (Geotech)
Caltrans	Kathryn Rose	Senior Environmental Planner (Archaeology)
Caltrans	Sergio Ruiz	Senior Transportation Planner
Caltrans	Frances Schierenbeck	Associate Environmental Planner (Historic Architecture)
Caltrans	Anna Sojourner	Transportation Engineer (Geotech)
Caltrans	Barbara Wolf	Change Policy Advisor
CH2M HILL	Clarice Ericsson	Publications Technician
CH2M HILL	Natalie Escoffier	Environmental Planner
CH2M HILL	Julie Froelich	Environmental Planner
CH2M HILL	Lynne Hosley	Project Manager
CH2M HILL	Rene Langis	Senior Biologist
CH2M HILL	Scott Lindemann	Biologist
CH2M HILL	Mia Marek	Biologist
CH2M HILL	Loretta Meyer	Senior Environmental Manager
CH2M HILL	Ed Moon	GIS
CH2M HILL	Austen Sandifer	Editor
CH2M HILL	Erika Sawyer	Project Manager
CH2M HILL	Samuel Schoevaars	Environmental Planner
Consultants	Heather Anderson	Project Manager, GHD
Consultants	Jennifer Ban	Landscape Architect/Senior Visual Resource Specialist, ICF
Consultants	Trenton Hoffman	Design Engineer, GHD
Consultants	Donna McCormick	Managing Director/Environmental Planner, ICF
Consultants	James Reyff	Principal, Illingworth and Rodkin, Inc.
Consultants	Michael Thill	Principal Consultant, Illingworth and Rodkin, Inc.

Chapter 6 Distribution List

The Initial Study with proposed Mitigated Negative Declaration will be circulated by September 20, 2019, to the following agencies and government officials:

Federal Agencies

US Fish and Wildlife
2800 Cottage Way W-2605
Sacramento, CA 95825

US Army Corps of Engineers
Sacramento District
ATTN: Regulatory Branch
1325 J Street, Room 1480
Sacramento, CA 95825

National Marine Fisheries Services
777 Sonoma Avenue Room 325
Santa Rosa, CA 95404

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

State Agencies

State Clearinghouse, Executive Officer
1400 Tenth Street, Room 156
P.O. Box 3044
Sacramento, CA 95812-3044

California Department of Fish & Wildlife
Region 3
7329 Silverado Trail
Napa, CA 94558

Bay Area Air Quality Management District
Chief Executive Officer
939 Ellis Street
San Francisco, CA 94109

California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 9812

Regional and Local Agencies

Association of Bay Area Governments
101 Eighth Street, P.O. Box 2050
Oakland, CA 94604-2050

Metropolitan Transportation Commission
101 Eighth Street – Metrocenter
Oakland, CA 94607

Napa Valley Transportation Authority
625 Burnell St
Napa, CA 94559

Federal and Statewide Elected Officials

The Honorable Dianne Feinstein
United States Senate
One Post Street, Suite 2450
San Francisco, CA 94104

The Honorable Kamala Harris
United States Senate
333 Bush Street, Suite 3225
San Francisco, CA 94101

The Honorable Mike Thompson
United States House of Representatives (CA-5)
Representatives (CA-5)
2721 Napa Valley Corporate Drive
Napa, CA 94558

The Honorable Bill Dodd
California State Senate, District 3
2721 Napa Valley Corporate Drive
Napa, CA 94558

The Honorable Ceilia Aguiar-Curry
California State Assembly, District 4
2721 Napa Valley Corporate Drive
Napa, CA 94558

Napa County

The Honorable Brad Wagenknecht
Napa County Board of Supervisors, District 1
County Administration Building
1195 Third Street
Napa, CA 94559

The Honorable Ryan Gregory
Chair of the Board
Napa County Board of Supervisors, District 2
County Administration Building
1195 Third Street
Napa, CA 94559

The Honorable Diane Dillon
Vice Chair of the Board
Napa County Board of Supervisors, District 3
County Administration Building
1195 Third Street
Napa, CA 94559

The Honorable Alfredo Pedroza
Napa County Board of Supervisors, District 4
County Administration Building
1195 Third Street
Napa, CA 94559

The Honorable Belia Ramos
Napa County Board of Supervisors, District 5
County Administration Building
1195 Third Street
Napa, CA 94559

City of Napa

Mayor Jill Techel
City of Napa
955 School Street
Napa, CA 94559

Appendix A Section 4(f)

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Making Conservation
a California Way of Life.

To: File

Date: August 23, 2019

File: 28120
0414000020
NAP-29-
5.6/R6.7,221-0..0-/0.4

From: THOMAS ROSEVEAR
Office of Environmental Analysis
Senior Environmental Planner

Subject: **SECTION 4(F) ANALYSIS**

The Office of Environmental Analysis has reviewed the State Route 29/State Route 221 Soscol Junction Improvement Project for possible Section 4(f) impacts. The anticipated level of environmental document is a CEQA/NEPA IS/EA.

Caltrans, in partnership with the Napa Valley Transportation Authority, proposes to reconfigure the existing intersection of State Route (SR) 29 and SR 221/Soscol Ferry Road in Napa County from a signal to a full-diamond interchange, with two roundabout intersections on either side of SR 29 in order to alleviate congestion and improve traffic, bicycle, and pedestrian operations.

As part of the NEPA process, the Department is required to prepare documentation required by Section 4(f) of the U.S. Department of Transportation Act, referred to herein as the *Section 4(f) evaluation.* Section 4(f), codified in federal law of the United States Code, Title 14, Section 303, declares that "i[t] is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreational lands, wildlife and waterfowl refuges, and historic sites."

The proposed project would not result in permanent or temporary impacts to, or constructive use of, any park or recreation facilities requiring protection under Section 4(f). The proposed project would not alter the qualities, features, or attributes of a park, recreational facility, wildlife and waterfowl refuges, or historic sites.

This memo confirms that the proposed project has been evaluated for the presence of archaeological and historic sites, public and private parks, recreational facilities, and wildlife refuges within approximately 0.5 mile of the project area to determine whether they are protected Section 4(f) resources and whether the project would "use" the properties. An analysis of the surrounding area shows that there are potential Section 4(f) resources present within the study area that will not be affected. Therefore, no further analysis of Section 4(f) resources is required.

If you have any questions regarding this Section 4(f) Analysis, please contact Cindy Fong, Environmental Planner at (510) 286 – 6454 (Cindy.Fong@dot.ca.gov).

Appendix B Title VI Policy Statement

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.

LAURIE BERMAN
Director

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

Appendix C Preliminary Plans

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

REGISTERED ENGINEER — DATE

PRELIMINARY, NOT FOR CONSTRUCTION

PLANS APPROVAL DATE

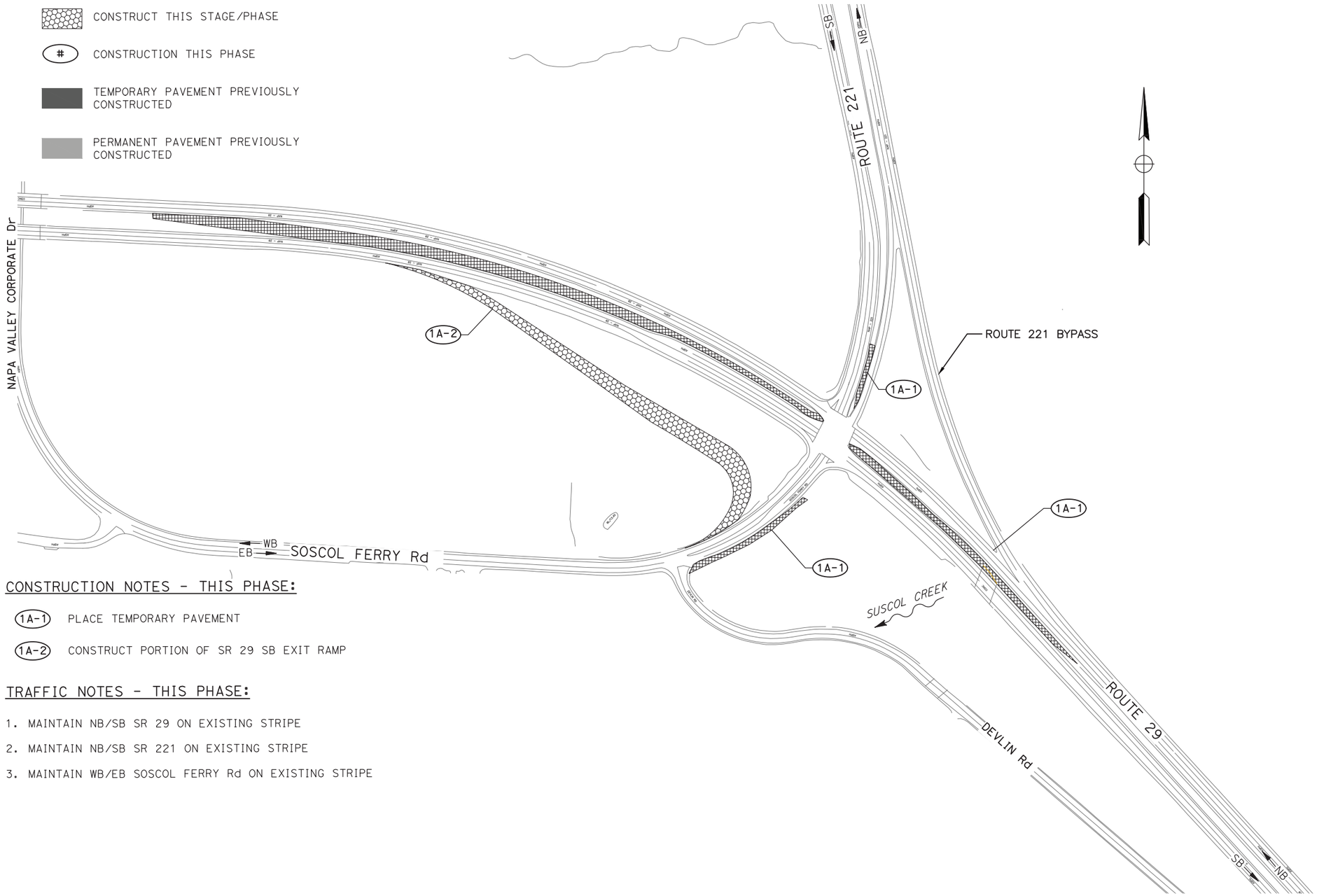
REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

NVTA
625 BURNELL STREET
NAPA, CA 94559

LEGEND

- CONSTRUCT TEMPORARY PAVEMENT
- CONSTRUCT THIS STAGE/PHASE
- # CONSTRUCTION THIS PHASE
- TEMPORARY PAVEMENT PREVIOUSLY CONSTRUCTED
- PERMANENT PAVEMENT PREVIOUSLY CONSTRUCTED



CONSTRUCTION NOTES - THIS PHASE:

(1A-1) PLACE TEMPORARY PAVEMENT

(1A-2) CONSTRUCT PORTION OF SR 29 SB EXIT RAMP

TRAFFIC NOTES - THIS PHASE:

1. MAINTAIN NB/SB SR 29 ON EXISTING STRIPE
2. MAINTAIN NB/SB SR 221 ON EXISTING STRIPE
3. MAINTAIN WB/EB SOSCOL FERRY Rd ON EXISTING STRIPE

ROUTES OPEN - THIS PHASE

NB/SB SR 29
NB/SB SR 221
WB/EB SOSCOL FERRY Rd
SR 221 BYPASS

ROUTES CLOSED - THIS PHASE

NONE

DETOURS - THIS PHASE

NONE

STAGE CONSTRUCTION
STAGE 1A
NO SCALE

SC-1

REVISED BY	DATE REVISED
MICHAEL PITCOCK	HEATHER ANDERSON

CALCULATED-DESIGNED BY
CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: RONALD G. BOYLE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

PRELIMINARY, NOT FOR CONSTRUCTION

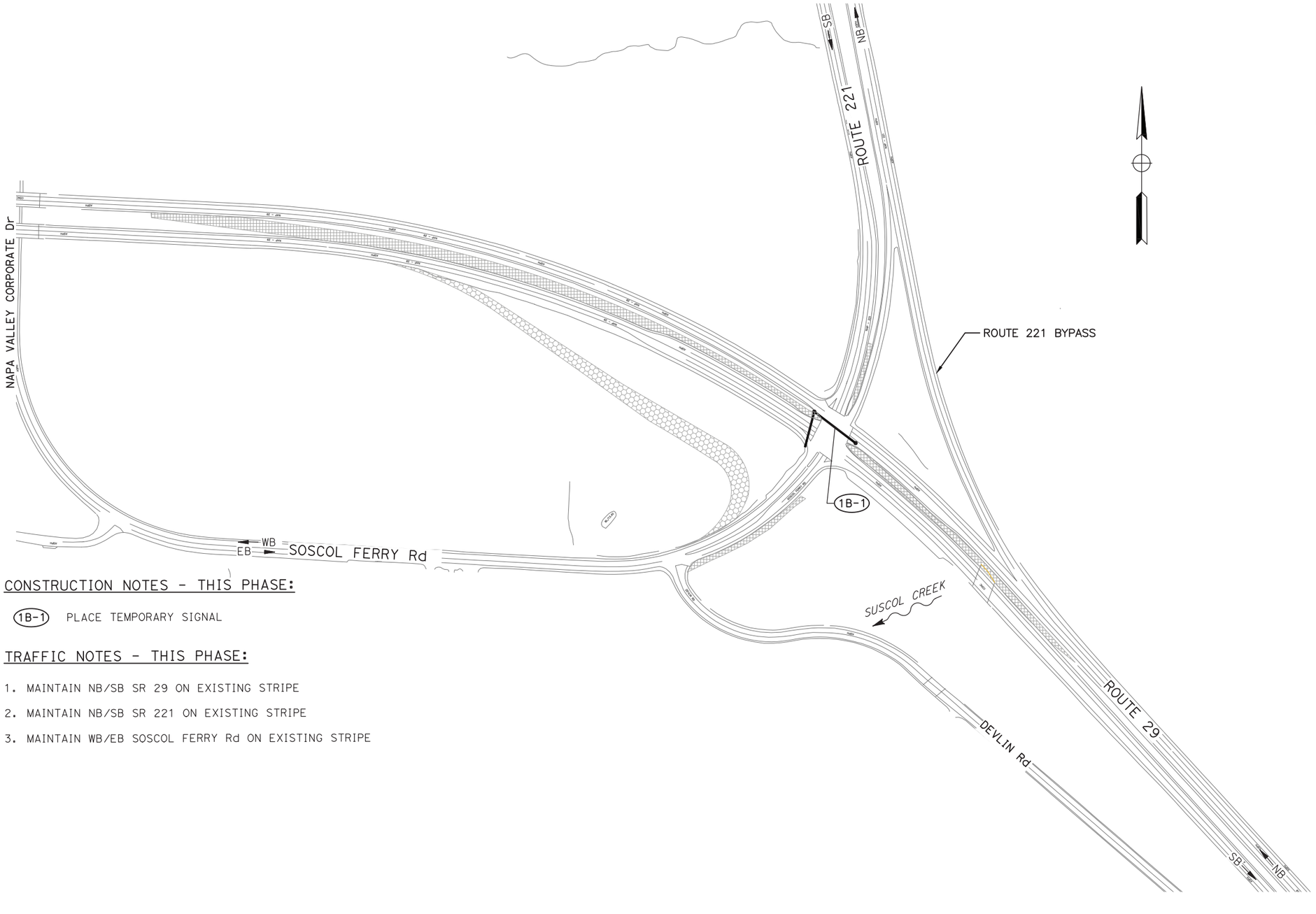
REGISTERED ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

NVTA
625 BURNELL STREET
NAPA, CA 94559



ROUTES OPEN - THIS PHASE

NB/SB SR 29
NB/SB SR 221
WB/EB SOSCOL FERRY Rd
SR 221 BYPASS

ROUTES CLOSED - THIS PHASE

NONE

DETOURS - THIS PHASE

NONE

CONSTRUCTION NOTES - THIS PHASE:

(1B-1) PLACE TEMPORARY SIGNAL

TRAFFIC NOTES - THIS PHASE:

1. MAINTAIN NB/SB SR 29 ON EXISTING STRIPE
2. MAINTAIN NB/SB SR 221 ON EXISTING STRIPE
3. MAINTAIN WB/EB SOSCOL FERRY Rd ON EXISTING STRIPE

FOR LEGEND SEE SHEET SC-1

STAGE CONSTRUCTION
STAGE 1B
NO SCALE

SC-2

REVISED BY	DATE REVISED
MICHAEL PITCOCK	
HEATHER ANDERSON	

CALCULATED-DESIGNED BY
CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: RONALD G. BOYLE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION 00-00-00
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TIME PLOTTED => $TIME

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UNIT 0000
PROJECT NUMBER & PHASE xxxxxxxxxxx

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

REGISTERED ENGINEER — DATE

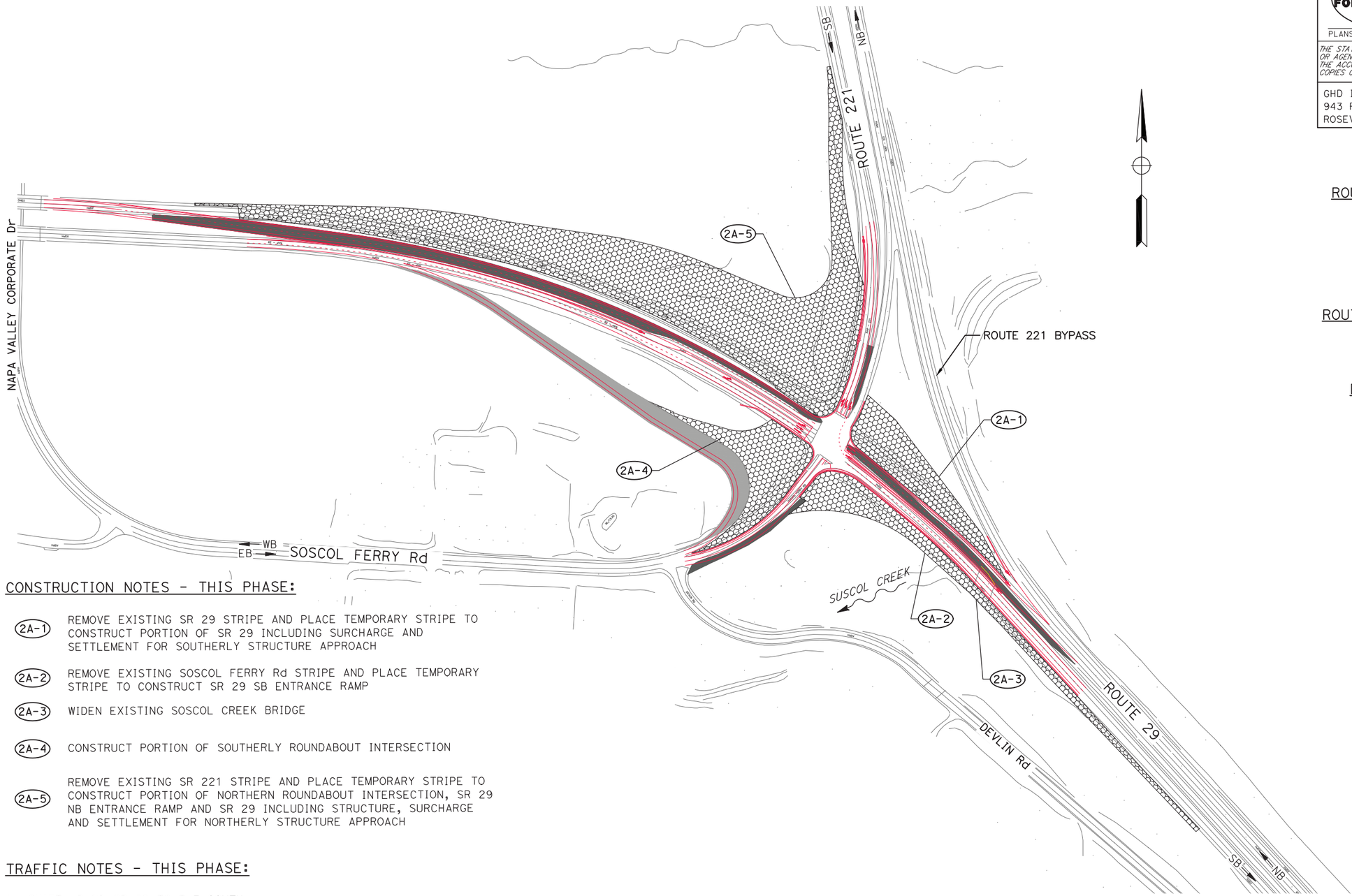
PRELIMINARY, NOT FOR CONSTRUCTION

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

NVTA
625 BURNELL STREET
NAPA, CA 94559



ROUTES OPEN - THIS PHASE

NB/SB SR 29
NB/SB SR 221
WB/EB SOSCOL FERRY Rd
SR 221 BYPASS

ROUTES CLOSED - THIS PHASE

NONE

DETOURS - THIS PHASE

NONE

CONSTRUCTION NOTES - THIS PHASE:

(2A-1) REMOVE EXISTING SR 29 STRIPE AND PLACE TEMPORARY STRIPE TO CONSTRUCT PORTION OF SR 29 INCLUDING SURCHARGE AND SETTLEMENT FOR SOUTHERLY STRUCTURE APPROACH

(2A-2) REMOVE EXISTING SOSCOL FERRY Rd STRIPE AND PLACE TEMPORARY STRIPE TO CONSTRUCT SR 29 SB ENTRANCE RAMP

(2A-3) WIDEN EXISTING SOSCOL CREEK BRIDGE

(2A-4) CONSTRUCT PORTION OF SOUTHERLY ROUNDABOUT INTERSECTION

(2A-5) REMOVE EXISTING SR 221 STRIPE AND PLACE TEMPORARY STRIPE TO CONSTRUCT PORTION OF NORTHERN ROUNDABOUT INTERSECTION, SR 29 NB ENTRANCE RAMP AND SR 29 INCLUDING STRUCTURE, SURCHARGE AND SETTLEMENT FOR NORTHERLY STRUCTURE APPROACH

TRAFFIC NOTES - THIS PHASE:

1. SHIFT NB/SB SR 29 TO THE SOUTH
2. SHIFT NB/SB SR 221 TO THE EAST
3. SHIFT WB/EB SOSCOL FERRY Rd TO THE EAST

FOR LEGEND SEE SHEET SC-1

STAGE CONSTRUCTION
STAGE 2A
NO SCALE

SC-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR: RONALD G. BOYLE | CALCULATED-DESIGNED BY: HEATHER ANDERSON | CHECKED BY | REVISED BY: MICHAEL PITCOCK | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

REGISTERED ENGINEER — DATE

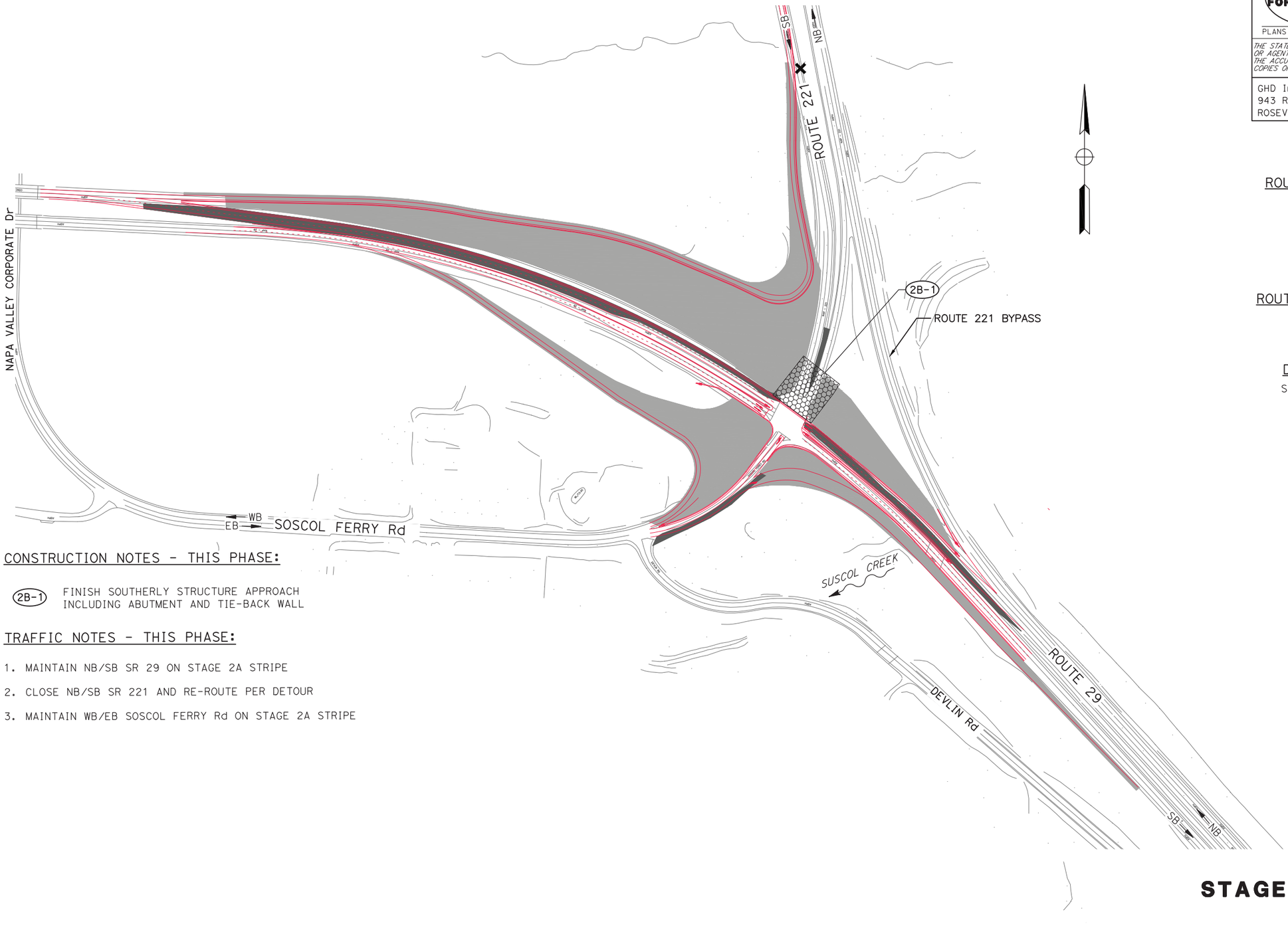
PRELIMINARY, NOT FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

NVTA
625 BURNELL STREET
NAPA, CA 94559



ROUTES OPEN - THIS PHASE

NB/SB SR 29
WB/EB SOSCOL FERRY Rd
SR 221 BYPASS
SB SR 29 EXIT RAMP
NB SR 29 ENTRANCE RAMP
SB SR 29 ENTRANCE RAMP

ROUTES CLOSED - THIS PHASE

NB/SB SR 221

DETOURS - THIS PHASE

SB SR 221 USES NAPA VALLEY CORPORATE Dr TO ACCESS SB SR 29

CONSTRUCTION NOTES - THIS PHASE:

(2B-1) FINISH SOUTHERLY STRUCTURE APPROACH INCLUDING ABUTMENT AND TIE-BACK WALL

TRAFFIC NOTES - THIS PHASE:

1. MAINTAIN NB/SB SR 29 ON STAGE 2A STRIPE
2. CLOSE NB/SB SR 221 AND RE-ROUTE PER DETOUR
3. MAINTAIN WB/EB SOSCOL FERRY Rd ON STAGE 2A STRIPE

FOR LEGEND SEE SHEET SC-1

STAGE CONSTRUCTION
STAGE 2B
NO SCALE

SC-4

REVISED BY	DATE REVISED
MICHAEL PITCOCK	HEATHER ANDERSON

CALCULATED-DESIGNED BY
CHECKED BY

RONALD G. BOYLE
CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => $DATE
TIME PLOTTED => $TIME

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

PRELIMINARY, NOT FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER — DATE

PLANS APPROVAL DATE

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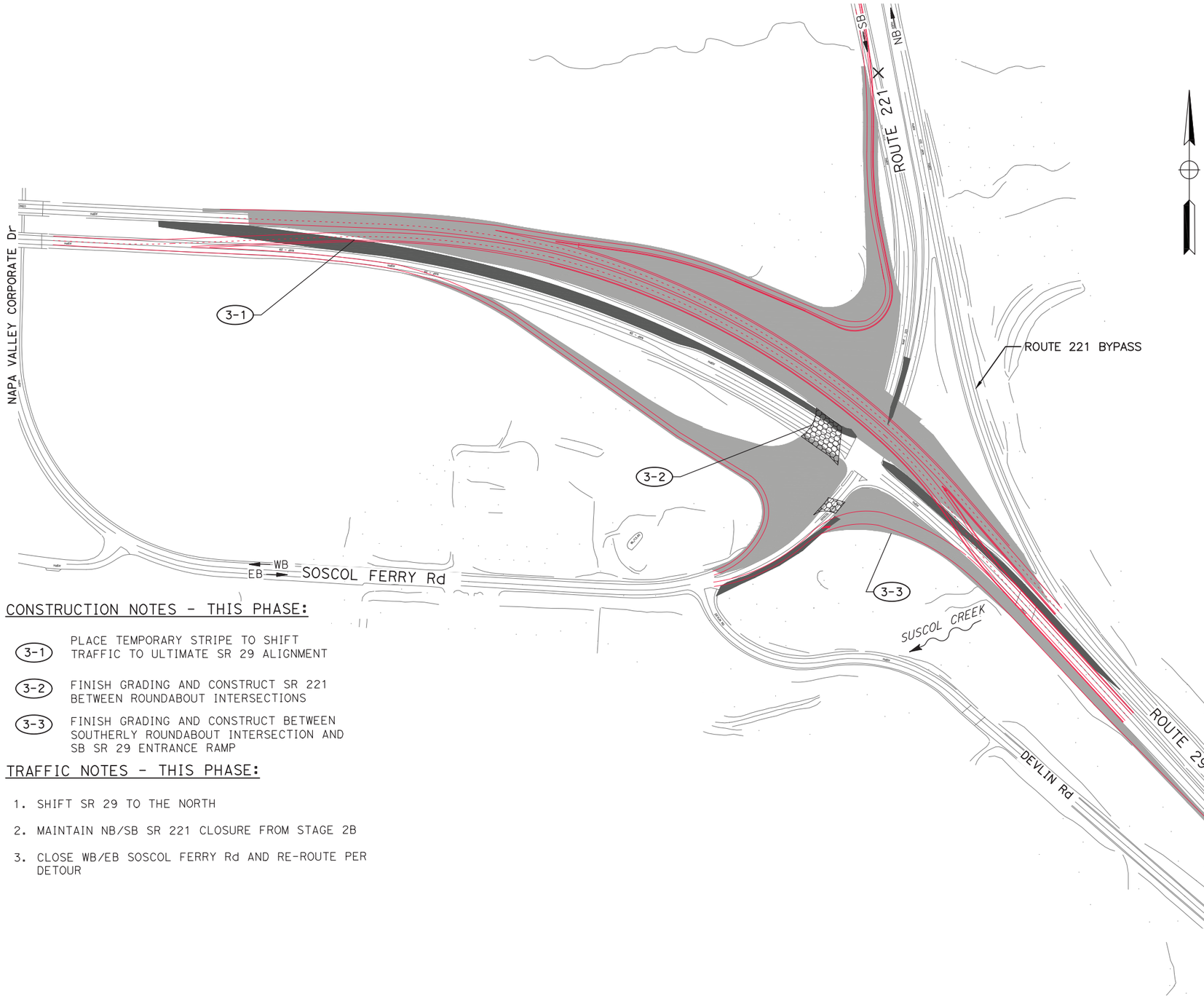
REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

NVTA
625 BURNELL STREET
NAPA, CA 94559



ROUTES OPEN - THIS PHASE

NB/SB SR 29
SR 221 BYPASS
SB SR 29 EXIT RAMP
SB SR 29 ENTRANCE RAMP
NB SR 29 ENTRANCE RAMP

ROUTES CLOSED - THIS PHASE

NB/SB SR 221
WB/EB SOSCOL FERRY Rd

DETOURS - THIS PHASE

SB SR 221 USES NAPA VALLEY CORPORATE Dr TO ACCESS SB SR 29

SOSCOL FERRY Rd ACCESSED VIA DEVLIN Rd OR NAPA VALLEY CORPORATE Dr

CONSTRUCTION NOTES - THIS PHASE:

(3-1) PLACE TEMPORARY STRIPE TO SHIFT TRAFFIC TO ULTIMATE SR 29 ALIGNMENT

(3-2) FINISH GRADING AND CONSTRUCT SR 221 BETWEEN ROUNDABOUT INTERSECTIONS

(3-3) FINISH GRADING AND CONSTRUCT BETWEEN SOUTHERLY ROUNDABOUT INTERSECTION AND SB SR 29 ENTRANCE RAMP

TRAFFIC NOTES - THIS PHASE:

1. SHIFT SR 29 TO THE NORTH
2. MAINTAIN NB/SB SR 221 CLOSURE FROM STAGE 2B
3. CLOSE WB/EB SOSCOL FERRY Rd AND RE-ROUTE PER DETOUR

FOR LEGEND SEE SHEET SC-1

STAGE CONSTRUCTION
STAGE 3
NO SCALE

SC-5

REVISED BY	DATE REVISED
MICHAEL PITCOCK	HEATHER ANDERSON

CALCULATED-DESIGNED BY | CHECKED BY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR
RONALD G. BOYLE

LAST REVISION 00-00-00
DATE PLOTTED => $DATE
TIME PLOTTED => $TIME

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

REGISTERED ENGINEER — DATE

PRELIMINARY, NOT FOR CONSTRUCTION

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

GHD Inc.
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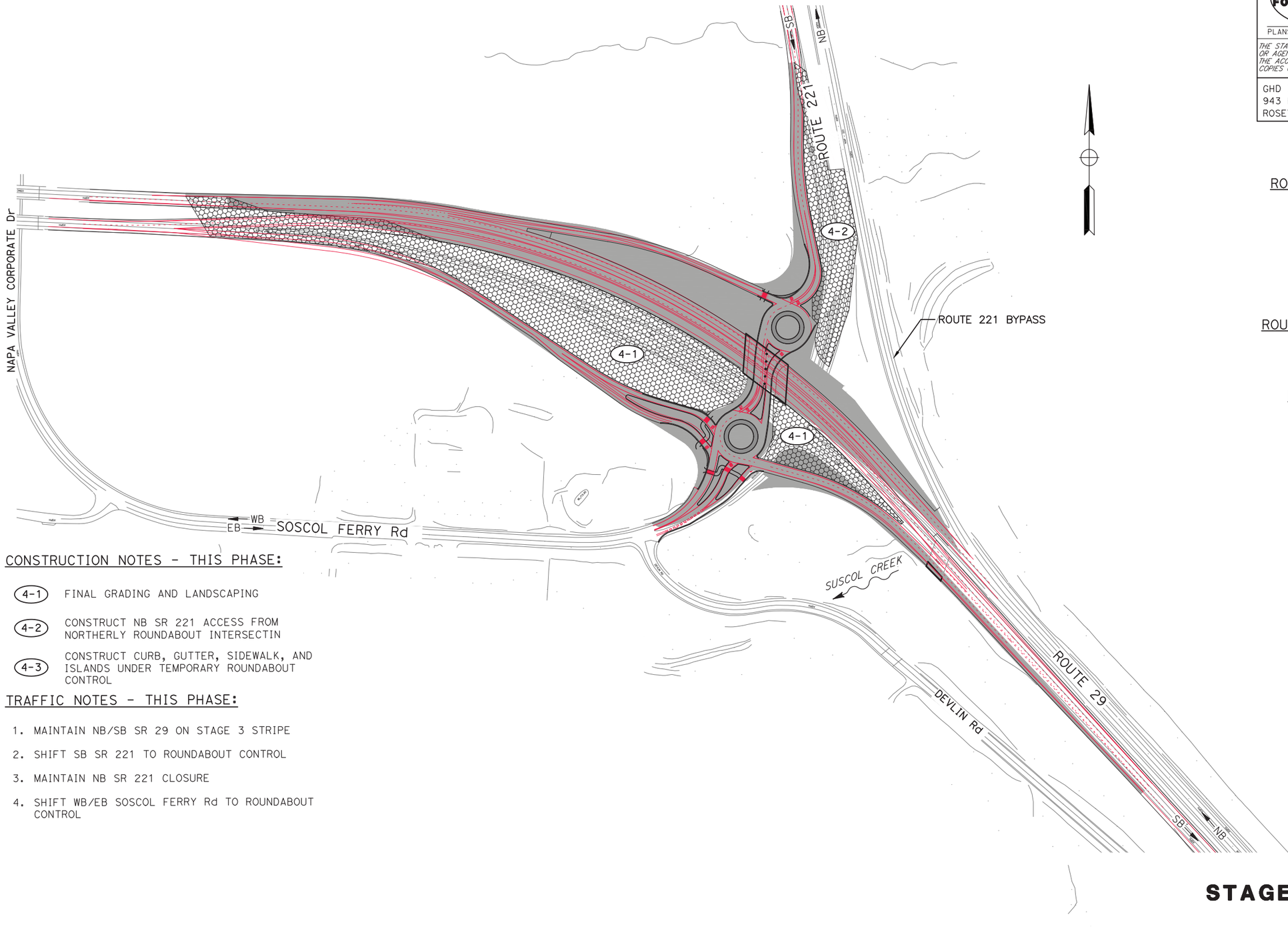


CONSTRUCTION NOTES - THIS PHASE:

(4-1) FINAL GRADING AND LANDSCAPING

(4-2) CONSTRUCT NB SR 221 ACCESS FROM NORTHERLY ROUNDABOUT INTERSECTIN

(4-3) CONSTRUCT CURB, GUTTER, SIDEWALK, AND ISLANDS UNDER TEMPORARY ROUNDABOUT CONTROL

TRAFFIC NOTES - THIS PHASE:

1. MAINTAIN NB/SB SR 29 ON STAGE 3 STRIPE
2. SHIFT SB SR 221 TO ROUNDABOUT CONTROL
3. MAINTAIN NB SR 221 CLOSURE
4. SHIFT WB/EB SOSCOL FERRY Rd TO ROUNDABOUT CONTROL

FOR LEGEND SEE SHEET SC-1

ROUTES OPEN - THIS PHASE

NB/SB SR 29
SB SR 221
WB/EB SOSCOL FERRY Rd
SR 221 BYPASS
SB SR 29 EXIT RAMP
SB SR 29 ENTRANCE RAMP
NB SR 29 ENTRANCE RAMP

ROUTES CLOSED - THIS PHASE

NB SR 221

DETOURS - THIS PHASE

SOSCOL FERRY Rd USES NAPA VALLEY CORPORATE Dr TO ACCESS NB SR 221

STAGE CONSTRUCTION

STAGE 4

NO SCALE

SC-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: RONALD G. BOYLE

CALCULATED-DESIGNED BY: MICHAEL PITCOCK
CHECKED BY: HEATHER ANDERSON

REVISED BY | DATE REVISED

LAST REVISION | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME
00-00-00

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER | DGN FILE =>K:\PRJ\2123\2123EX014.DWG | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE xxxxxxxxxx

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

REGISTERED ENGINEER — DATE

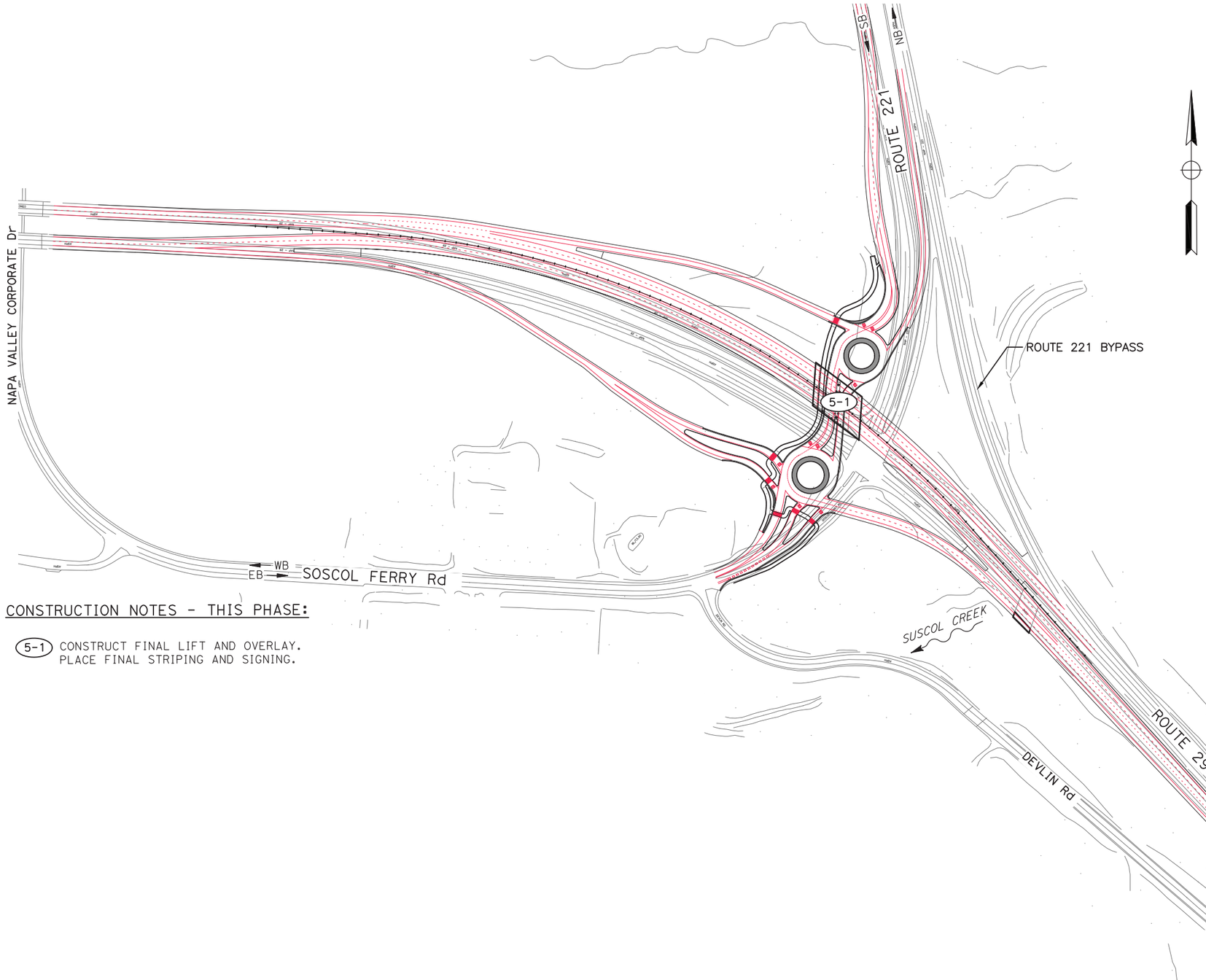
PRELIMINARY, NOT FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

NVTA
625 BURNELL STREET
NAPA, CA 94559



ROUTES OPEN - THIS PHASE

NB/SB SR 29
NB/SB SR 221
WB/EB SOSCOL FERRY Rd
SR 221 BYPASS
SB SR 29 EXIT RAMP
SB SR 29 ENTRANCE RAMP
NB SR 29 ENTRANCE RAMP

ROUTES CLOSED - THIS PHASE

NONE

DETOURS - THIS PHASE

NONE

CONSTRUCTION NOTES - THIS PHASE:

(5-1) CONSTRUCT FINAL LIFT AND OVERLAY.
PLACE FINAL STRIPING AND SIGNING.

FOR LEGEND SEE SHEET SC-1

STAGE CONSTRUCTION
STAGE 5
NO SCALE

SC-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR: RONALD G. BOYLE

DATE REVISED	REVISED BY	CALCULATED-DESIGNED BY	CHECKED BY
	MICHAEL PITCOCK		
	HEATHER ANDERSON		

LAST REVISION 00-00-00 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

Appendix D Avoidance, Minimization, and/or Mitigation Summary

Appendix D Avoidance, Minimization, and/or Mitigation Summary

Reource	Measure	Avoidance, Minimization, and/or Mitigation Measures
Biology	Mitigation Measure BIO-1	Caltrans will plant trees offsite as compensatory mitigation for tree impacts as needed.
Biology	Mitigation Measure BIO-2	Permanent impacts to CRLF habitat would be mitigated at a 3:1 ratio, at an approved mitigation bank, in accordance with the Biological Opinion.
Biology	AMM BIO-1: Rare Plant and Host Plant Surveys	In addition to the pre-construction listed plant surveys in the project features, Caltrans will conduct pre-construction protocol-level surveys for rare plants and Callippe silverspot butterfly (CSSB) and valley elderberry longhorn beetle (VELB) larval host plants Johnny jump-up (V. pedunculata) and elderberries that could support these listed species (see Section 2.3.5). Should rare plants, listed species, or host plants be found, these will be avoided where feasible. If not feasible to avoid, additional measures such as replanting or off-site mitigation will be developed during agency consultations.
Biology	AMM BIO-2: Light Restrictions	To reduce the potential for disturbance of roosts, flight routes and feeding sites, lighting will be directed down toward the road surface or shielding provided as needed. Temporary project lighting on the surface of the road shall be directed towards the road surface and shall not be directed into areas outside of the road surface to prevent additional light pollution and disruption of nocturnal wildlife activity. Baffles and various shading devices may be employed. As permanent lighting design is developed, shielding and other measures will be evaluated, and effects will be assessed in coordination with the resource agencies.
Biology	AMM BIO-3: Future Studies and Bat Roost Deterrents	Additional acoustic monitoring, and night roosting surveys will be conducted during PS&E to determine bat species presence and how they are utilizing the bridge. Surveys will occur from March 1 to October 15, or as needed, to determine roost utilization. If bats are found to be using the structure, then roosting deterrent measures may be utilized, in coordination with CDFW. These may include the following: • Cavities, that may be used by roosting bats will be filled with foam or other sealant during the winter season (October 16 through February 1) when the bats are not occupying the roost. The structure will be inspected for bats prior to foam application. The foam sealant will be inspected and replaced throughout the construction period to prevent cracks or openings that may be used by bats. Foam sealant will be removed from the cavities following completion of all construction activities on or near Suscol Creek Bridge.

Appendix D Avoidance, Minimization, and/or Mitigation Summary

Reource	Measure	Avoidance, Minimization, and/or Mitigation Measures
Biology	AMM BIO-4: Western Pond Turtle Preconstruction Surveys	An approved biologists will conduct preconstruction surveys for WPT as needed. A visual encounter survey will be conducted immediately before ground-disturbing activities. Suitable habitat within the project footprint will be visually inspected. If a WPT is found within the project footprint and at risk of harm, it will be relocated outside of the project footprint by the approved biologist.
Biology	AMM BIO-5: Contra Costa Goldfield Site Access and Staging Areas	Construction access, staging, storage, and parking areas will be located on ruderal or developed lands within the Caltrans ROW and, where possible, will not be located in areas designated as critical habitat.
Biology	AMM BIO-6: California Red-Legged Frog Preconstruction Surveys	Agency-approved biologists will conduct preconstruction surveys for CRLF no more than 10 days ahead of the start of construction. A visual survey will be conducted immediately before ground-disturbing activities. Suitable habitat within the project footprint, including refugia habitat (such as under shrubs, downed logs, and small woody debris) will be visually inspected. If a CRLF is observed, the individual will be evaluated and relocated in accordance with the protocol outlined below. Fossorial mammal burrows will be visually inspected for signs of frog use, to the extent practicable.
Biology	AMM BIO-7: Work Windows	For seasonal avoidance of CRLF, construction within Suscol Creek will not occur during the wet season. Except for limited vegetation clearing (necessary to minimize impacts to nesting birds), work in the creek will be limited to June 1 to October 31. Limited vegetation clearing (non-ground disturbing) from November 1 through May 31 may only be conducted under the supervision of an on-site biological monitor.
Biology	AMM BIO-8: Wildlife Exclusion Fencing	Caltrans will consult with USFWS to determine the need for WEF during the PS&E phase. If deemed necessary, WEF will be installed in areas where CRLF are most likely to occur before construction begins. The WEF will remain in place as long as active construction is anticipated. The final project plans will depict the locations where WEF will be installed, the type of materials to be used, and how it will be assembled or constructed.
Biology	AMM BIO-9: Biological Monitoring	The USFWS-approved biologist will be present during construction activities where take of CRLF could occur. Through communication with the resident engineer or designee, the USFWS-approved biologist may stop work when safe to do so, if deemed necessary for any reason to protect listed species and will advise the resident engineer or designee on how to proceed accordingly.

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Resource	Measure	Avoidance, Minimization, and/or Mitigation Measures
Biology	AMM BIO-10: Protocol for Species Observation	All CRLF encountered in the project area will be relocated by the agency-approved biologist to a USFWS-approved location. Biologists will take precautions to prevent introduction of amphibian diseases to the project area by disinfecting equipment and clothing as directed in the California tiger salamander survey protocol entitled, Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (USFWS 2003) and the recommended equipment decontamination procedures within the USFWS's Revised Guidance on Site Assessments and Field Surveys for the California Red legged Frog (USFWS 2005a).
Biology	AMM BIO-11: CRLF-Specific Light Restrictions	Construction personnel will turn portable tower lights on no more than 30 minutes before the beginning of civil twilight, and off no more than 30 minutes after the end of civil sunrise. Portable tower lights will have directional shields attached to them, and personnel will only direct lights downward and toward active construction and staging areas, and away from ESAs. Lighting per portable tower light will not exceed 2,000 lumens. Personnel will only use enough coverage to light the travel way, median, and staging areas.
Biology	AMM BIO-12: Swainson's Hawk Preconstruction Surveys	Caltrans will conduct preconstruction protocol-level SWHA surveys in 2020 during the PS&E phase using guidelines set forth by the CDFW (1994) and the SWHA Technical Advisory Committee (2000). If a nest is discovered within 0.5 mile of project footprint, Caltrans will coordinate with CDFW for further guidance.
Cultural	Mitigation Measure CUL-1: Establishing an Environmental Sensitive Area	An Environmentally Sensitive Area (ESA) will be established to protect archaeological resources and delineated on the ground with temporary high-visibility fencing. No construction-related activities or staging is permitted within the ESA.
Cultural	Mitigation Measure CUL-2: Phase II Data Recovery Plan	A preconstruction Phase III Data Recovery Plan will be implemented by a qualified archaeologist for the significant archaeological site that is directly affected. Data recovery will only occur in the portion of the site being directly affected.
Cultural	Mitigation Measure CUL-3: Archaeology Monitoring Area Plan	An Archaeological Monitoring Area plan is to be implemented during construction. A qualified archaeologist will monitor job site activities within the archaeological monitoring area (AMA). No work can be conducted within the AMA unless the archaeological monitor is present.

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Resource	Measure	Avoidance, Minimization, and/or Mitigation Measures
Cultural	Mitigation Measure CUL-4: Memorandum of Agreement	To resolve adverse effects (as listed under Section 106 of the NHPA) of the Build Alternative on the archaeological site, Caltrans is consulting with the SHPO and interested Native American groups. A MOA will be developed to identify mechanisms for treatment of historic properties, primarily through recovery of important data that would be destroyed by construction of the proposed project The MOA will also outline procedures for treatment of historic properties inadvertently discovered during construction. Under this MOA, an archaeological treatment plan will be developed; the plan will stipulate that a data recovery proposal will be prepared once specific detailed construction impacts are available. The data recovery proposal will be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation
Hydrology and Floodplain	AMM HYDRO-1: Fish Passage	If construction within the OHWM of Suscol Creek is added to the scope of the project, Caltrans would consult with NOAA Fisheries regarding potential impacts to EFH.
Hydrology and Floodplain	AMM HYDRO-2: Construction Site Best Management Practices	Deploy construction site best management practices (BMPs) for sediment control and material management, to prevent or reduce impacts. BMPs include cover, check dam, drainage inlet protection, fiber roll, silt fence, concrete wash-out, construction entrances/exits, and street sweeping. Temporary construction roadway is also needed per the Office of Design. Dewatering may also be required.
Hydrology and Floodplain	AMM HYDRO-3: In-Water Work Requirements	For in-water work , stormwater monitoring and rain event action plans, in addition to a creek diversion system, will be required.
Hydrology and Floodplain	AMM HYDRO-4: Treatment Best Management Practices	Note that treatment BMPs are anticipated because the new and replaced impervious area is over an acre. Permanent treatment BMPs will need to treat the project's impervious surfaces of 11 acres. Offsite treatment may be required if 100 percent treatment is not obtained onsite.
Hydrology and Floodplain	AMM HYDRO-5: Trash Control Requirement	Trash capture devices may be required for the project because although the project is not on Caltrans' STGA map, a Section 401 certification is required from the Water Board and the project is over $5 million dollars.
Hydrology and Floodplain	AMM HYDRO-6: Storm Water Pollution Prevention Plan	Prior to commencement of construction activities, have the contractor prepare a SWPPP, for approval by Caltrans. The SWPPP addresses potential construction impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable.
Noise	AMM NOISE-1: Sensitive Receptors	Stationary noise-generating equipment, staging areas, and storage areas will be located as far as possible from sensitive receptors when sensitive receptors adjoin or are near the construction project area.

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Resource	Measure	Avoidance, Minimization, and/or Mitigation Measures
Noise	AMM NOISE-2: Public Involvement and Project Coordination	Accurate and timely information regarding temporary construction noise impacts will be disseminated to the public.
Noise	AMM NOISE-3 Best Available Construction Noise Practices	Best available construction noise practices will be implemented by the project contractor and shall include, but not be limited to, the following practices: • All construction equipment should conform to Section 14-8.02, Noise Control, of the latest Standard Specifications. • Pile driving activities should be limited to daytime hours only. • Multiple-pile drivers should be considered to expedite construction. Although noise levels generated by multiple pile drivers would be higher than the noise generated by a single pile driver, the total duration of pile driving activities would be reduced. • Temporary noise control blanket barriers should be erected in a manner to shield the affected land use. Such noise control blanket barriers can be rented and quickly erected. • Foundation pile holes should be pre-drilled to minimize the number of blows required to seat the pile. • Equip all internal combustion engine driven equipment with manufacturer recommended intake and exhaust mufflers that are in good condition and appropriate for the equipment. • Unnecessary idling of internal combustion engines within 100 feet of residences should be strictly prohibited. • Haul routes shall avoid residential areas as feasible. • Provide traffic control at detours to minimize speeds and congestion.
Paleontology	Mitigation Measure PAL-1: Paleontological Evaluation Report and Paleontological Mitigation Plan	A revised PER and a PMP will be prepared when the revised limits and depth of excavation are known. The revised PER will address whether the proposed excavation will reach the potentially fossiliferous Pleistocene Sonoma Volcanics. The PMP will define the specific mitigation measures and methods that will be implemented during construction of the proposed project.

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Resource	Measure	Avoidance, Minimization, and/or Mitigation Measures
Transportation and Traffic	AMM TRANSPORTATION-1 Traffic Management Plan	A TMP would be developed by Caltrans with input from the local community. The TMP wuoldinclude elements such as detour and haul routes, one-way traffic controls to minimize speeds and congestion, flag workers, and phasing, to reduce impacts to local residents as feasible and maintain access to businesses in the local area. The TMP would also provide access for police, fire, and medical services in the local area. Detour routes would be planned in coordination with Caltrans and the County of Napa, and would be noticed to emergency service providers, transit operators, and the public in advance.
Water Quality and Stormwater Runoff	AMM WQ-1: Restoring Disturbed Areas	Disturbed areas will be restored with the following methods: All slopes or unpaved areas temporarily affected by the proposed project outside of the sediment grading area will be restored to original topography and stabilized with effective erosion control materials. The permanent postconstruction topography of the sediment grading area will be at a lower elevation because of the excavation of sediment; this area will be stabilized following construction. Slopes and bare ground will be reseeded with native plant seed mix to stabilize and prevent erosion, where appropriate.
Water Quality and Stormwater Runoff	AMM WQ-2: Turbidity and Water Quality Monitoring	Turbidity monitoring will be performed during and after installation and removal of the cofferdam, as well as during dewatering activities, according to Standard Specification 13-1.01D(5)(b) Water Quality Sampling and Analysis. Water quality monitoring will be performed to document changes in turbidity in compliance with water quality standards, permits, and approvals from NOAA Fisheries and/or CDFW. If the water quality monitor observes excursions of turbidity beyond 50 nephelometric turbidity units, or as otherwise specified in regulatory agency permits and approvals, then the water quality monitor will notify the Resident Engineer. The Resident Engineer has the authority to stop all construction work in the area until the appropriate corrective measures have been conducted. Work will resume once it is determined that water quality standards will not be violated.

Appendix E List of Abbreviations

AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ADL	Aerially Deposited Lead
AMA	archaeological monitoring area
AMM	Avoidance, Minimization and/or Mitigation Measure
APE	Area of Potential Effects
ARB	California Air Resources Board
AT&T	American Telephone & Telegraph
AWOS	Agriculture Watershed and Open Space
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
CAL FIRE	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	*Code of Federal Regulations*
cfs	cubic feet per second
CFWS	California freshwater shrimp
CGP	Construction General Permit

CH_4	methane
CIDH	cast-in drilled hole
CO	carbon monoxide
CO_2	carbon dioxide
CRHR	California Register of Historical Resources
CRLF	California Red Legged Frog
CSSB	Callippe silverspot butterfly
CTP	California Transportation Plan
CWA	Clean Water Act
dBA	A-weighted decibel
dbh	diameter at breast height
DSA	Disturbed Soil Area
EA	Environmental Assessment
EIR	Environmental Impact Report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Environmentally Sensitive Area
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTIP	federal transportation improvement program
GHG	greenhouse gas

H_2S	hydrogen sulfide
HFC	hydrofluorocarbon
I-	Interstate
ITP	Incidental Take Permit
KV	Key View
LOS	level of service
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
MOA	Memorandum of Agreement
mph	mile per hour
MPO	Metropolitan Planning Organization
MS4	municipal separate storm sewer system
MTC	Metropolitan Transportation Commission
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
NVTA	Napa Valley Transportation Authority
NCRCD	Napa County Resource Conservation District
NEPA	National Environmental Policy Act of 1969
NES	Natural Environment Study

NHPA	National Historic Preservation Act
NOAA Fisheries	National Oceanic and Atmospheric Administration's National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NVTA	Napa Valley Transportation Authority
O_3	ozone
OCRS	Office of Cultural Resource Studies
PA	Programmatic Agreement
Pb	lead
PDT	project development team
PER	Paleontological Evaluation Report
PG&E	Pacific Gas and Electric Company
PM	post mile
$PM_{2.5}$	particulate matter with particles of 2.5 micrometers or smaller
PM_{10}	particulate matter with particles of 10 micrometers or smaller
PMP	Paleontological Mitigation Plan
PRC	Public Resources Code
PS&E	plans, specifications, and estimates

PSR	project study report
RCRA	Resource Conservation and Recovery Act
ROG	reactive organic gas
ROW	right of way
RTP	regional transportation plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLR	sea-level rise
SO_2	sulfur dioxide
SR	State Route
STAA	Surface Transportation Assistance Act
SWMP	stormwater management plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TIP	Transportation Improvement Program
TMP	Traffic Management Plan

TOAR	traffic operations analysis report
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDOT	U.S. Department of Transportation
VA	value analysis
VIA	visual impact assessment
VMT	vehicle miles traveled
WDR	Waste Discharge Requirement
WQS	Water Quality Study

Appendix F List of References

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Appendix G List of Technical Studies

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California Department of Transportation (Caltrans) District 4. 2019a. *Request for Studies Memorandum*. Office of Hydraulic Engineering. Signed June 26, 2019.

California Department of Transportation (Caltrans) District 4. 2019b. *Water Quality Study.* Office of Environmental Engineering. Signed January 24, 2019.

California Department of Transportation (Caltrans) District 4. 2019c. *Geological and Paleontological Impacts Memorandum.* Office of Geotechnical Design – West. Signed February 12, 2019.

California Department of Transportation (Caltrans) District 4. 2019d. Visual Impacts Assessment. Office of Landscape Architecture/ Visual.

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Appendix H Species Lists

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Cuttings Wharf (3812223) OR Sonoma (3812234) OR Napa (3812233) OR Mt. George (3812232) OR Cordelia (3812222) OR Benicia (3812212) OR Mare Island (3812213) OR Petaluma Point (3812214) OR Sears Point (3812224))
 AND (Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate) OR State Listing Status IS (Endangered OR Threatened OR Rare OR Candidate Endangered OR Candidate Threatened))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Blennosperma bakeri Sonoma sunshine	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Castilleja affinis var. neglecta Tiburon paintbrush	PDSCR0D013	Endangered	Threatened	G4G5T1T2	S1S2	1B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Chloropyron molle ssp. molle soft salty bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Rallus obsoletus obsoletus California Ridgway's rail	ABNME05011	Endangered	Endangered	G5T1	S1	FP
Rana boylii foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Speyeria callippe callippe callippe silverspot butterfly	IILEPJ6091	Endangered	None	G5T1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Syncaris pacifica California freshwater shrimp	ICMAL27010	Endangered	Endangered	G2	S2	
Trifolium amoenum two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1

Record Count: 23

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Cuttings Wharf (3812223) OR Sonoma (3812234) OR Napa (3812233) OR Mt. George (3812232) OR Cordelia (3812222) OR Benicia (3812212) OR Mare Island (3812213) OR Petaluma Point (3812214) OR Sears Point (3812224))
 AND CNPS List IS (1A OR 1B OR 1B.1 OR 1B.2 OR 1B.3 OR 2A OR 2B OR 2B.1 OR 2B.2 OR 2B.3)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Allium peninsulare var. franciscanum Franciscan onion	PMLIL021R1	None	None	G5T2	S2	1B.2
Amorpha californica var. napensis Napa false indigo	PDFAB08012	None	None	G4T2	S2	1B.2
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Blennosperma bakeri Sonoma sunshine	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
Blepharizonia plumosa big tarplant	PDAST1C011	None	None	G1G2	S1S2	1B.1
Brodiaea leptandra narrow-anthered brodiaea	PMLIL0C022	None	None	G3?	S3?	1B.2
Calochortus pulchellus Mt. Diablo fairy-lantern	PMLIL0D160	None	None	G2	S2	1B.2
Carex lyngbyei Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
Castilleja affinis var. neglecta Tiburon paintbrush	PDSCR0D013	Endangered	Threatened	G4G5T1T2	S1S2	1B.2
Ceanothus confusus Rincon Ridge ceanothus	PDRHA04220	None	None	G1	S1	1B.1
Ceanothus purpureus holly-leaved ceanothus	PDRHA04160	None	None	G2	S2	1B.2
Ceanothus sonomensis Sonoma ceanothus	PDRHA04420	None	None	G2	S2	1B.2
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T1T2	S1S2	1B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Chloropyron molle ssp. molle soft salty bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Erigeron greenei Greene's narrow-leaved daisy	PDAST3M5G0	None	None	G3	S3	1B.2
Eryngium jepsonii Jepson's coyote-thistle	PDAPI0Z130	None	None	G2	S2	1B.2
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Helianthella castanea Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
Hemizonia congesta ssp. congesta congested-headed hayfield tarplant	PDAST4R065	None	None	G5T2	S2	1B.2
Hesperolinon breweri Brewer's western flax	PDLIN01030	None	None	G2	S2	1B.2
Horkelia tenuiloba thin-lobed horkelia	PDROS0W0E0	None	None	G2	S2	1B.2
Isocoma arguta Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Leptosiphon jepsonii Jepson's leptosiphon	PDPLM09140	None	None	G2G3	S2S3	1B.2
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Lupinus sericatus Cobb Mountain lupine	PDFAB2B3J0	None	None	G2?	S2?	1B.2
Rhynchospora californica California beaked-rush	PMCYP0N060	None	None	G1	S1	1B.1
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Sidalcea hickmanii ssp. napensis Napa checkerbloom	PDMAL110A6	None	None	G3T1	S1	1B.1
Spergularia macrotheca var. longistyla long-styled sand-spurrey	PDCAR0W062	None	None	G5T2	S2	1B.2
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Trichostema ruygtii Napa bluecurls	PDLAM220H0	None	None	G1G2	S1S2	1B.2
Trifolium amoenum two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

Record Count: 43

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Cuttings Wharf (3812223) OR Sonoma (3812234) OR Napa (3812233) OR Mt. George (3812232) OR Cordelia (3812222) OR Benicia (3812212) OR Mare Island (3812213) OR Petaluma Point (3812214) OR Sears Point (3812224))
 AND Other Status Contains (CDFW_FP-Fully Protected OR CDFW_SSC-Species of Special Concern OR CDFW_WL-Watch List)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Cypseloides niger black swift	ABNUA01010	None	None	G4	S2	SSC
Dicamptodon ensatus California giant salamander	AAAAH01020	None	None	G3	S2S3	SSC
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Melospiza melodia maxillaris Suisun song sparrow	ABPBXA301K	None	None	G5T3	S3	SSC
Melospiza melodia samuelis San Pablo song sparrow	ABPBXA301W	None	None	G5T2	S2	SSC

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Rallus obsoletus obsoletus California Ridgway's rail	ABNME05011	Endangered	Endangered	G5T1	S1	FP
Rana boylii foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Sorex ornatus sinuosus Suisun shrew	AMABA01103	None	None	G5T1T2Q	S1S2	SSC
Taricha rivularis red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 29

CNPS California Native Plant Society

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

Plant List

49 matches found. *Click on scientific name for details*

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B], Found in Quads 3812234, 3812233, 3812232, 3812224, 3812223, 3812222, 3812214 3812213 and 3812212;

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
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	(Apr)May-Jun	1B.2	S2	G5T2
Amorpha californica var. napensis	Napa false indigo	Fabaceae	perennial deciduous shrub	Apr-Jul	1B.2	S2	G4T2
Arctostaphylos bakeri ssp. bakeri	Baker's manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	1B.1	S1	G2T1
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S1	G2T1
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Blennosperma bakeri	Sonoma sunshine	Asteraceae	annual herb	Mar-May	1B.1	S1	G1
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	1B.1	S1S2	G1G2
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	May-Jul	1B.2	S3?	G3?
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.2	S2	G2
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	2B.2	S3	G5
Castilleja affinis var. neglecta	Tiburon paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	1B.2	S1S2	G4G5T1T2
Ceanothus confusus	Rincon Ridge ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Jun	1B.1	S1	G1
Ceanothus purpureus	holly-leaved ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Jun	1B.2	S2	G2
Ceanothus sonomensis	Sonoma ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Apr	1B.2	S2	G2
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	1B.1	S1S2	G3T1T2
	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2

Centromadia parryi ssp. parryi							
Chloropyron molle ssp. molle	soft bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Nov	1B.2	S1	G2T1
Chorizanthe valida	Sonoma spineflower	Polygonaceae	annual herb	Jun-Aug	1B.1	S1	G1
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	2B.1	S2?	G5T4T5
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	1B.2	S2	G2
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Erigeron greenei	Greene's narrow-leaved daisy	Asteraceae	perennial herb	May-Sep	1B.2	S3	G3
Eriogonum luteolum var. caninum	Tiburon buckwheat	Polygonaceae	annual herb	May-Sep	1B.2	S2	G5T2
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Asteraceae	annual herb	Apr-Nov	1B.2	S2	G5T2
Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	May-Jul	1B.2	S2	G2
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	1B.1	S1	G1
Horkelia tenuiloba	thin-lobed horkelia	Rosaceae	perennial herb	May-Jul(Aug)	1B.2	S2	G2
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	1B.1	S1	G1
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	Apr-May	1B.1	S1	G1
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	1B.2	S2	G5T2
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	Mar-May	1B.2	S2S3	G2G3
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	1B.1	S2	G2
Lupinus sericatus	Cobb Mountain lupine	Fabaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Rhynchospora californica	California beaked-rush	Cyperaceae	perennial rhizomatous herb	May-Jul	1B.1	S1	G1
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Sidalcea hickmanii ssp. napensis	Napa checkerbloom	Malvaceae	perennial herb	Apr-Jun	1B.1	S1	G3T1
Sidalcea hickmanii ssp. viridis	Marin checkerbloom	Malvaceae	perennial herb	May-Jun	1B.1	SH	G3TH
Spergularia macrotheca var. longistyla	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May(Jun)	1B.2	S2	G5T2

Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Trichostema ruygtii	Napa bluecurls	Lamiaceae	annual herb	Jun-Oct	1B.2	S1S2	G1G2
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	1B.1	S1	G1
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	2B.3	S3?	G4G5

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 26 July 2019].

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rareplants@cnps.org

NOAA Fisheries Species List

September 5, 2019

Quad Name **Cuttings Wharf**
Quad Number **38122-B3**

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) - **X**
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 -
SRWR Chinook Salmon Critical Habitat - **X**
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat - **X**
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
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) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - X
Chinook Salmon EFH - X
Groundfish EFH - X
Coastal Pelagics EFH - X
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds - X

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654
http://kim_squires@fws.gov

In Reply Refer To: July 26, 2019
Consultation Code: 08FBDT00-2019-SLI-0267
Event Code: 08FBDT00-2019-E-00593
Project Name: Soscol Interchange Improvement Project

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

To Whom It May Concern:

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

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

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

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

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

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

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

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:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

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

Project Summary

Consultation Code: 08FBDT00-2019-SLI-0267

Event Code: 08FBDT00-2019-E-00593

Project Name: Soscol Interchange Improvement Project

Project Type: TRANSPORTATION

Project Description: Interchange Improvement

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.24229180982523N122.2705045487042W

Counties: Napa, CA

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

---

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.

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Callippe Silverspot Butterfly *Speyeria callippe callippe* 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/3779	Endangered
San Bruno Elfin Butterfly *Callophrys mossii bayensis* 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/3394	Endangered

Crustaceans

NAME	STATUS
California Freshwater Shrimp *Syncaris pacifica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7903	Endangered
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Contra Costa Goldfields *Lasthenia conjugens* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7058	Endangered
Soft Bird's-beak *Cordylanthus mollis ssp. mollis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8541	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix I Class of Action Determination Form and Email

CALTRANS
CLASS OF ACTION DETERMINATION FORM

DIST./CO./RTE.	04/NAPA/SR29&SR221
PM/PM	PM R5.6/R6.7; PM0.0/0.4
E.A. or Fed-Aid Project No.	28120
Other Project No. (specify)	n/a
PROJECT TITLE	SR 29/SR221 Soscol Junction Improvement Project
PROJECT DESCRIPTION	Caltrans in partnership with the Napa Valley Transportation Authority (NVTA), proposes to reconfigure the existing intersection of State Route (SR) 29 and SR 221/Soscol Ferry Road in Napa County from a signalized intersection to a full-diamond interchange, with two roundabouts on either side of SR 29 to alleviate congestion between American Canyon and the City of Napa and improve traffic, bicycle, and pedestrian movements. The previous Draft Environmental Document (DED) was scoped as a Complex Environmental Assessment (EA) circulated to the public in 2015. At that time, Caltrans had proposed a flyover at the Soscol junction to connect SR 29 and SR 221. The landscape/aesthetic study for the proposed flyover project demonstrated that the flyover is an adverse impact to the landscape aesthetics for the viewers/community in Napa County. Also, a local residential development was proposed at that time in the nearby vicinity of the Soscol junction. This proposed development was anticipated to cause growth and add a significant amount of traffic onto Soscol junction area. With these two concerns Caltrans anticipated public controversy and conservatively classified the environmental document under National Environmental Policy Act (NEPA) to be a complex EA and determined that the environmental document would require Caltrans Head Quarters and legal reviews. The 2015 DED had to be modified after the public comment period to add the multimodal component of the bike and pedestrian movements and to remove the flyover structure. A new DED is being prepared with a new design alternative that include two roundabouts instead of flyovers at the Soscol junction. Due to the new approach of the proposed design the issues of adverse impacts to aesthetics no longer apply. The proposed development has since then lowered the number of housing units and therefore, will generate less traffic congestion to the Soscol junction area. This proposed development has an approved EIR (January 14, 2013) but there is no current construction schedule proposed at this time. Under the current circumstances, Caltrans proposes to lower the Complex EA to a Routine EA. Additionally, there are no issues with purpose and need, multiple location alternatives, public controversy, logical termini or independent utility. In addition, an Individual Section 4(f) is not expected and there are no complex endangered species issue. Therefore, District 4 recommends a Routine Environmental Assessment at this time.

Based on the information above for the subject project, the District 4 Office of Environmental Analysis has made the following Class of Action Determination.

CLASS OF ACTION DETERMINATION PER 23 CFR 771.115	*NEPA Environmental Document Type:* ☒ *Routine Environmental Assessment (EA)* ☐ *Complex Environmental Assessment* **Complex EAs are defined as those EAs that include multiple location alternatives, debate related to purpose and need, strong public controversy, issues related to logical termini or independent utility, individual Section 4(f) determinations, complex Endangered Species Act issues, numerous cumulative impacts or high mitigation costs.** ☐ *Environmental Impact Statement (EIS)*

Andy Ring 9/10/19
D4 Environmental Analysis Planner Date

D4 Environmental Branch Chief 9/10/19
Date

☒ HQ DEA Environmental Coordinator concurrence. E-mail concurrence attached.

Appendix J Cross Sections

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

REGISTERED ENGINEER — DATE

PRELIMINARY, NOT FOR CONSTRUCTION

PLANS APPROVAL DATE

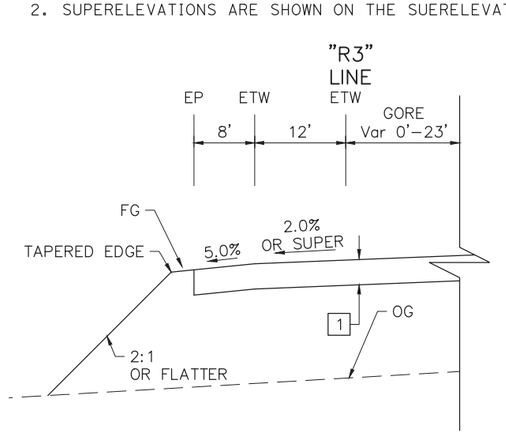
REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

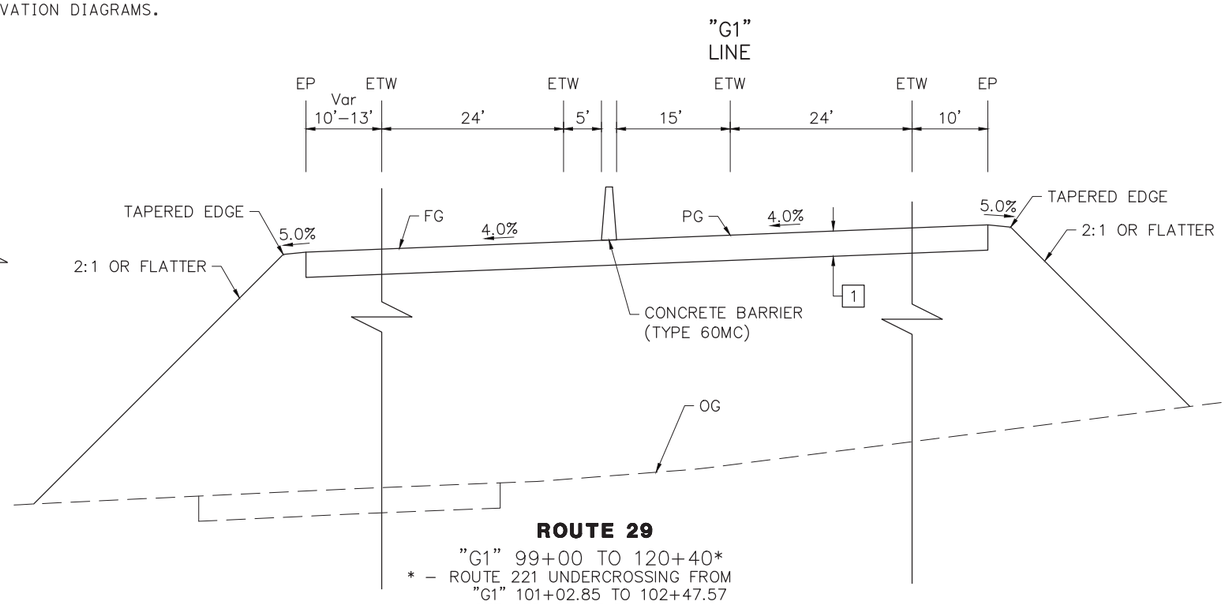
NVTA
625 BURNELL STREET
NAPA, CA 94559

NOTES:

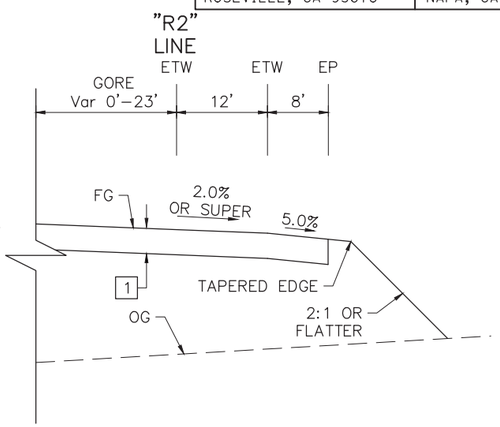
1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATIONS ARE SHOWN ON THE SUERELEVATION DIAGRAMS.



SB EXIT RAMP
"G1" 117+50 TO 120+40



ROUTE 29
"G1" 99+00 TO 120+40*
* – ROUTE 221 UNDERCROSSING FROM "G1" 101+02.85 TO 102+47.57
SEE STRUCTURE PLANS



NB ENTRANCE RAMP
"G1" 109+80 TO 115+20

TYPICAL PAVEMENT STRUCTURE SECTIONS:

[1] 0.10' RHMA-OPEN GRADED
(OPEN GRADED FRICTION COURSE)
0.20' RHMA (GAP GRADED)
1.15' HMA (TYPE A)
GPI (PAVING GRID)
0.25' HMA (TYPE A)
0.50' CLASS 2 AB

[2] 0.30' TEXTURED HMA
1.15' HMA (TYPE A)
GPI (PAVING GRID)
0.25' HMA (TYPE A)
0.50' CLASS 2 AB

[3] 0.10' RHMA-OPEN GRADED
(OPEN GRADED FRICTION COURSE)
0.20' RHMA (GAP GRADED)
1.15' HMA (TYPE A)
GPI (PAVING GRID)
0.25' HMA (TYPE A)
0.50' CLASS 2 AB
1.00' ASPHALT TREATED PERMEABLE BASE

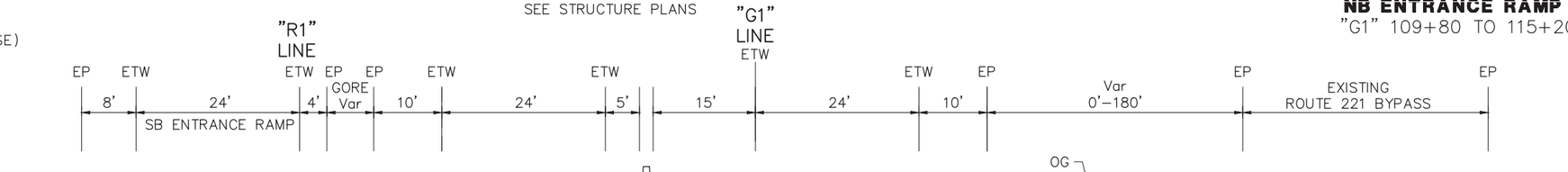
[4] 0.20' COLD PLANE AC PAVEMENT
0.20' HMA (TYPE A)

[5] 0.20' COLD PLANE AC PAVEMENT
Var HMA (TYPE A)

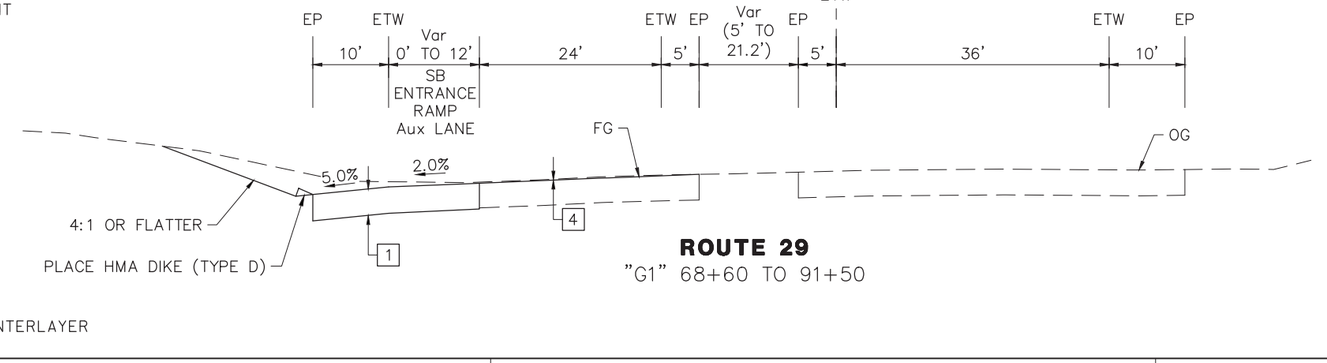
[6] SHARED USE PATH
0.33' MINOR CONCRETE (SW)
0.50' CLASS 2 AB

◇1 xx' AC
xx' AB

* NOTE: CALTRANS TO PROVIDE EXISTING SECTIONS



ROUTE 29
"G1" 91+50 TO 99+00



ROUTE 29
"G1" 68+60 TO 91+50

LEGEND:

LS	LANDSCAPED AREA
SUP	SHARED USE PATH
GPI	GEOSYNTHETIC PAVEMENT INTERLAYER

TYPICAL CROSS SECTIONS

NO SCALE

X-1

MCP	6-28-19
TGH	1-14-19
REVISED BY	DATE REVISED
TRENTON HOFFMAN	HEATHER ANDERSON
CALCULATED-DESIGNED BY	CHECKED BY

RONALD G. BOYLE — CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION 00-00-00 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

PRELIMINARY, NOT FOR CONSTRUCTION

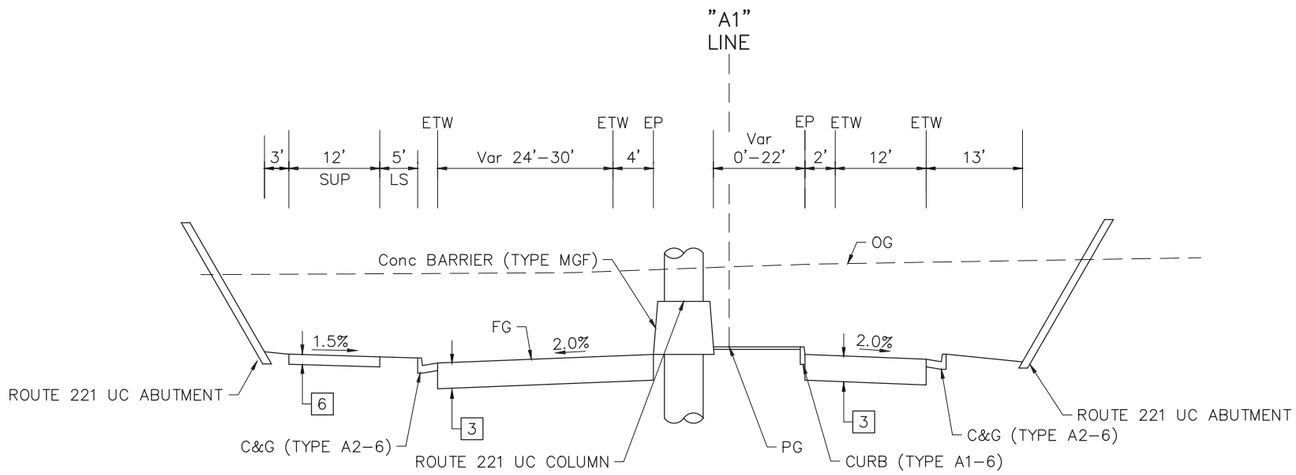
REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

RE[illegible] ORIGINAL — DATE

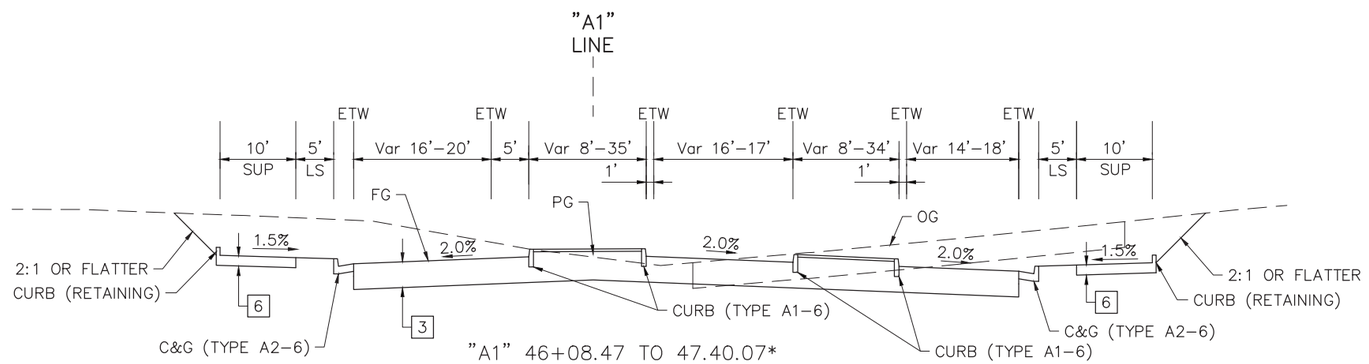
PLANS APPROVAL DATE

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

NVTA
625 BURNELL STREET
NAPA, CA 94559

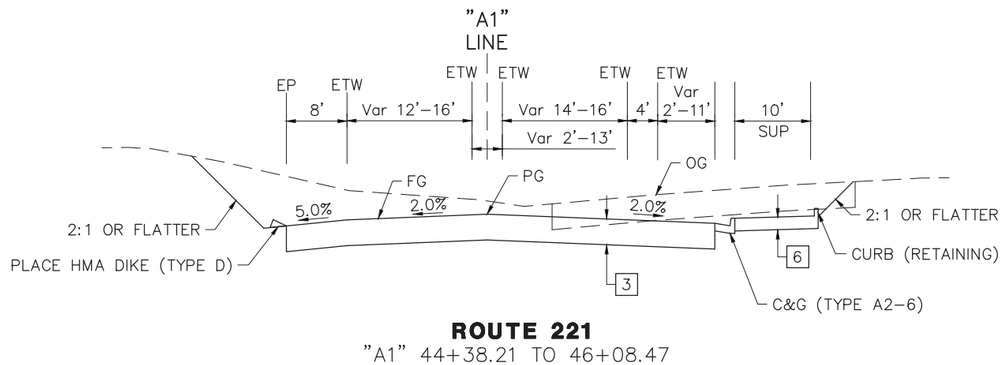


"A1" 49+04.96 TO 51+16.98



"A1" 46+08.47 TO 47.40.07*

* – WEST ROUNDABOUT
FROM 47+40.07 TO 49+04.96



ROUTE 221
"A1" 44+38.21 TO 46+08.47

FOR NOTES AND LEGEND, SEE SHEET X–1.

TYPICAL CROSS SECTIONS
NO SCALE

X-2

MCP	6-28-19	
TGH	1-14-19	
REVISED BY	DATE REVISED	
TRENTON HOFFMAN	HEATHER ANDERSON	
CALCULATED-DESIGNED BY	CHECKED BY	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR: RONALD G. BOYLE
Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29/221	0.00/0.12, R6.04/R6.48		--

PRELIMINARY, NOT FOR CONSTRUCTION

DATE

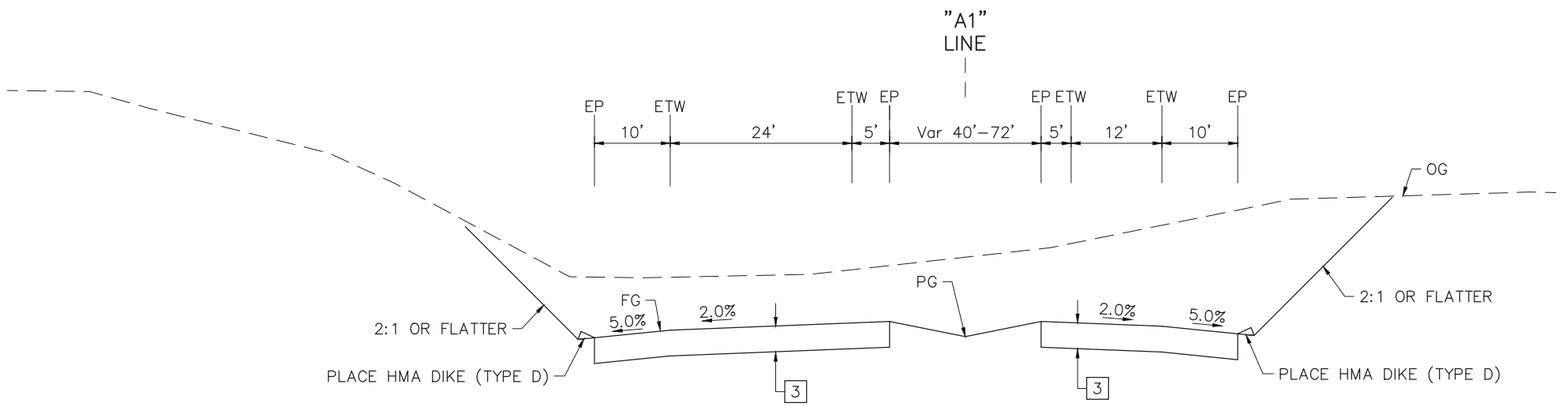
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. ____
Exp. ____
CIVIL
STATE OF CALIFORNIA

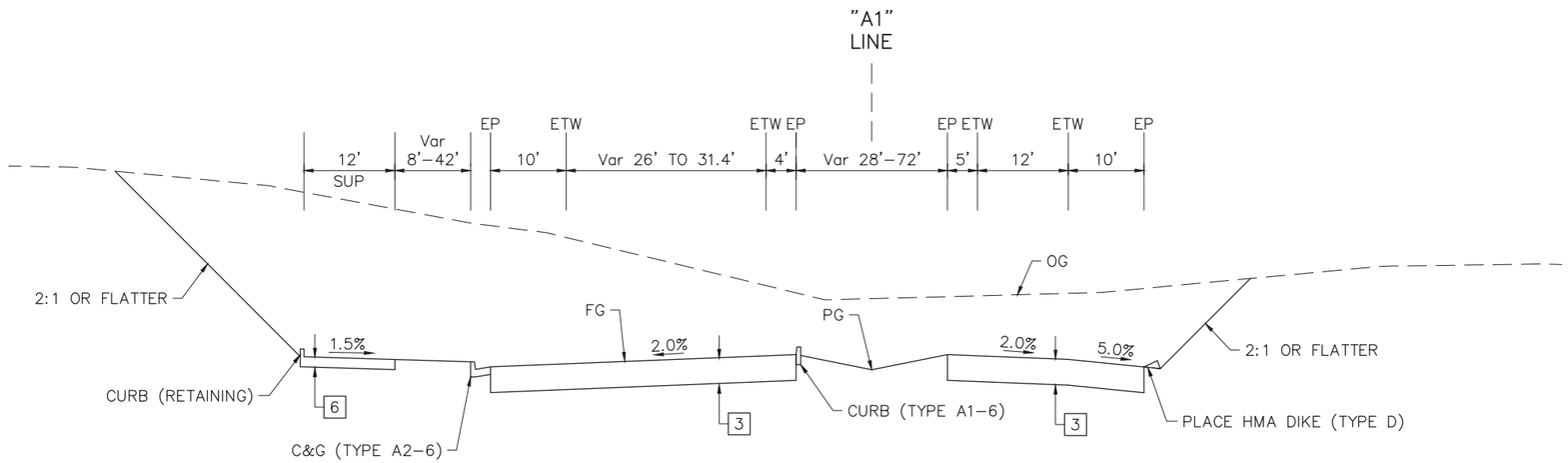
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

GHD Inc.
943 RESERVE DRIVE #100
ROSEVILLE, CA 95678

NVTA
625 BURNELL STREET
NAPA, CA 94559



"A1" 54+07.54 TO 60+05.00



ROUTE 221

"A1" 52+66.73 TO 54+07.54*

* – EAST ROUNDABOUT
FROM 51+16.98 TO 52+66.73

FOR NOTES AND LEGEND, SEE SHEET X–1.

TYPICAL CROSS SECTIONS

NO SCALE

X-3

	MCP	6-28-19		
	TGH	1-14-19		
	REVISED BY	DATE REVISED		
	TRENTON HOFFMAN	HEATHER ANDERSON		
	CALCULATED-DESIGNED BY	CHECKED BY		
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	RONALD G. BOYLE		

LAST REVISION 00-00-00 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER | DGN FILE =>K:\PRJ\2123\2123X001.DWG | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE | XXXXXXXXXX

Appendix K Highway 29 Culvert at Suscol Creek Fish Passage Assessment

HIGHWAY 29 CULVERT AT SUSCOL CREEK

FISH PASSAGE ASSESSMENT

Prepared for

California State Coastal Conservancy
Agreement No. 08-069

Prepared by

NAPA COUNTY RCD
Resource Conservation District

June 2011

STREAM DESCRIPTION

Suscol Creek is a tributary of the Napa River, which flows to the Pacific Ocean via San Pablo Bay. It is a third order stream with approximately 9.35 miles of blue-line stream according to the USGS Mt. George, Cordelia, and Cuttings Wharf 7.5-minute quadrangle maps (Figure 1). Suscol Creek drains a watershed of approximately 3.24 square miles. Elevations range from sea level at the mouth of the creek to 1,500 feet at the ridgeline. Grassland dominates the watershed with significant areas of oak woodland and vineyard. The watershed is mostly privately owned.

Suscol Creek is an important Napa Valley steelhead stream, with relatively abundant and high-quality *Oncorhynchus mykiss* spawning and rearing habitat. The upper extent of anadromy has not been verified due to lack of access to private lands, but a notable increase in slope is apparent on the stream profile beginning at 3.9 miles upstream of the Napa River. This point appears to represent the natural limit of anadromy in Suscol Creek.

A total of six barriers to steelhead migration have been identified on Suscol Creek between the Napa River and the natural end of anadromy (Koehler and Edwards 2009). The barriers are listed in Table 1.

Fish-Passage Barrier	Distance Upstream from Mouth (mi)	Max Upstream Habitat (mi)	Barrier Type	Status
Hwy. 29 Culvert	**1.33**	**2.57**	**Partial (Severe)**	**Under Assessment**
Old Defunct Concrete Dam	1.49	2.41	Partial (Moderate)	Low-flow obstacle for adults and juveniles. Built on natural bedrock outcrop
Bedrock Cascade (approx. 5-foot drop)	1.59	2.31	Partial (Severe)	Natural Feature
Bedrock Cascade	2.12	1.78	Partial (Minor)	Natural Feature
Bedrock Cascade (approx. 2-foot drop)	2.20	1.70	Partial (Minor)	Natural Feature
Slope exceeds 8%	3.90	0	Complete	Natural Feature

Table 1. Suscol Creek fish-passage barriers.

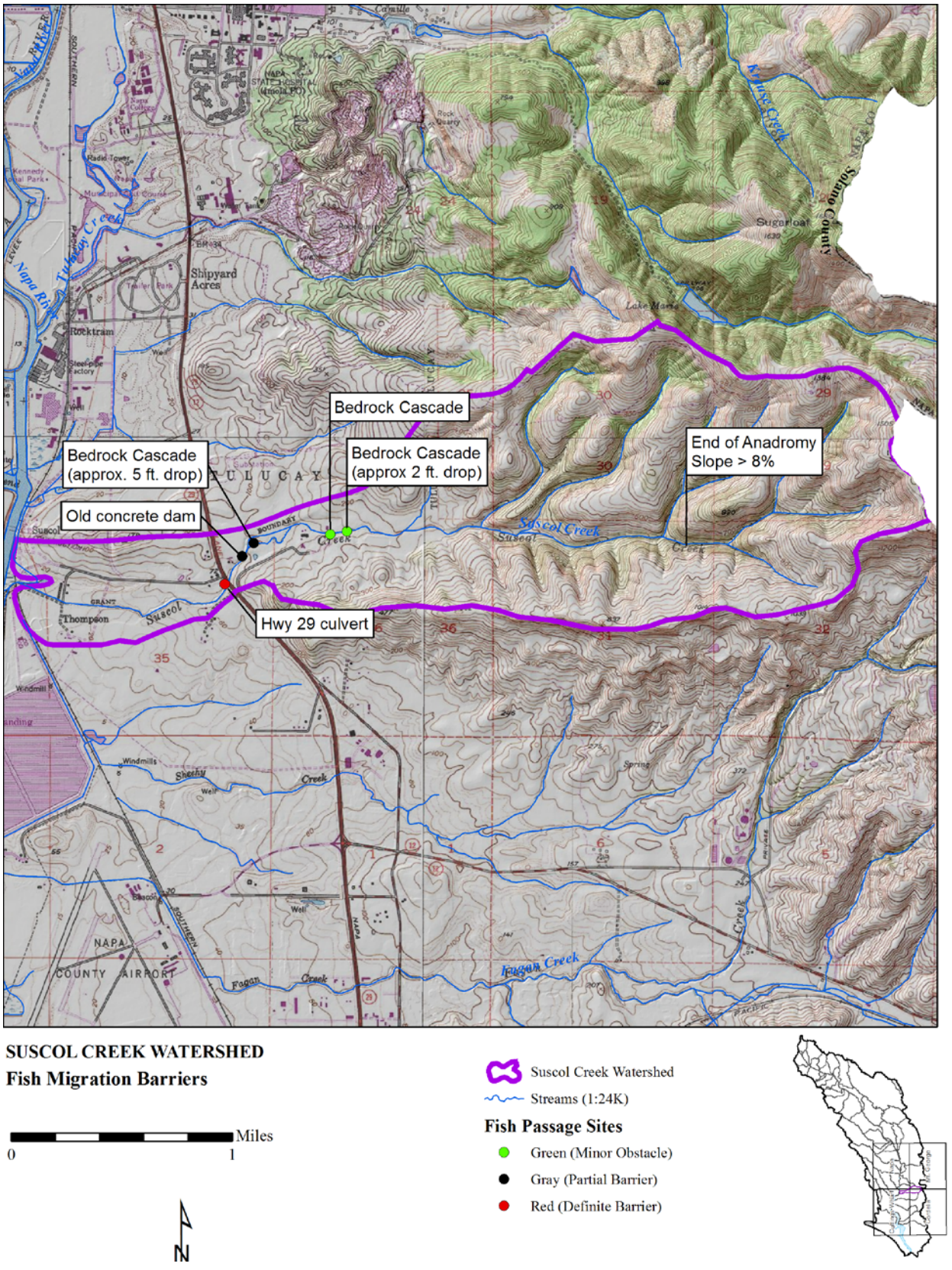


Figure 1. Suscol Creek watershed and barrier location.

BARRIER DESCRIPTION

The Highway 29 culvert at Suscol Creek is a 102-foot long concrete arch culvert with an 18-foot box culvert extension (Figures 4, and 5). The overlying roadway was further widened with a bridge span and there is an additional 82 feet of concrete trapezoidal channel and concrete apron protecting the streambed beneath the bridge on the downstream end of the culvert, creating a total stream crossing length of 202 feet (Figure 3).

At the barrier site, Suscol Creek is crossed by the intersection of California State Highways 29 and 121, maintained by the California Department of Transportation (Caltrans). A highway project has been conceived for the site, but it is a very low priority, and there is no schedule for implementation (Hanson pers. comm.). The project, a flyover of Highway 121 onto Highway 29, originally included a full fish-passage barrier assessment; however, due to the lack of in-stream work, this element was not required by National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), and was removed from the plan.

The culvert was identified as a potential barrier to fish passage in October 2007 as part of a Suscol Creek stream inventory conducted by the Napa County Resource Conservation District (Koehler and Edwards 2009). It was categorized as "gray" in the DFG Green-Gray-Red system because it is expected to be a partial barrier (impassable to juvenile steelhead and impassable to adult steelhead at low flows) due to lack of water depth in the culvert and excessive velocity.

Figure 2. View of upstream culvert inlet and wing-walls looking downstream.

Figure 3. View of box culvert extension and trapezoidal channel looking upstream.

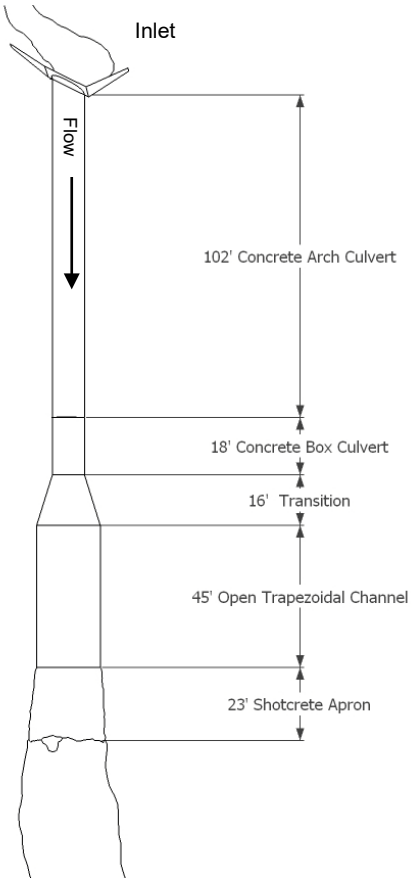


Figure 4. Suscol Creek site sketch (plan view) with measured dimensions in feet.

BARRIER ASSESSMENT

RCD evaluated fish-passage at the Highway 29 crossing in general accordance with *Part IX Fish Passage Evaluation at Stream Crossings* of the California Department of Fish and Game (DFG) Salmonid Stream Habitat Restoration Manual (DFG 2010). The assessment included a limit-of-anadromy analysis, a fish-passage inventory of the barrier site, a peak flow estimate, a culvert capacity analysis, and a fish-passage analysis.

Limit of Anadromy Analysis

RCD determined the amount of *O.mykiss* habitat located upstream of the barrier based on channel slope and existing survey data. A topographic profile of the mainstem of Suscol Creek generated from the LiDAR digital elevation model (DEM) showed a steady rise in slope that increases to over 8% at approximately 3.90 miles upstream of the Napa River (Figure 5).

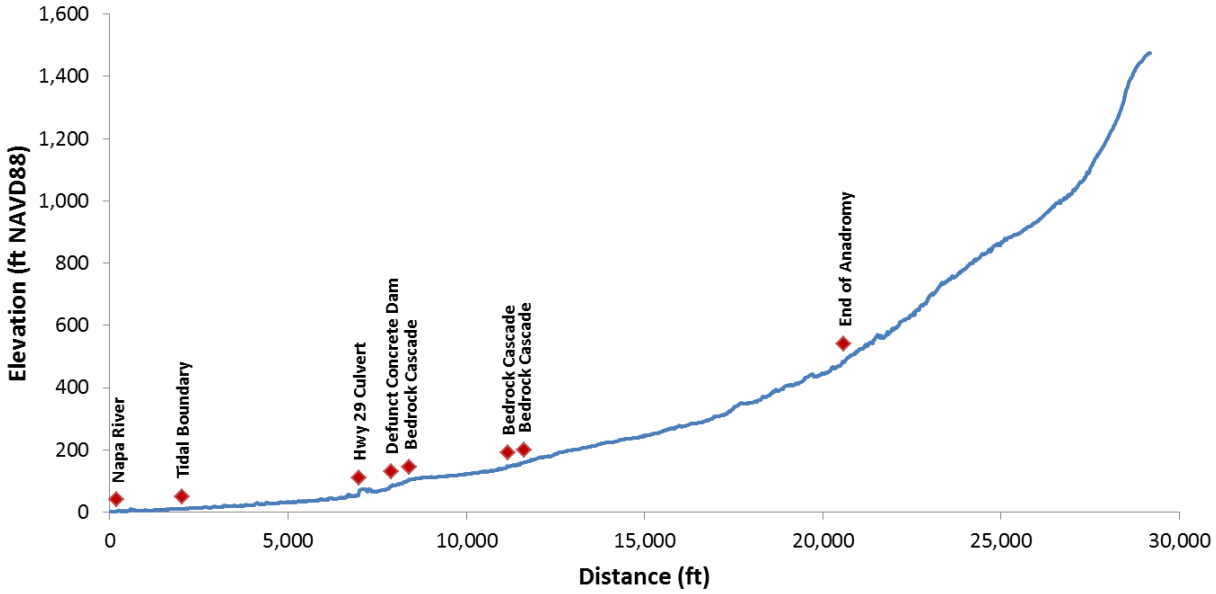


Figure 5. Suscol Creek LiDAR-derived longitudinal streambed profile with barrier locations.

Fish Passage Inventory

On September 3, 2009, RCD staff conducted a fish-passage inventory of the stream crossing including:

- Measurement of culvert dimensions;
- Longitudinal profile survey;
- Channel cross section survey;
- Site sketch; and,
- Completion of the DFG fish passage inventory data sheet.

The longitudinal profile survey was completed with tape and level and was surveyed relative to an arbitrary datum. It began 53 feet upstream of the culvert and continued through the culvert for 311 feet in the downstream direction and ended at the tailwater control. The survey captured the profile of the stream crossing, the upstream resting pool, and the tailwater pool (Figure 6). A cross section survey was completed at the tailwater control. The cross section was completed specifically for hydraulic analyses and did not include top of bank or overbank data.

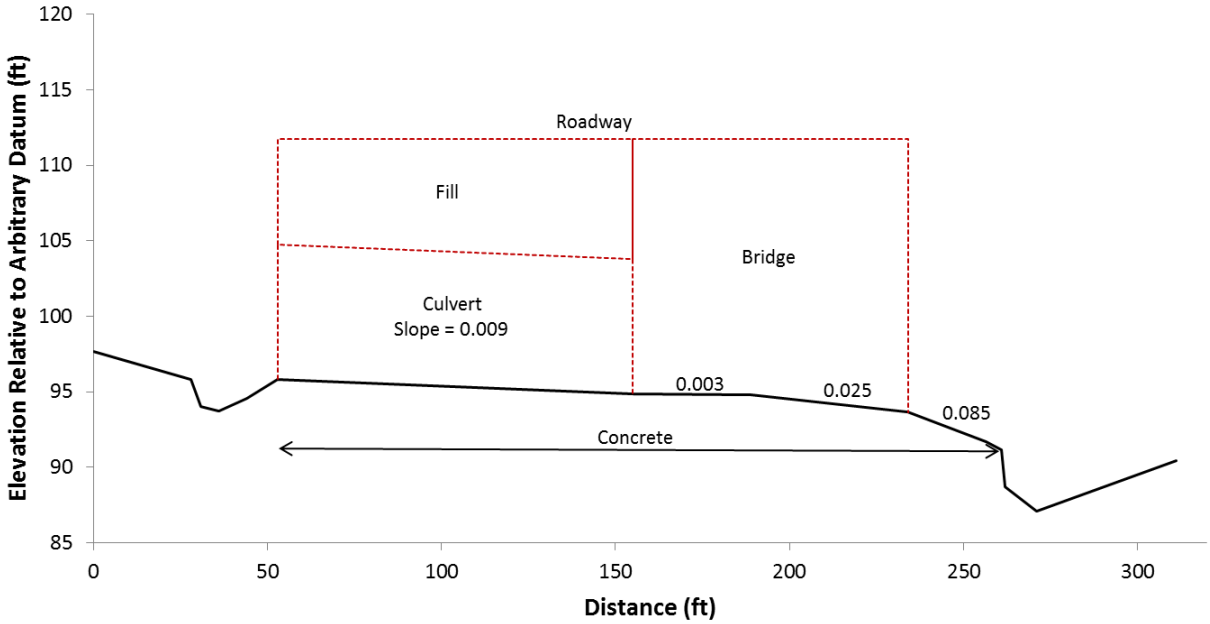


Figure 6. Surveyed longitudinal streambed profile.

Peak Flow Estimate

The Suscol Creek subwatershed is an ungaged basin. In order to evaluate culvert capacity it is necessary to estimate peak flows at the stream crossing. One way to estimate peak flows is to adjust the peak flow statistics for a nearby gaging station. The United States Geological Survey (USGS) operated retired Station 11458350 TULUCAY C A NAPA CA approximately 3.2 miles north of the barrier site on Tulucay Creek for 12 years from 1971 through 1983; however, they have not provided peak flow statistics. RCD assumes this is because the data are insufficient for such calculations. The nearest gaging station with a reasonably similar watershed area for which peak flow statistics are available is retired USGS Station 11458200 REDWOOD C NR NAPA CA, located approximately 6.7 miles northwest of the barrier site. Station 11458200 operated continuously for 15 years, from 1958 through 1973.

RCD calculated the 50% through the 1% annual exceedance probability flows (Q2, Q5, Q10, Q25, Q50, and Q100) in cubic feet per second (cfs) by adjusting the peak flow statistics for Station 11458200. The Q2 through Q100 calculated by USGS were obtained from water.usgs.gov/osw/streamstats. As suggested by USGS (USGS 1977), RCD adjusted the flow for the difference in drainage areas using the relation:

—

where Q_u and Q_g are the discharges at the ungaged and gaged sites, A_u and A_g are the drainage areas, and b is the exponent for the drainage area from the corresponding regional regression equation (USGS 1977).

For comparison, RCD also estimated peak flows for the site using the regional method. To perform this analysis, RCD used the National Streamflow Statistics (NSS) software developed by USGS (water.usgs.gov/software/NSS). The regional regression equations for the California North Coast Region use drainage area, mean annual precipitation, and an altitude index to estimate peak flows. Peak flow estimates are listed in Table 2.

Flow Event	Annual Exceedance Probability	Return Interval (yrs)	Peak Streamflow (cfs)		
			USGS 11458200	Suscol Creek at Highway 29 Culvert (Surrogate Method)	Suscol Creek at Highway 29 Culvert (Regional Equations)
Q2	0.5	2	1,200	391	146
Q5	0.2	5	1,310	433	220
Q10	0.1	10	1,360	455	286
Q25	0.04	25	1,420	481	359
Q50	0.02	50	1,460	494	429
Q100	0.01	100	1,500	508	476

Table 2. Peak streamflow estimates for Suscol Creek at Highway 29 culvert.

Culvert Flow Capacity

RCD performed an analysis of the culvert using the *HY-8 version 7.2* software developed by the Federal Highways Administration (FHWA). Culvert data, site data, tailwater data, and roadway data were collected in the field during the fish-passage inventory. Tailwater channel slope was measured in GIS from the LiDAR DEM. RCD analyzed the culvert's performance under the Q10 and Q100 flows for Suscol Creek (Table 2). In addition, RCD calculated the flow capacity at the top of the culvert inlet (headwater-to-diameter ratio equal to one). The results are presented in Table 3.

Event	Streamflow (cfs)	Headwater Elevation Relative to Arbitrary Datum (ft)
Q10	455	102.22
Q100	508	102.69
Top of culvert inlet	722	104.72

Table 3. Culvert flow capacity analysis results.

Fish Passage Analysis

The first-phase evaluation indicated that the stream crossing is a partial barrier, impassable to juvenile steelhead at all flows and impassable for adults at certain flows. To test this conclusion, RCD performed an analysis using *FishXing v3*, a program intended to assist engineers, hydrologists, and fish biologists in the evaluation and design of culverts for fish passage (http://www.stream.fs.fed.us/fishxing).

Upper and lower fish passage flows were estimated from surrogate data in accordance with DFG protocols. RCD selected the former USGS streamgaging station on Tulucay Creek as a surrogate because it is the nearest to Suscol Creek with at least 5 years of daily average flow data (12 years) and with a drainage area less than 50 square miles (12.5 square miles). Calculated fish passage flows were adjusted for Suscol Creek by multiplying them by the ratio of the two drainage areas. The calculated fish passage flows are presented in Table 1. The calculated fish passage flows are presented in Table 2.

Species/Lifestage	Upper Passage Flow (cfs)		Lower Passage Flow (cfs)	
Adult steelhead	50	1% Exceedance Flow	3	Alternate Minimum Flow
Juvenile steelhead	5.6	10% Exceedance Flow	1	Alternate Minimum Flow

Table 4. Calculated Fish Passage Flows

Swimming capabilities and minimum depth requirements for adult and juvenile steelhead were based on Table IX-6 of the DFG Manual. The results of the *FishXing* analysis are presented in Table 3

	Adult Steelhead	Juvenile Steelhead (>6")	Juvenile Steelhead (<6")
Percent of Flows Passable	0.0%	0.0 %	0.0 %
Passable Flow Range	None	None	None
Depth Barrier	All Flows	All Flows	All Flows
Leap Barriers*	None	2.83 cfs to 5.60 cfs	All Flows
Velocity Barrier – EB	12.38 cfs and above	4.28 cfs and above	1.0 cfs and above
Pool Depth Barrier	None	None	None

Table 5. Fish Passage Summary
*Simplification of the culvert geometry in *FishXing* altered leap barrier conditions at the site. See Discussion.

DISCUSSION

RCD estimated peak streamflows for the Highway 29 culvert at Suscol Creek using two methods. The first method adjusted the peak flow statistics for retired USGS Station 11458200 for the difference in drainage area. Although this is the preferred method in many cases where there is an appropriate surrogate gaging station nearby, it was not ideal in this case because Station 11458200, while less than seven miles away, is located on the opposite side of the valley in an area with different land cover and rainfall patterns. Therefore, RCD also computed peak flows using the regional flood-frequency equations for comparison. While widely used and accepted, it is the RCD's experience that the regional equations often seem to underestimate peak flows in our area, when compared to other methods. In this case, the two methods produce widely varying results for the Q2 through Q25 flows, but are in agreement on the Q50 and Q100 flows. RCD believes this is due to the unusually small difference between the Q2 and Q100 for Station 11458200, which may be an effect of the short data record (15 years) or other site-specific issue. The agreement between the two methods in the Q100 gives us confidence in this result, and we selected the larger value (508 cfs). We have less confidence in the values estimated for the smaller peak flows, but we do think that the results of the surrogate method

represent the high end of the possible range. Therefore, to be conservative, we selected 455 cfs as the Q10.

Comparison of the peak flow estimates to the culvert flow capacity analysis results indicates that the Highway 29 culvert at Suscol Creek will convey 722 cfs at the top of the culvert inlet. California Department of Transportation guidelines indicate that culverts should convey the Q10 "…without causing headwater elevation to rise above the inlet top of culvert," and the Q100 "…without damage to the facility or adjacent property" (Caltrans 2006). DFG states that "crossing structures should typically be designed to accommodate the 100-year flood event" (DFG 2009). Based on these guidelines, the culvert is oversized and may accommodate installation of internal or external energy dissipation structures or backwatering. This stream crossing is a candidate for a retrofit project.

The Highway 29 stream crossing at Suscol Creek is not a simple pipe, but an arch culvert, extended with a box culvert, and further extended with a long trapezoidal concrete channel and concrete apron on the downstream end. It varies in shape and slope along its length and is not easily modeled with the preliminary methods that were within the scope of this assessment. RCD simplified the geometry of the stream crossing for the fish passage assessment. The barrier was modeled as if the arch culvert section extended the full length of the barrier and was oriented at the average slope of the overall barrier. These simplifications should have the effect of making the culvert easier for fish to pass by increasing the water depth and decreasing the slope and velocity near the outlet.

The results of our analysis of the Highway 29 stream crossing at Suscol Creek indicate that it does not meet current fish passage requirements, and is not passable by steelhead at any life stage under any flow conditions. The analysis was based on conservative swimming capabilities and minimum depth requirements from the DFG guidelines. The analysis uses average velocities to determine passage, which may not account for hydraulic variation that may facilitate passage under specific flows. Given these assumptions, the barrier is likely passable by some unknown fraction of the steelhead population with stronger swimming capabilities at certain flows. However, DFG and NOAA Fisheries guidelines are designed to allow passage of all fish in the population, not just the strongest swimmers. Based on the results of this analysis, RCD re-categorized the stream crossing as a total barrier, "red" in the DFG Green-Gray-Red system.

The main obstacles for fish passage are lack of water depth in the culvert and high velocities at higher flows. The culvert is flat-bottomed and relatively wide, which promotes sheet flow (shallow, fast-moving water) during most low to moderate flows. In addition, the simplifications that were necessary to run the analysis eliminated the steep-slopes at the downstream end of the barrier which likely constitute a leap barrier for juveniles. This analysis did not adequately assess potential leap barriers at this site.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this analysis, the Highway 29 stream crossing at Suscol Creek is a candidate for a retrofit project that will improve passage conditions for upstream migration of steelhead, and open up an estimated 2.57 miles of moderate and high-quality steelhead habitat.

Mitigation options include:

1) Replace the existing culvert with an arch culvert or free-span bridge

2) Install concrete berm-type baffles on the existing apron to increase water depth and reduce velocities through the culvert

3) Replace the concrete floor of the culvert with a series of rock weirs

4) Install a series of rock weirs in the downstream channel to backwater the culvert

Implementing Option 1would provide full fish passage, but such an effort would likely be prohibitively expensive on its own. As future highway improvement projects are developed for this site by Caltrans, improving fish passage at this crossing should be an important consideration.

Option 2 would likely be the least expensive approach to reducing velocities and increasing depths through the culvert. However, it would need to be done in conjunction with Option 4 to address the jump height and velocity barrier leading into the culvert.

Option 3 would involve modifying the existing concrete apron in order to lower the grade and reduce or eliminate the outlet jump height. A structural/geotechnical analysis of the culvert would be required to assess whether removal of the concrete floor is viable. The exact configuration and dimensions of such modifications would need to be developed in collaboration with Caltrans to ensure highway safety standards are maintained.

Options 3 and 4 reduce the outlet jump by restoring the channel's natural slope beneath the roadway. In conjunction, these two options would decrease water velocities and increases water depths by increasing roughness and complexity of the streambed. The rock weirs may be able to provide scour protection for the structure as well.

Implementing Option 4 alone may enable fish passage by converting the one large jump into several smaller jumps downstream, while backwatering the culvert to reduce velocities and increase depths. Since the site is located on a State highway, Caltrans will need to make the final determination on which of the above options meet their structural engineering and safety criteria. Prior to design and construction, detailed channel surveying and hydraulic modeling should be performed to confirm the estimated culvert capacity, depths, and velocities, under current conditions. The model should also be used to test the retrofit design and assess post-project fish passage conditions.

CONCEPTUAL DESIGNS

Options 3 and 4:

Drawings by Carolyn M. Jones, PE, Natural Resource Conservation Service

REFERENCES

Napa County Resource Conservation District (NCRCD). 2009. Southern Napa River Watershed Restoration Plan. Funded by the California Department of Fish and Game, Fisheries Restoration Grant Program.

Hanson, Chuck. Caltrans. Telephone conversation with J. Koehler, NCRCD, December 2009, regarding migration barriers in Napa County.