

US 101 Irwin Creek Culvert Rehabilitation Project

MARIN COUNTY, CALIFORNIA
DISTRICT 4 – MRN – 101 (PM 11.3)
0K510/0416000096

Initial Study with Negative Declaration



Prepared by the
State of California, Department of Transportation



November 2019

General Information about this Document

What's in this document:

The California Department of Transportation (Caltrans) has prepared this Initial Study with Negative Declaration for the proposed culvert rehabilitation project in the City of San Rafael, Marin County, California, along U.S. Highway (US) 101, at post mile (PM) 11.3 (see Figure 1, Project Vicinity). Rehabilitation would include repairs to portions of the Irwin Creek culvert system that crosses under and is adjacent to US 101. This culvert system consists of eight culvert segments located between the southbound US 101 Central San Rafael off-ramp and the U.S. 101 Linden Lane underpass. The project proposes to repair five of the eight culverts. Access to the culvert system and construction staging would be required on both sides of US 101 through the use of local streets, Caltrans right-of-way, and temporary easements. Additional project information is provided in Chapter 2. The purpose of the project is to prevent potential undermining of US 101 caused by culvert failure.

Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document describes why the project is being proposed, how the existing environment could be affected by the project, potential environmental impacts, and the proposed project features and avoidance or minimization measures.

The Draft Initial Study with Proposed Negative Declaration was circulated to the public for 30 days beginning on March 21, 2019 and ending on April 19, 2019. No comments were received during this public comment period. Throughout this document, a vertical line in the margin indicates a change made since the Draft Initial Study was circulated for public review. Minor editorial changes and clarifications have not been so indicated.

Additional copies of this document and the related technical studies, are available for review at:

California Department of Transportation, District 4
111 Grand Avenue
Oakland, CA 94612

San Rafael Public Library
1100 E Street
San Rafael, CA 94901

This document may be accessed electronically at the following website:

<http://www.dot.ca.gov/dist4/envdocs.htm>

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For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write:

Department of Transportation, Attn: Arnica MacCarthy, Branch Chief, Office of Environmental Analysis, 111 Grand Avenue, MS 8-B, Oakland CA 94612:

Telephone (510) 286-7195 (Voice), California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice), or 711.

Initial Study with Negative Declaration

04-MRN-101

11.3

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E.A.

Project title:	US 101 Irwin Creek Culvert Rehabilitation Project
Lead agency name and address:	California Department of Transportation 111 Grand Avenue, Oakland, CA 94612
Contact person and phone number:	Arnica MacCarthy, Branch Chief (510) 286-7195
Project location:	Marin County, California
General plan description:	Highway
Zoning:	Transportation Corridor
Other public agencies whose approval is required (e.g., permits, financial approval, or participation agreements); CEQA Responsible Agencies are denoted with an asterisk (*):	<ul style="list-style-type: none"> • Clean Water Act 404 Nationwide Permit from the U.S. Army Corps of Engineers • Clean Water Act 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board* • Section 1602 Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife* • California Transportation Commission*

Additional copies of this document, as well as technical studies this document relies on, are available for review at the Caltrans District 4 office, 111 Grand Avenue, Oakland, CA 94612, or online at <http://www.dot.ca.gov/d4/envdocs.htm>.



Melanie Brent
Deputy District Director, Environmental Planning
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Caltrans, District 4

11/19/19
Date

To obtain a copy in Braille, in large print, on computer disk, or on audiocassette, please contact: Department of Transportation, Attn: Arnica MacCarthy, Branch Chief, Office of Environmental Analysis, 111 Grand Avenue, MS 8-B, Oakland CA 94612: (510) 286-7195 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

Negative Declaration

Project Description

The California Department of Transportation (Caltrans) has prepared this Initial Study with Negative Declaration for the proposed culvert rehabilitation project in the City of San Rafael, Marin County, California, along U.S. Highway (US) 101, at post mile (PM) 11.3 (see Figure 1, Project Vicinity). Rehabilitation would include repairs to portions of the Irwin Creek culvert system that crosses under and is adjacent to US 101. This culvert system consists of eight culvert segments located between the southbound US 101 Central San Rafael off-ramp and the U.S. 101 Linden Lane underpass. The project proposes to repair five of the eight culverts. Access to the culvert system and construction staging would be required on both sides of US 101 through the use of local streets, Caltrans right-of-way, and temporary easements. Additional project information is provided in Chapter 2.

Determination

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

The proposed project would have no impact on air quality, agriculture and forest resources, cultural resources, geology and soils, mineral resources, population and housing, public services, recreation, tribal cultural resources, and utilities and service systems.

The proposed project would have less than significant impacts to aesthetics, biological resources, greenhouse gas emissions, land use and planning, transportation/traffic, hydrology and noise.



Melanie Brent
Deputy District Director, Environmental Planning
and Engineering
District 4-California Department of Transportation



Date

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) is the California Environmental Quality Act (CEQA) lead agency and sponsor for the proposed rehabilitation project to be performed under the U.S. Highway (US) 101 Irwin Creek Culvert Rehabilitation Project.

The proposed project is located in the City of San Rafael, Marin County, California, at post mile (PM) 11.3 (see Figure 1, Project Vicinity). Rehabilitation would include repairs to portions of the Irwin Creek culvert (Bridge No. 27-0097) system that crosses under and is adjacent to US 101. This culvert system consists of eight culvert segments. The project proposes to repair five of the eight culverts, located between the southbound US 101 Central San Rafael off-ramp and the U.S. 101 Linden Lane underpass. Access to the culvert system and construction staging would be required on both sides of US 101 through the use of local streets, Caltrans right-of-way, and temporary easements. Additional project information is provided in Chapter 2.

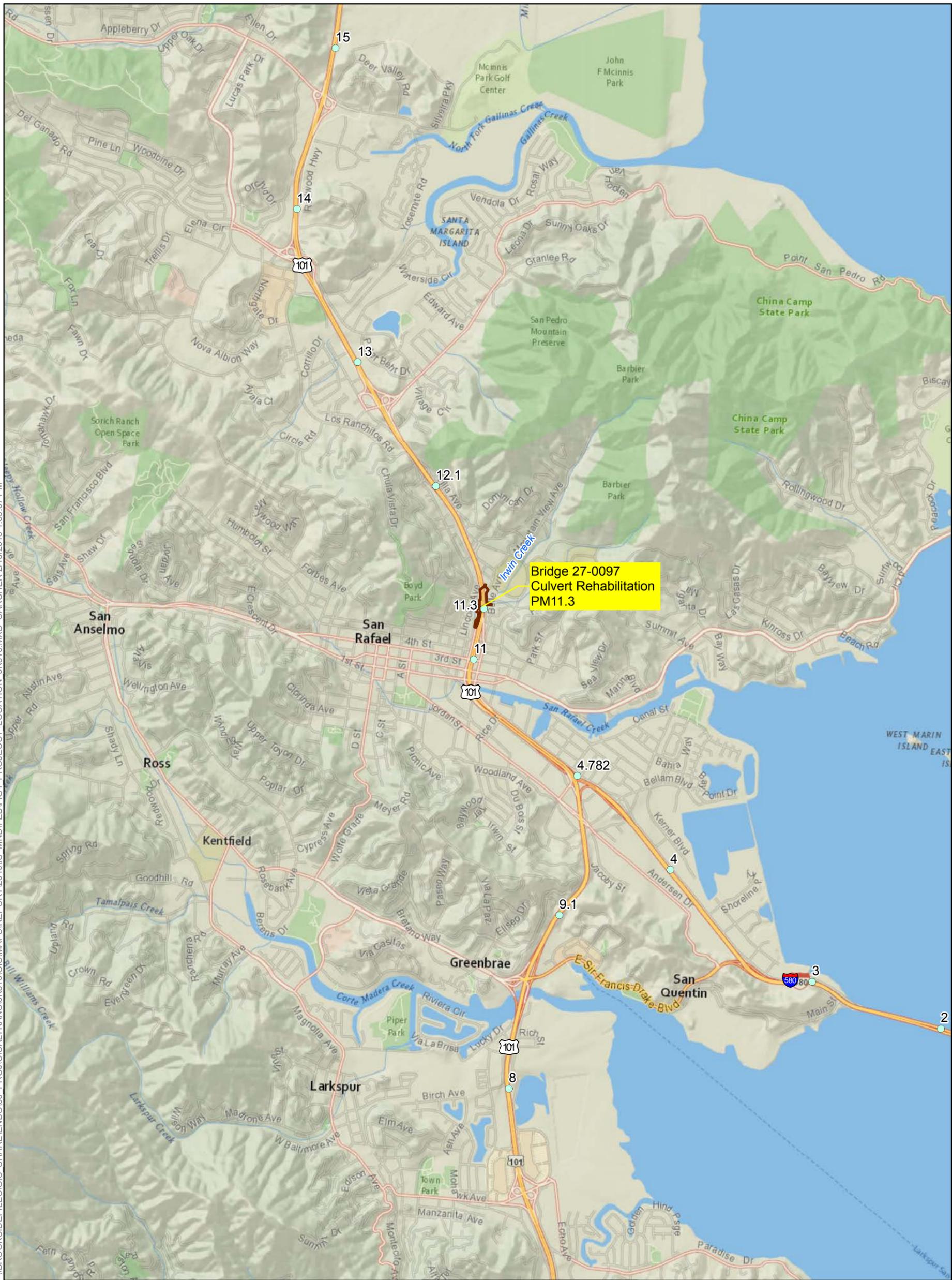
This project is funded by the State Highway Operation and Protection Program (SHOPP) 201.119 for the 2021-2022 fiscal year, under the Bridge Preservation Projects.

1.2 Purpose and Need

The purpose of the project is to preserve the structural integrity of the Irwin Creek culvert system to prevent highway segment failures.

During routine maintenance surveys, segments of the multi-plate culvert system showed moderate to heavy rust along the invert (i.e., the bottom elevation level of the culvert), which has caused deficiencies in the existing structure. In addition, the concrete portions of the culvert system have holes in the walls, ceilings, and joints. Addressing these deficiencies would prevent failure of the culvert system and undermining of US 101 as well as avoid impacts to the safety of the traveling public.

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LEGEND

-  Project Footprint
-  Post Mile

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

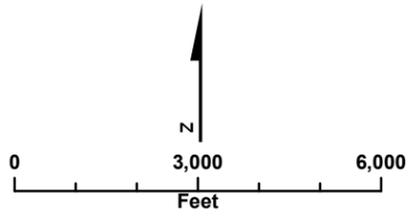


FIGURE 1
Project Location Map
 Irwin Creek Culvert Rehabilitation Project
 EA 04-0K510, 04-MRN-101-Post Mile 11.3
 Marin County, California

Chapter 2 Project Description

2.1 Project Description

The proposed project is located at PM 11.3 in the City of San Rafael, California (see Figure 1, Project Vicinity). Rehabilitation would include repairs to portions of the Irwin Creek culvert (Bridge No. 27-0097) system that crosses under and is adjacent to US 101. This culvert system consists of eight culvert segments. The project proposes to repair five of the eight culverts, located between the southbound US 101 Central San Rafael off-ramp and the U.S. 101 Linden Lane underpass. Access to the culvert system and construction staging would be required on both sides of US 101 through the use of local streets, Caltrans right-of-way, and temporary easements. The following sections provide additional project information.

The project consists of culvert rehabilitation for eight culverts of the Irwin Creek culvert system that crosses and runs adjacent to US 101 (see Figure 2, Project Elements). US 101 is a north/south highway route and consists of a nine-lane freeway at the project location. The upstream entrance for the main culvert line, Culvert 4, is located on the eastern side of Belle Avenue. The downstream end of the main culvert, Culvert 1, outfalls at Irwin Creek near the Pacheco Apartments complex on Pacheco Street, west of US 101. The main culvert continues under Belle Avenue and US 101. Culvert 2 is located underneath the southbound lanes of US 101. The project would require temporary lane closure of a portion of the multi-use pathway that parallels US 101 immediately to the west, located near Culvert 2 (see Figure 2). Culvert 3 is located underneath the northbound lanes of US 101 and Culvert 4 is located underneath Belle Avenue. A smaller culvert, Culvert 5, ties into the main culvert and is located underneath Belle Avenue and Culvert 6 is located north of Culvert 5. Culverts 7 and 8 are located under the northbound lanes of US 101.

2.2 Culvert Work

The Irwin Creek Culvert system consists of eight culverts, of which five require rehabilitation. No work is proposed for this project on Culvert 1, Culvert 6, and Culvert 8. The following outlines the culverts' current deficiencies and identifies the proposed work under the project:

- Culvert 1: No work is proposed.

- Culvert 2: Located underneath the southbound lanes of US 101. Culvert 2 is a 15-foot-wide by 7-foot-high, unreinforced-concrete-arch steel plate lined culvert that has moderate to heavy rust at the invert of the multi-plate portion (consisting of several metal plates welded or connected together). Culvert 2 would be repaired by removing the metal plate lined invert (bottom) with a corrugated finish reinforced concrete slab. In addition, the flow line of Culvert 2 would be modified to eliminate vertical drops between culvert segments.
- Culvert 3: Located underneath the northbound lanes of US 101. This culvert is a reinforced-concrete-arch culvert. Culvert 3 has holes in the walls and ceilings and voids in the joints of the reinforced-concrete arch. Work consists of increasing the soil density surrounding the culvert by polyurethane injection and sealing the construction joints of the pipe by pressure-injected epoxy.
- Culvert 4: Located underneath Belle Avenue. This culvert is a reinforced-concrete-arch culvert. Culvert 4 has holes in the ceilings and voids in the joints of the reinforced-concrete arch. Work consists of increasing the soil density surrounding the culvert, patching the holes, and sealing the construction joints of the pipe, similar to the methodology described for Culvert 3.
- Culvert 5: Located underneath Belle Avenue. This culvert is a 7-foot, 10-inch-wide by 6-foot, 5-inch-high, reinforced-concrete-arch culvert. Culvert 5 has holes in the walls and voids in the joints of the reinforced concrete arch. Work consists of increasing the soil density surrounding the culvert, patching the holes, and sealing the construction joints of the pipe, similar to the methodology described for Culvert 3.
- Culvert 6: No work is proposed.
- Culvert 7: Located under the northbound lanes of US 101. This culvert is a 5-foot-wide by 7-foot, 9-inch-high, reinforced-concrete-arch culvert. Culvert 7 has cracks in the walls. Proposed work consists of epoxy crack injection.
- Culvert 8: No work is proposed.

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- Legend**
- - - Caltrans Right-of-Way
 - Project Footprint
 - Culvert
 - Multi-Use Pathway (Staging Area)
 - Staging Area
 - Temporary Construction Easement (TCE)
 - ~ ~ ~ Irwin Creek

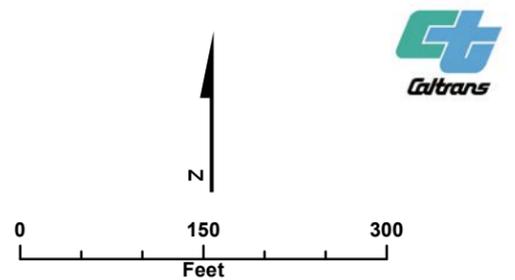
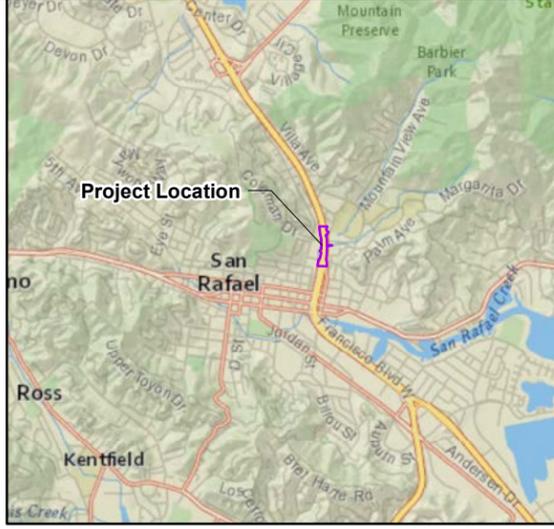


Figure 2
Project Elements
 Irwin Creek Culvert Rehabilitation Project
 EA 04-0K510, 04-MRN-101-Post Mile 11.3
 Marin County, California

2.3 Construction Methodology, Schedule, and Equipment

Repairs are only required for the inside of the culverts and would not require work on US 101. Traffic on US 101 would remain open during repair of the culverts.

The existing approximately 80-foot-long steel multi-plate liner invert in Culvert 2 would be removed and replaced in stages with 10-foot sections of invert. The Culvert 2 invert would be excavated and backfilled, and a reinforced concrete slab with corrugated finish would be constructed on the floor of Culvert 2. Weld stud connectors would be used to connect the new reinforced concrete slab to the remaining multi-plate liner. With this new construction, the upstream invert matches the top of the Culvert 3 invert and the downstream matches the top of Culvert 1. Aligning these culverts would allow better water flows and remove vertical drops and fish passage barriers between culvert segments.

At Culverts 3, 4, and 5, increasing soil density around the culvert would be achieved by injecting the soil surrounding the culvert with polyurethane. Construction joints would be sealed by pressure-injected epoxy. The holes in the walls and ceilings would be repaired or patched with reinforced wire mesh and concrete.

2.3.1 Dewatering and Temporary Creek Diversion

To perform the rehabilitation activities, approximately 1,000 feet of temporary creek diversion system is required to cut off the work area from the creek. The upstream temporary creek diversion system would begin at Culvert 4 and Culvert 8, while the downstream ends would be located at Culvert 1. Some channel disturbance is expected at both locations, including removal of or damage to vegetation. Construction would be implemented during the dry season (June 15 to October 15) to reduce the potential water levels in Irwin Creek. The creek bed and surrounding vegetation temporarily affected during construction would be restored post-construction.

2.3.2 Temporary Construction Access to Irwin Creek

Temporary access roads along or through the creek bank would be required to allow movement of equipment and materials in the creek bed and culverts. Timber matting is commonly used to stabilize the ground when heavy equipment is used. Therefore, at upstream and downstream ends of the creek, temporary timber matting would likely be used in the creek bed during construction work.

As depicted in Figure 2, Project Elements, at the downstream end of the construction area near Culvert 2, access to the creek would be primarily through the multi-use

pathway and the creek bed located near the Pacheco Apartments, both located to the west of US 101.

The upstream and downstream access areas would be used for the creek diversion construction, to install timber matting, and as access for manual work and for small construction equipment such as a bobcat. Large equipment would use the multi-use pathway to conduct work in the creek.

Agreements made with the City of San Rafael require that only one lane of the multi-use pathway be closed during the creek construction restriction window (June 15 to October 15) for equipment and material access. The multi-use pathway lane may be closed for the entire 125-calendar-day creek construction window.

At the Culvert 4 entrance near Belle Avenue, located on the east side of US 101, a daily temporary lane closure using flaggers may be required to lower equipment or materials into the creek bed for construction of the temporary creek diversion and the polyurethane- and epoxy-injection activities. Also east of US 101, at the upstream end of Culvert 4 on Belle Avenue, an area adjacent to 732 Belle Avenue would be needed to construct the temporary creek diversion, timber matting, and allow access for the injection of polyurethane and epoxy for Culverts 3, 4, 5, and 7.

2.3.3 Construction Staging

Due to the nature of culvert rehabilitation work under and adjacent to a nine-lane highway, construction access and staging would be required on both sides of US 101, as shown in Figure 2, Project Elements. However, no freeway closure is anticipated during construction.

On the eastern side of US 101, the temporary construction easement for Culvert 4 would be used to access Culverts 3, 4, 5, and 7. An undeveloped, fenced area located across the street from Coleman Elementary School and adjacent to the pedestrian bridge walkway over US 101 can be used for material and equipment storage. This area is owned by the State of California (and is within Caltrans right-of-way [ROW]) and is currently being maintained by the City of San Rafael. For proposed work on Culverts 3, 4, 5, and 7, the northbound lane of Belle Avenue would be temporarily closed for approximately 30 days during construction, using one-way traffic control with flaggers. Construction work is anticipated to only occur during the day. Traffic delays on Belle Avenue are estimated to be a maximum of 15 minutes for the travelling public. Construction access for the Belle Avenue staging area would be

located between the cross streets of Irwin Street at the southern end and Rafael Drive at the northern end.

On the western side of US 101 at Culvert 2, the multi-use pathway would be utilized for construction access and staging. Construction access at the multi-use pathway—Lincoln Hill Pathway (also known as Puerto Suello Hill Multi-Use Pathway)—would be between the cross streets of Pacheco Street at the southern end and Paloma Avenue at the northern end.

2.3.4 Construction Schedule

The project would require approximately two construction seasons (totaling 150 working days) to complete, with an estimated construction start date of June 2022 and end date of October 2023. Construction work is anticipated to only occur during the day. Work within the creek would be restricted to the dry season (June 15 to October 15). Vegetation removal (if required) would be scheduled to avoid impacts to nesting birds; however, if clearing and grubbing occur during nesting bird season (between February 1 and September 30), a qualified biologist would survey for nesting birds within the areas to be disturbed no more than 72 hours prior to construction.

2.3.5 Construction Equipment

Equipment used for the project would include but not be limited to a small bobcat, skip loader, cement truck(s), flatbed truck, dump trucks, water truck(s), and generators, with additional equipment as required. During construction for Culvert 2, most of the equipment would be stored on the multi-use pathway. For culvert work at Belle Avenue, equipment would be staged in the fenced area across from the school. After construction, these areas would be restored to pre-construction condition in accordance with applicable permits and Caltrans requirements.

2.4 Right-of-Way Requirements

The majority of the culvert repairs included in this project are all located within the Caltrans ROW. A portion of the Culvert 4 is within the City of San Rafael ROW. A Permit to Enter and Construct will be required from the city. Temporary Construction Easements (TCEs) would be required from property owners adjacent to Culverts 2 and 4 for the purposes of staging and temporary construction access.

A TCE will be required to access Culvert 2. A TCE area of 30 feet by 40 feet will be required in the creek bed, and the TCE will not impact any existing infrastructure associated with the apartment complex.

East of US 101, at the upstream end of Culvert 4 near Belle Avenue, a TCE area of approximately 150 feet by 20 feet adjacent to 732 Belle Avenue would be needed to construct the temporary creek diversion and allow access for the injection of polyurethane and epoxy for Culverts 3, 4, 5, and 7.

No utility relocation would be required for this project. However, a sewer line is located outside of the ROW, approximately 10 feet from the end of Culvert 1, and precautions would be taken to avoid it during construction.

2.5 Permits and Approvals Needed

Table 1 summarizes the permits required for the proposed project by the respective agencies and permit status.

Table 1 Required Permits

Agency	Permit	Permit Status
U.S. Army Corps of Engineers	Section 404 Permit	Submittal anticipated during next project phase
San Francisco Regional Water Quality Control Board	Section 401 Water Quality Certification	Submittal anticipated during next project phase
California Department of Fish and Wildlife	Section 1602 Lake and Streambed Alteration Agreement	Submittal anticipated during next project phase

Chapter 3 California Environmental Quality Act Evaluation

The following discussions evaluate potential environmental impacts related to the CEQA checklist to comply with State CEQA Guidelines (Title 14 California Code of Regulations, Division 6, Chapter 3, Section 15091). The environmental analysis considers potential impacts of the proposed project, as described in more detail in Chapter 2.

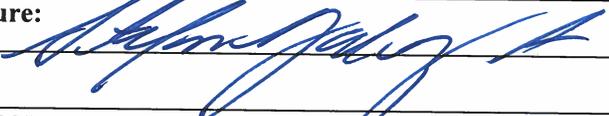
A. Environmental Factors Potentially Affected

As part of the scoping and environmental analysis carried out for the proposed project, the following environmental issues were considered, but no impacts were identified: air quality, agriculture and forest resources, cultural resources, geology and soils, mineral resources, population and housing, public services, recreation, tribal cultural resources, and utilities and service systems. The environmental factors checked below would be potentially affected by this project. Further analysis of these environmental factors is included in the following chapter:

<input checked="" type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Geology/Soils
<input checked="" type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials	<input checked="" type="checkbox"/>	Hydrology/Water Quality
<input checked="" type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input checked="" type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input checked="" type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input checked="" type="checkbox"/>	Mandatory Findings of Significance
<input type="checkbox"/>	Tribal Cultural Resources				

B. Determination

On the basis of this initial evaluation:

<input checked="" type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	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.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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: 11/15/19	
Printed Name: Stepan Galunz-Abadia	
For:	

CEQA Environmental Checklist

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

“Project features,” which may include both design elements of the project and standardized measures that are applied to all or most Caltrans projects, such as best management practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and are considered prior to any significance determinations. The Environmental Commitment Record containing the project features and avoidance and minimization measures (AMMs) can be reviewed in Appendix B.

Aesthetics

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

A Visual Impact Assessment was completed by the Caltrans Office of Landscape Architecture on November 30, 2018 (Caltrans 2018a). US 101 within the project limits is not designated or eligible as a scenic highway. As the project scope is limited to repairing culverts, existing vistas would remain unaltered and the project would not affect the appearance of the highway corridor.

a, b) No Impact

The project area is moderate to densely developed, surrounded by residential development and businesses, and is not within a scenic vista or scenic resources. Vegetated hillsides from the project area are visible. Most of the proposed work would consist of underground culvert rehabilitation, requiring limited vegetation removal. Mission San Rafael Archangel is located approximately 600 yards from the project area and would not be impacted from the proposed work. Therefore, there would be no impact to scenic vistas or scenic resources.

c) Less than significant impact

Minimal clearing and grading would be required for access to the culverts and the areas would be restored post-construction. On the western side of US 101, work at Culvert 2 would be within the creek bed adjacent to the Pacheco Apartments; proposed work would require minimal vegetation removal and trimming for creek access. Work at Culvert 4, on the eastern side of US 101, would require removal of a

fence to access Irwin Creek from Belle Avenue. The fence would be replaced post-construction. Any visual impacts from the surrounding residential areas would be temporary and would be remediated with the implementation of project AMMs and features and would be restored post-construction.

d) No Impact

The proposed culvert rehabilitation work would not create any new sources of lighting or glare. Construction work is anticipated to be limited to daylight hours and would therefore not create nighttime lighting or glare. Therefore, there would be no impact.

Avoidance, Minimization, and Mitigation Measures

AMM AES-1: Storage of material and equipment in staging areas should be located outside direct views of residents and the motoring public to the greatest extent practicable.

AMM AES-2: Staging areas should be sited in areas that will not require the removal of trees or native vegetation, unless no alternative exists.

AMM AES-3: Post-construction, appropriate erosion control measures should be implemented at all areas of disturbed soil.

Agriculture and Forest Resources

<p>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.</p>				
Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-e) No Impact

The proposed project is located in an urban, built-out area and no agriculture or forest resources are in the project limits or vicinity. There would be no impact.

Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-e) No Impact

The project is considered a safety improvement project and is exempt from air quality conformity determination under 40 *Code of Federal Regulations* (CFR) 93.126. An air quality study is not required. The project would be required to comply with Caltrans Standard Specification 14-9, Air Quality, which requires compliance with air-pollution control rules, regulations, ordinances, and statutes that apply in the project area. Other construction air pollutants are expected to be minimal to negligible. Potential impacts to air quality, including violation of air quality standards, criteria pollutants, exposure of sensitive receptors to pollutants, and creation of odors, are not anticipated based on the scope of the proposed project.

Project Feature

Feature AQ-1: Control Measures for Construction Emissions of Fugitive Dust. Dust control measures will be implemented to minimize airborne dust and soil particles generated from graded areas. For disturbed soil areas, the use of an organic tackifier to control dust emissions will be included in the construction contract.

Watering guidelines will be established by the contractor and approved by the Caltrans resident engineer (RE). Any material stockpiles will be watered, sprayed with tackifier, or covered to minimize dust production and wind erosion.

Biological Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Caltrans prepared a *Natural Environment Study* for the project to evaluate the effects on flora and fauna within the project area (Caltrans 2018b). This section summarizes the findings of the study.

A 6.7-acre Biological Study Area (BSA) was established for this project and encompasses the entire project footprint plus a variable buffer of up to 50 feet. This buffer was chosen to capture the direct and indirect effects that could result from

project activities. Biologists conducted field surveys within the BSA to assess existing natural resources and determine the need for further in depth or protocol level surveys. A general habitat assessment of the BSA was conducted on May 18, 2018.

Apart from the creek and associated riparian habitat, the vegetation type within the BSA is a result of urban landscaping and development. Much of the existing vegetation is typical of ruderal communities, which are characteristic of highly disturbed areas and dominated by opportunistic non-native plant species. The upstream side of the BSA encompasses residential backyards, some of which have been landscaped with native pollinator-friendly plant species.

At the downstream end of the culverts, the creek winds through an apartment complex and is inhabited by a mixture of non-native and native riparian species, with no single species achieving dominance.

The three easternmost Irwin Creek culvert segments were inaccessible during surveys, but no impacts are expected to waters in this section because work in these culverts consists only of polyurethane injection, which would take place from the above roadway.

Culvert 1 is a 7-foot-long, concrete-lined box culvert with a 14-foot ordinary high-water width. There are patches of sediment deposition, but no vegetation in the culvert segment. Culvert 2 is an 8-foot-long arch culvert with a 15-foot ordinary high-water width. The invert of Culvert 2 is devoid of sediment or vegetation.

a) Less Than Significant Impact

SPECIAL STATUS PLANT SPECIES

Based on the literature and database review, 59 special status plants (not including federally or state threatened or endangered species) may occur in the project BSA. There were no observations of special status plant species nor suitable habitat found during field surveys conducted in May and August 2018. All special status species with potential to occur were determined to be unlikely to occur in the BSA due to a lack of suitable habitat and the level of anthropogenic disturbance.

The project is not expected to impact any special status plant species. If a species is discovered during the implementation of the proposed project, consultation with the appropriate agencies will be initiated.

SPECIAL STATUS ANIMAL SPECIES

Based on the literature and database review, a total of 7 special status animal species (not including federally or state threatened or endangered species) are known to occur within 5 miles of the project. No special status animal species were observed within the project BSA. While special status animal species are not anticipated, biological monitors in coordination with the RE will have the authority to stop work that may result in the unauthorized take of special-status species if they are encountered. Project features, including preconstruction surveys and environmentally sensitive area fencing, will be implemented. Impacts to special status species would be less than significant.

THREATENED AND ENDANGERED SPECIES

Based on the literature and database review, 19 federally or state threatened or endangered plant species and 28 animal species may occur in the vicinity of the project. Field surveys in May and August 2018 determined that the project would have no effect on federally listed species, their habitats, or protected communities with the implementation of the required project features. No adverse modification to any species' critical habitat would occur as a result of project activities.

OTHER REGULATIONS

The project BSA has the potential to support birds protected by the Migratory Bird Treaty Act (MBTA) and Sections 3503, 3513, and 3800 of the California Fish and Game Code (CFG) regulations. Trees, shrubs, ruderal vegetation patches, and other substrates found within the vicinity of the BSA may provide potential nesting sites. Project features, including Feature BIO-6 regarding vegetation removal and Feature BIO-13 requiring pre-construction nesting bird surveys, will be implemented prior to ground disturbance. Vegetation removal (if required) will be scheduled to avoid impacts to nesting birds; however, if clearing and grubbing occur during nesting bird season (between February 1 and September 30), a qualified biologist will survey for nesting birds within the areas to be disturbed no more than 72 hours prior to construction. Impacts to nesting birds would be less than significant.

b) Less than Significant Impact

The project BSA is a highly disturbed area in an urban environment and the portion of Irwin Creek passing through the BSA has been heavily modified. Vegetation is a mix of native and non-native species, including some riparian trees; tree removal is not anticipated. Implementation of project features would result in less than significant impacts to sensitive natural communities, including riparian habitat.

Project features, including Feature BIO-2, Environmentally Sensitive Area Fencing, and Feature BIO-3, Implementation of Best Management Practices, will be implemented. Impacts to sensitive natural communities, including riparian habitat, would be less than significant.

c) No Impact

No federally protected wetlands were observed within the BSA. However, the BSA does contain a portion of Irwin Creek, which, as waters of the U.S. and State, is considered sensitive habitat by federal and state agencies.

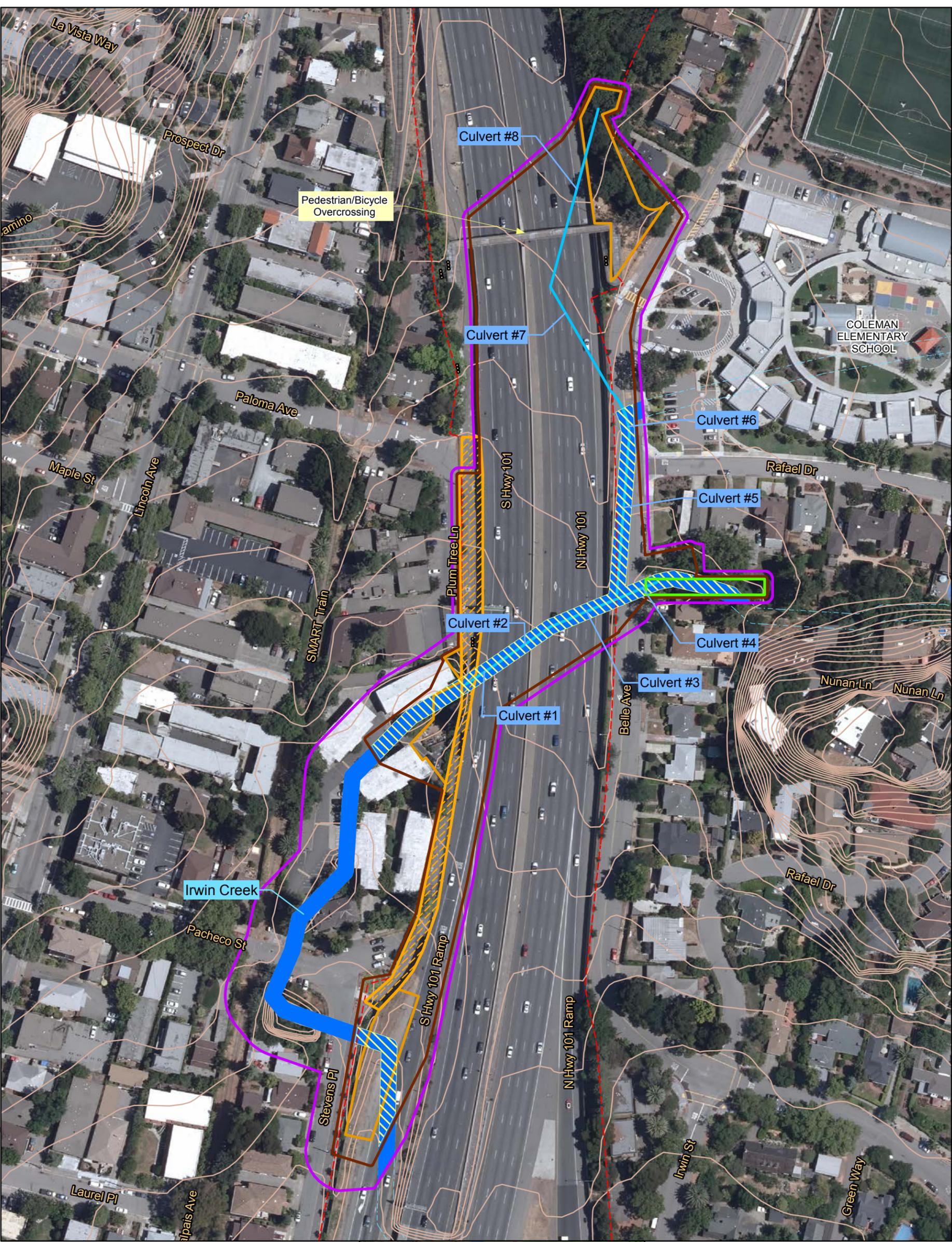
The proposed project is anticipated to result in approximately 0.06 acre of temporary impacts to waters potentially subject to regulation by the U.S. Army Corps of Engineers (USACE), San Francisco Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) (Figure BIO-1). Temporary impacts are expected to be limited to Culverts 1 and 2 (Table BIO-1); these impacts would result from access to construction areas via Culvert 1 and construction-related activities in Culvert 2, including installation of a temporary water diversion system and repair of the existing culvert segments. No permanent impacts to jurisdictional waters are anticipated.

d) No Impact

The BSA is outside of the known distribution of most special status fish species but could be within the range of Central California Coast steelhead and green sturgeon. A fish passage assessment (assessment) was conducted on August 23, 2018. While fish were not observed in Irwin Creek, the portion of the creek within the BSA was surveyed to assess fish habitat quality. This survey found that this portion of the creek provides very low-quality fish habitat with conditions that would be likely to impede fish movement through the creek if it were accessible to passage. There would be no impact.

The assessment found that a potential barrier to fish passage was located within the BSA, caused by the grade misalignment of the inverts of Culverts 1 and 2. Replacement of the Culvert 2 invert would realign the culverts and eliminate the fish passage barrier in accordance with Senate Bill (SB) 857. The project would not introduce any new barriers to fish passage.

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- Legend**
- Biological Study Area (BSA)
 - Project Footprint
 - Caltrans Right-of-Way
 - Culvert
 - Multi-Use Pathway (Staging Area)
 - Staging Area
 - Temporary Construction Easement (TCE)
 - 2 Foot Elevation Contour
 - Potential Waters of the United States (0.663 acres)
 - Temporary Impacts to Potential Waters (0.407 acre)

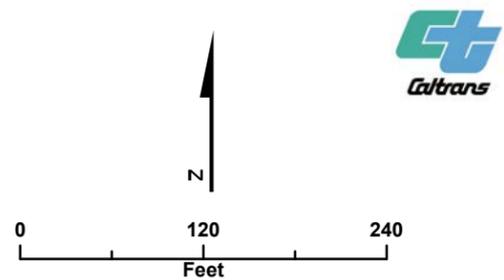
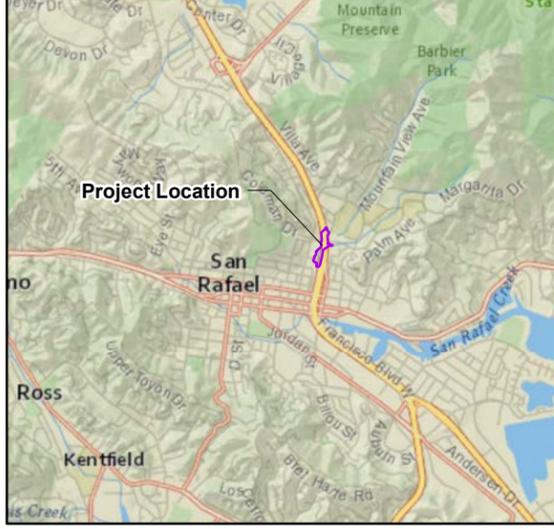


Figure BIO-1
Temporary Impacts to
Potential Jurisdictional Waters
 Irwin Creek Culvert Rehabilitation Project
 EA 04-0K510, 04-MRN-101-Post Mile 11.3
 Marin County, California

In addition, a query of the CDFW CalFish database identified a Caltrans-owned total fish barrier located 0.6 mile downstream of the culverts outside of the project footprint, near Mission Avenue and Hetherton Street. As the fish passage barrier is located outside of project limits, it will not be remediated as part of the proposed project. When future maintenance work or other repairs to Caltrans infrastructure are required at Mission Avenue and Hetherton Street, the fish passage barrier will be removed, per SB 857.

This project would not interfere with the movement of any native resident or migratory fish or wildlife species and would not interfere with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. The project would improve existing conditions by removing the grade separation between Culverts 1 and 2, which has the potential to result in direct, beneficial impacts to fish movement.

e) No Impact

This project would not conflict with any local policies or ordinances protecting biological resources.

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.

Project Features

Feature BIO-1: Worker Environmental Awareness Training. Prior to ground-disturbing activities, an agency-approved biologist will conduct an education program for all construction personnel in accordance with applicable permits.

Feature BIO-2: Environmentally Sensitive Area Fencing. Prior to the start of construction, environmentally sensitive areas (ESAs) will be clearly delineated using high-visibility orange fencing. The ESA fencing will remain in place throughout the duration of the project. The final project plans will depict all locations where ESA fencing will be installed and indicate how it will be installed. The special provisions in the bid solicitation package will clearly describe acceptable fencing material and prohibited construction-related activities within ESAs.

Feature BIO-3: Implementation of Best Management Practices. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and erosion control BMPs will be implemented in compliance with the requirements of the San Francisco Regional Water Quality Control Board (RWQCB). The 2017 Caltrans *Construction Site Best Management Practices (BMP) Manual* (BMP Guidance Handbook) will provide guidance for the development and inclusion of standard and special provisions. Protective measures will include, at a minimum:

- a. Disallowing any discharging of pollutants from vehicle and equipment cleaning into any storm drains or watercourses.
- b. Keeping vehicle and equipment fueling and maintenance operations at least 50 feet away from watercourses, except at established commercial gas stations or an established vehicle maintenance facility.
- c. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any downstream riparian habitat, aquatic habitat, culvert, or drainage feature.
- d. Dedicated fueling and refueling practices will be designated as part of the approved SWPPP. Dedicated fueling areas will be protected from stormwater run-on and will be located at least 50 feet from downslope drainage facilities and water courses.
- e. Fueling must be performed on level-grade areas. Onsite fueling will only be used when and where it is impractical to send vehicles and equipment offsite for fueling. When fueling must occur onsite, the contractor will designate an area to be used subject to the approval of the Caltrans RE. Drip pans or absorbent pads will be used during onsite vehicle and equipment fueling.
- f. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
- g. Any and all non-hazardous dredge and fill material produced as a result of removing sediment from the southern culvert will either be reused and fully contained within the project limits or will be properly disposed of offsite.
- h. Dust control measures consistent with Air Quality Project Features will be implemented. Dust control will be addressed during the environmental education session.

- i. Coir logs or straw wattles will be installed in accordance with the Caltrans BMP Guidance Handbook, to capture sediment.
- j. Graded areas will be protected from erosion using a combination of silt fences, erosion control netting (such as jute or coir), and fiber rolls along edges of designated staging areas and as appropriate on sloped areas in accordance with the Caltrans BMP Guidance Handbook.

Feature BIO-4: Construction Site Management Practices. The following site restrictions will be implemented:

- a. Project-related vehicle traffic will be restricted to established roads and construction areas. Project vehicles will observe a 15-mile-per-hour speed limit while in the project footprint, except on the current highway.
- b. Locating construction access, staging, storage, and parking areas within the project ROW outside of any designated ESA or outside of the ROW in areas environmentally cleared and permitted by the contractor. The following areas will be limited to the minimum necessary to construct the proposed project: access routes, staging and storage areas, and contractor parking. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
- c. Certifying, to the maximum extent practicable, that any borrow material is nontoxic and free of weeds.
- d. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once daily from the project footprint.
- e. Prohibiting all pets from entering the project area during construction.
- f. Prohibiting firearms within the project site, except for those carried by authorized security personnel or local, state, or federal law enforcement officials.
- g. Maintaining all equipment in order 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, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from wetlands and aquatic habitats.

- h. Servicing vehicles and construction equipment including fueling, cleaning, and maintenance at least 50 feet from any aquatic habitat unless separated by topographic or drainage barrier.

Feature BIO-5. Biological Monitoring. At least 30 days prior to the onset of activities, the name(s) and credentials of proposed project biologists will be submitted to the CDFW, and a final preconstruction survey for sensitive resources will be conducted onsite. An agency-approved biologist will be present onsite during the construction of any erosion control fencing or dewatering equipment, and prior to and during the dewatering activities to monitor for special status species. Through communication with the RE or his/her designee, the agency-approved biologist may stop work if deemed necessary for any reason to protect special status species and will advise the RE or designee on how to proceed accordingly.

Feature BIO-6: Vegetation Removal. Ground disturbance will be minimized to the extent feasible. Vegetation that is located where staging areas are may be trimmed or cleared. Vegetation will be cleared only where necessary; grubbing will be minimized to the greatest extent possible. Vegetation will be cut above soil level to allow reestablishment after construction. Clearing and grubbing of woody vegetation will occur by hand or by using construction equipment such as mowers, backhoes, and excavators. If clearing and grubbing occur between February 1 and September 30, a qualified biologist will survey for nesting birds within the areas to be disturbed no more than 72 hours prior to construction. If nesting birds are observed in the project area, all nest avoidance requirements of the MBTA and CFGC will be observed. Cleared vegetation will be removed from the project footprint and disposed of appropriately to avoid attracting animals to the project site.

Feature BIO-7: Replant, Reseed and Restore Disturbed Areas. Caltrans will restore temporarily disturbed areas to the maximum extent practicable. Exposed slopes and bare ground will be reseeded with native grasses and shrubs to stabilize and prevent erosion. Where disturbance includes the removal of trees and woody shrubs, native species will be replanted at a ratio to be determined in a later project phase, based on the local species' composition.

Feature BIO-8: Dewatering. Dewatering and discharging activities will be conducted according to Caltrans SWPPP standards and project specifications as contained in Section 13-2 of the 2015 Standard Specifications.

Feature BIO-9: Seasonal Avoidance. To the extent practicable, construction will not occur during the wet season (between November 1 and April 1). Work within the streambed will occur between June 1 and October 31.

Feature BIO-10: 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 at least one escape ramp constructed of earth fill or wooden planks. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. Replacement pipes, culverts, or similar structures stored in the project area overnight will be inspected before they are subsequently moved, capped or buried.

Feature BIO-11: Special Status Species on Site. Should any special status species be observed within a construction zone, appropriate actions will be taken by the project biologist.

Feature BIO-12: Night Work. Nighttime work will be avoided to the maximum extent practicable. Should nighttime work need to be conducted, all lighting will be directed downwards and towards the active construction area.

Feature BIO-13: Migratory Birds and Nest Avoidance. During the nesting season (February 1 through September 30), pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction activities. If work is to occur within 300 feet of active raptor nests or 50 feet of active non-game bird nests, a non-disturbance buffer will be established through consultation with CDFW and/or USFWS (depending on the species), at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance.

Feature BIO-14: Erosion Control Matting. To avoid wildlife entrapment, plastic monofilament netting or similar material will not be used if erosion control matting is required. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds.

Feature BIO-15: Reduce Spread of Invasive Species. To reduce the spread of invasive, nonnative plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order (EO)

13112. 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 with fast-growing native grasses or a native erosion control seed mixture. Where seeding is not practical, the target areas within the project area will be covered to the extent practicable with heavy black plastic solarization material until the end of the project.

Cultural Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Caltrans prepared a memorandum on cultural compliance for the project titled *Cultural Resources Compliance for the Irwin Creek Rehabilitation Project on Route 101, Marin County, California* (Caltrans 2018c). This section summarizes the memorandum’s findings.

The Architectural and Archeological areas of potential effects (APEs) were established by the Professionally Qualified Staff, archaeologist, and architectural historian. The APEs include the resource study areas for cultural and historic resources. The APE contains confidential information, which could not be publicly shared. Based on these reports, Caltrans made a finding of no impact to archaeological resources.

A Historic Property Survey Report (HPSR) and attachments were prepared in October 2018. The study for this undertaking was carried out in a manner consistent with Caltrans’ regulatory responsibilities under Section 106 of the National Historic Preservation Act (36 CFR Part 800) and pursuant to the January 2015 *Memorandum of Understanding Between the California Department of Transportation and the California State Historic Preservation Officer Regarding Compliance with Public Resources Code Section 5024 (PRC 5024) and Governor’s Executive Order W-26-92 (MOU)*.

a-d) No Impact

The Office of Cultural Resource Studies' (OCRS) review consisted of a detailed search of Caltrans records, maps, plans, and digital files found in Caltrans' Cultural Resources Database, and a field investigation. The background research and field investigation identified no historic properties within the APE.

Based on the above, Caltrans has determined that a **Finding of No Historic Properties Affected** is appropriate for the proposed project. Caltrans has also determined that no archaeological resources are affected by the project. The above-referenced documentation will be archived in the OCRS files. Compliance with Section 106 via the Programmatic Agreement and California Public Resources Code (PRC) 5024 via the proposed MOU is now complete.

Project Features

Feature CULT-1: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a Caltrans qualified archaeologist can assess the nature and significance of the find.

Feature CULT-2: If Caltrans Professionally Qualified Staff determines that cultural materials contain human remains, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. Caltrans' OCRS will contact the Sonoma County Coroner. Pursuant to PRC Section 5097.98, if the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. The Caltrans OCRS will work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Geology and Soils

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

GEOLOGIC SETTING

Caltrans investigated impacts to geology and soils from the proposed project and prepared the *Environmental Studies for the Irwin Creek Rehabilitation* technical memorandum (Caltrans 2018d). This section summarizes the findings of this review.

The project site is located within the California Coast Ranges geomorphic province. Extensive folding has created a series of northwest trending ranges and valleys, one of which is the San Francisco Bay. The culverts are in fill overlying Holocene

alluvium and stream channel deposits. These deposits consist of loose alluvial sand, gravel, and silt.

a-e) No Impact

The proposed project would not expose the public to hazards related to strong ground shaking, including liquefaction, soil subsidence, expansive soils or seismically induced landslides. There are no active faults passing through the site. The closest known active fault is the northern Hayward Fault, which is about 8 miles east of the site. There are no septic tanks or alternative waste water delivery systems in the project area. As the areas do not show signs of substantial erosion or landslide activity and have no indication of high rates of erosion, slope failures, or unstable geology, there would be no impact.

Greenhouse Gas Emissions

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<p>Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this project. The analysis included in the climate change section of this document provides the public and decision-makers as much information about the project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the climate change section that follows the CEQA checklist and related discussions.</p>			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				

CONSTRUCTION EMISSIONS

Caltrans investigated impacts to greenhouse gas (GHG) from the proposed project and prepared the *Construction Greenhouse Gas Analysis* memorandum (Caltrans 2018e). This section summarizes the findings of this review. Construction-generated GHG includes emissions resulting from material processing, onsite construction equipment, and workers commuting to and from the project site. The emissions would be produced at different levels throughout the project depending on the activities involved at various phases of construction. The analysis was focused on vehicle-emitted GHG. Carbon dioxide (CO₂) is the single most important GHG pollutant due to its abundance when compared with other vehicle-emitted GHG, including methane, nitrous oxide, hydrofluorocarbon, and black carbon. 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 changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Construction GHG emissions would result from material processing, onsite construction equipment, and traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and

specifications and by implementing better traffic management during construction phases. Based on project information available for environmental studies, the 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. The estimated total amount of CO₂ produced due to construction in 6 months is 283.88 tons.

Hazards and Hazardous Materials

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

According to the hazardous waste memorandum prepared for the project, there is the potential for encountering hazardous materials during the construction stage of the proposed project (Caltrans 2018k). Limited testing may need to be conducted during

the design phase, including a site investigation to handle potential soil contamination levels in the project footprint during the design phase.

This project is in close proximity to Coleman Elementary School. There are no nearby airports. The San Rafael Police Department (City of San Rafael 2017a) and Fire Department (City of San Rafael 2017b) serve the project area. The project area is not designated as a very high fire hazard severity zone according to the metadata available on the Marin County online geographical information system (GIS) application, MarinMap.

a, b) No Impact

Caltrans Standard Specifications BMPs will be implemented to prevent spills or leaks from construction equipment, as well as from storage of materials such as fuels, lubricants, and solvents. All aspects of the project associated with removal, storage, transportation, and disposal will be in strict accordance with the appropriate regulations of the California Health and Safety Code. Handling of hazardous materials will comply with Caltrans Standard Specification 14-11, Hazardous Waste and Contamination, which outlines handling, storing, and disposing of hazardous waste. There are no anticipated impacts.

c) Less than significant impact

The entrance to Coleman Elementary School is across the street from the project area, approximately 50 feet away. Handling of hazardous materials will comply with Caltrans Standard Specification 14-11, Hazardous Waste and Contamination, which outlines handling, storing, and disposing of hazardous waste. The impacts would be less than significant.

d) No Impact

Based on a review of the State Water Resources Control Board (SWRCB) GeoTracker database, two underground storage tanks (USTs) were found in the project vicinity. Proposed culvert repair work would avoid these USTs. In addition, compliance with Caltrans Standard Specifications 14-11, Hazardous Waste and Contamination, is required. There would be no impact.

e, f) No Impact

There are no airports or airstrips in the project vicinity. There would be no impact.

g) Less than significant impact

Potential delays in traffic along Belle Avenue (up to a maximum of 15 minutes) would result from flagger controlled one-way traffic in effect during use of heavy construction equipment needed to construct the creek diversion to allow culvert repair. This would occur in the summer, be temporary, and last up to 30 days. A Traffic Management Plan (TMP) will be developed during the design phase that would identify traffic delays and alternative routes. Emergency response times are not anticipated to change during construction; the TMP will provide priority to emergency vehicles during one-way traffic control. In addition, this project would not conflict with an emergency response or evacuation plan. The TMP will provide instructions on how to respond or evacuate in an event of an emergency situation.

The TMP will also provide that the City of San Rafael and the public be notified prior to commencement of construction activities. The impact would be less than significant.

h) No Impact

The project area is not designated as a wildlands fire hazard zone. There would be no impact.

Hydrology and Water Quality

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Caltrans investigated impacts to Hydrology and Water Quality from the proposed project and prepared the *Location Hydraulic Study*, *Water Quality Study*, and *Stormwater Data Report* (Caltrans 2018f,g,h). This section summarizes the findings of that review.

The project is located within the jurisdiction of the San Francisco Bay RWQCB (Region 2), which is responsible for implementation and enforcement of state and federal laws and regulations concerning water quality.

The project is within the Bay Bridges Hydrologic Unit, San Rafael Hydrologic Area, and Undefined Hydrologic Sub-Area 203.20. The project is within the Corte Madera Creek-Frontal San Francisco Bay Estuaries Watershed and Larkspur Creek-Frontal San Francisco Bay Estuaries Subwatershed.

The receiving waterbody in the project area is the San Rafael Creek, which is in the 2012 Section 303(d) list of impaired waterbodies for California.

a) Less than Significant Impact

The proposed project would require various staging and construction operations. The project would result in an anticipated disturbed soil area (DSA) of approximately 0.05 acre due to trenching for culvert replacement and access roads and any contractor staging and stockpile areas located off the pavement. Construction impacts to receiving waterbodies that should be addressed include turbidity and pH, which could result from the discharge of sediment and cement beyond the project site perimeter.

From a water quality perspective, staging areas could result in material unintentionally entering waterbodies including Irwin Creek; as a result, spill prevention and containment BMPs will be required because any equipment fluid or other materials could be transported directly to San Rafael Creek.

b) No Impact

The proposed project would have no effect to groundwater supplies or groundwater recharge areas in the project vicinity. There would be no impact.

c, d, e) No Impact

The proposed project would not substantially alter the existing drainage pattern of the site or area or result in increased water runoff. The proposed project would not result in an increase of pollutant-generating impervious surface. There would be no impact.

f) No Impact

With implementation of construction BMPs, the proposed project would not substantially degrade water quality. There would be no impact.

g, h, i) No Impact

The project footprint is not within the 100-year floodplain as defined by Federal Emergency Management Agency (FEMA) Flood Insurance Rates Map for this area of San Rafael (Map number 06041C0457E, Marin County). The proposed project would have no effect on floodplains. The proposed project would not expose people or structures to flooding, or inundation by seiche, tsunami, or mudflow.

Project Feature

Feature WQ-1: Construction Site BMPs. To prevent or reduce impacts to water quality of San Rafael Creek, construction site BMPs will be deployed for sediment control, pH, and material management. BMPs will include measures of soil stabilization, sediment control, wind erosion control, tracking control, non-stormwater management, and waste management/materials pollution control. These BMPs will also include, but are not limited to, drainage inlet protection, and fiber roll, silt fence, hydraulic mulch, temporary concrete washout, street sweeping, and similar.

Access roads and staging areas may need temporary cover during construction. Gravel bag berms wrapped with an impermeable liner will be used to address pH issues.

Land Use and Planning

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Based on the analysis for the Community Impacts Assessment (CIA) (Caltrans 2018i), the proposed project area is comprised predominantly of residential land uses and is bisected by US 101, which runs north-south through the city of San Rafael. US 101 is a regional transportation corridor that serves local traffic, goods movement, commuters, and tourism within Marin County and destinations to the north.

Two distinct neighborhoods are located in the project area: The Lincoln/San Rafael Hill neighborhood is situated on the western side of US 101 and the Dominican/Black Canyon neighborhood is located to the east of the highway. Sound walls border both these neighborhoods along the US 101 corridor. Railroad tracks used by the Sonoma-Marín Area Rail Transit (SMART) trains run parallel to US 101 in the Lincoln/San Rafael Hill neighborhood, between Lincoln Avenue and the multi-use pathway adjacent to the freeway. These two neighborhoods are built out and future land uses in these two neighborhoods are expected to remain stable according to the City of San Rafael General Plan (City of San Rafael 2016a).

LINCOLN/SAN RAFAEL HILL NEIGHBORHOOD

The Lincoln/San Rafael Neighborhood is zoned as a multi-family residential district (HR1), and its land use is designated as high density/improved multiple-residential area, which is typical of apartment densities. The Pacheco Apartments and the Plum Tree Lane Apartments are within this neighborhood, in close proximity to the proposed project. The neighborhood is bisected by Lincoln Avenue, a major

transportation artery for San Rafael. A busy corridor, Lincoln Avenue poses planning issues to the Lincoln/San Rafael neighborhood such as traffic congestion, vehicular speeding and safety, and limited parking. The future vision and goal for this neighborhood is to find a balanced approach to addressing the area's unique issues while maintaining Lincoln Avenue as a major north-south transportation and transit thoroughfare.

DOMINICAN/BLACK CANYON NEIGHBORHOOD

The Dominican/Black Canyon Neighborhood is zoned as a single-family residential district (R1). This neighborhood, located on the eastern side of US 101, is primarily developed with single-family homes, some duplexes, and condominiums, and is defined by its large and abundant trees, landscaped yards, and generally forested character. Coleman Elementary School occupies a large lot within this residential neighborhood.

a) No Impact

The proposed project would not divide the existing neighborhoods within the project area. There would be no impact.

b) Less than Significant Impact

The project includes maintenance and rehabilitation of existing drainage facilities and, long term, would not conflict with any applicable land use plan, policy, or regulation of the City of San Rafael General Plan 2020 or the Marin County General Plan (Marin County 2007). There would be no impact.

LINCOLN/SAN RAFAEL HILL NEIGHBORHOOD

During construction, the project may potentially use one area for contractor access to the creek, staging, and storage of equipment.

This staging area would require the use of a small portion of the multi-use pathway between Paloma Avenue and Pacheco Street. This staging area would require coordination with the City of San Rafael and the San Rafael Bicycle and Pedestrian Advisory Committee. The TMP will include measures such as flaggers on the multi-use pathway to direct bicycle and pedestrians temporarily in this area, coordination with the City of San Rafael and the San Rafael Bicycle and Pedestrian Advisory Committee, and public notification. The staging area would be returned to pre-

existing condition after construction. This would be a temporary and a less than significant impact.

DOMINICAN/BLACK CANYON NEIGHBORHOOD

The proposed project is not expected to adversely affect any land uses in this neighborhood. While adjacent to construction activities, Coleman Elementary School would not be affected by the project. There would be no impact.

c) No Impact

The proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan because there are none that are located in the project footprint. There would be no impact.

Mineral Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-b) No Impact

There are no documented mineral resources within the project limits. Therefore, no impacts on mineral resources would result from the proposed project.

Noise

Would the project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a, b, d) Less than significant impact

The project area is bisected by US 101, a highway corridor that contributes to relatively high background noise levels compared to typical residential neighborhoods. The SMART passenger rail service, which runs parallel to US 101, also contributes to periodic high background noise levels. Ambient noise levels may temporarily be increased due to various construction activities. 23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. Caltrans uses this same definition when evaluating state projects without federal funding. The project was determined not to be a Type I project per 23 CFR 772, as the project would not increase capacity of the highway; therefore, a noise study is not required and noise abatement need not be considered, as noted in the GHG analysis

memorandum (Caltrans 2018e) from the Caltrans Air/Noise/Energy Branch. No noise impacts in excess of standards established in the general plan, groundborne vibrations, or ambient noise would occur.

c) No Impact

The project would not cause a permanent substantial increase in ambient noise level (12 decibels or more, A-weighted) above existing conditions. Construction noise would be temporary; therefore, there would be no permanent noise impact.

e, f) No Impact

There are no airports or airstrips within the project vicinity. There would be no impact.

Population and Housing

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

a, b, c) No Impact

The proposed project would not induce population growth because it does not increase the capacity of US 101, remove barriers to future growth, or increase population or housing growth (and demand for new housing, utilities and public services) in the city of San Rafael. The project would not induce substantial population growth, displace housing, or displace people; therefore, there would be no impact to population and housing.

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:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) No Impact

The proposed project would not result in the substantial alteration of government facilities in the project area, 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. There would be no impact.

Avoidance, Minimization, and Mitigation Measures

AMM PUB-1: To offset temporary disruptions during construction, a TMP will be developed by Caltrans with input from the local community during the design phase. The TMP will include elements such as alternate routes, one-way traffic controls, flag workers, and construction phasing to reduce impacts to local residents and maintain access to businesses and residents in the local area and along Lincoln and Belle avenues. The TMP will be implemented to provide access to emergency providers through the construction zone such that existing police, fire, and medical facilities and services would not be adversely affected by the proposed project. The TMP will also include flaggers for users of the multi-use pathway between Paloma Avenue and Pacheco Street, coordination with the City of San Rafael and the San Rafael Bicycle and Pedestrian Advisory Committee, and public notification.

Recreation

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

Recreational areas adjacent to the project were evaluated in the *Section 4(f) – Resources Technical Memorandum* prepared for the proposed project (Caltrans 2018j).

a, b) No Impact

The project would require temporary lane closure of a portion of the multi-use pathway located near Culvert 2; however, as discussed in the Traffic and Transportation section, flaggers and other safety measures will be implemented for pedestrian and bicycle traffic users on the multi-use pathway between Paloma Avenue and Pacheco Street, consistent with the TMP. Agreements made with the City of San Rafael require that the multi-use pathway remain partially open during the creek construction restriction window (June 15 to October 15) for equipment and material access. The multi-use pathway may be partially closed for the entire 125-calendar-day creek construction window. Once construction activities are completed, the multi-use pathway would be restored to pre-existing conditions. As such, these temporary closures are not likely to lead to deterioration of existing parks or the need for construction of new recreation facilities. Therefore, there would be no impact to recreation.

Transportation and Traffic

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The proposed project does not include work that would affect the local street system, as the majority of the project footprint would be within Caltrans ROW and under US 101 within the Irwin Creek culverts. The project would not result in permanent traffic impacts to Belle Avenue and Lincoln Avenue due to the partial closure of the multi-use pathway.

Lincoln Avenue, one block west of the proposed project, is a major north-south two-lane arterial that provides access to the project area via Paloma Avenue and Pacheco

Street. US 101, a major freeway that bisects the project study area, also provides access to the project area via a southbound off-ramp (i.e., Central San Rafael exit).

Lincoln Hill Pathway (also known as Puerto Suello Hill Multi-Use Pathway) is a Class I bicycle and pedestrian facility that runs parallel to the western side of US 101 (Marin County Department of Public Works 2008). This multi-use pathway is a 12-foot-wide paved path with a 2-foot-wide shoulder on either side and yellow-dashed striping centered to separate two-way traffic. The multi-use pathway is primarily used by bicyclists and pedestrians. The multi-use pathway connects downtown San Rafael to North San Pedro Road and is an alternative north-south route to Lincoln Avenue. This 1.4-mile-long multi-use pathway is located within Caltrans ROW but is maintained by the City of San Rafael (San Rafael Department of Public Works 2011).

The project area is east of the SMART railroad tracks, which run parallel to and in between Lincoln Avenue. SMART provides passenger rail service for the 70-mile rail corridor from Larkspur Landing in Marin County to Cloverdale in Sonoma County. Within San Rafael, SMART sections in the railroad ROW or parallel to it include Andersen Drive to Irwin Street, which is partially within the proposed project study area. This route eventually reaches the northern city limits of San Rafael near Saint Vincent's School.

Public transportation in the city of San Rafael is provided by the Marin County Transit District. The project study area is primarily served by the 35 Canal-Novato transit line that runs along Lincoln Avenue (1 block west of US 101) and includes transit stops in both directions near Paloma Avenue. This transit line serves Central San Rafael, Civic Center, and Northgate (Marin Transit 2018).

a) Less than Significant Impact

The proposed project does not conflict with any plans, ordinances, or policies related to circulation systems, including the Marin County Congestion Management Program.

A portion of the multi-use pathway would be temporarily used for construction staging and access to Culvert 2 for approximately 70 to 120 working days. Agreements made with the City of San Rafael require that the multi-use pathway remain partially open during the creek construction restriction window (June 15 to

October 15) for equipment and material access. The multi-use pathway may be partially closed for the entire 125-calendar-day creek construction window.

A TMP will be implemented to address pedestrian and bicycle users of the multi-use pathway between Paloma Avenue and Pacheco Street. Once construction activities are completed, the multi-use pathway would be restored to pre-existing conditions. There would be no permanent impact to the non-motorized component of the transportation system.

For the construction access near Belle Avenue on the eastern side of US 101, the fenced area across the street from the Coleman Elementary School and adjacent to the pedestrian bridge walkway may be used for construction staging. This area is within Caltrans ROW but is maintained by the City of San Rafael. For the work at Culverts 3, 4 and 5, one-way traffic control using flaggers will be in effect for approximately 30 days, with potential delays of up to 15 minutes for the travelling public. This work would be scheduled during the summer when Coleman Elementary School is not in session, to minimize impacts to school children and parents with drop-off and pick-up duties. There would be no permanent impact to the non-motorized component of the transportation system.

The proposed project would not affect access to on- or off-ramps to US 101 in the area. Streets and sidewalks in the project area would be unaffected. In addition, the proposed project would not alter or reduce transit service provided by Transit Line 35 along Lincoln Avenue. The transit services would remain available and there would be no impact.

b) No Impact

The proposed project would not conflict with the congestion management program, level of service standards, and travel demand measures for Marin County. There would be no impact.

c) No Impact

The project is not near an airport. There would be no impact.

d) No Impact

The proposed project does not include any design features or construction elements that would substantially increase hazards (e.g., sharp curves or dangerous intersections). There would be no impact.

e) Less than Significant Impact

Medical and emergency vehicles would be able to continue to use routes in the local area to serve fire, medical, and law enforcement purposes. Flaggers would give priority to emergency vehicles, if necessary, along Belle Avenue. There would be no impact.

f) Less than Significant Impact

The proposed project would not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities. During construction, one lane of the multi-use pathway would be temporarily closed and bicyclists and pedestrians would be assisted with flaggers between Paloma Avenue and Pacheco Street. The impacts will be minimized with implementation of AMM TRANS-1. There would be a less than significant impact.

The pedestrian overcrossing of US 101 to Coleman Elementary School would remain open and be unaffected by the proposed project; and will remain compliant with Americans with Disabilities Act (ADA) . There would be no impact.

Avoidance, Minimization, and Mitigation Measures

AMM TRANS-1: Access and Circulation: To minimize potential effects from construction activities to motorists, bicyclists, or pedestrians using local streets, such as Belle Avenue and Lincoln Avenue, or bicycle pathways during construction, a TMP will be developed and implemented that would include public information, motorist information, incident management, construction, and alternate routes.

Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-b) No Impact

In 2018, an HPSR was developed to identify historic properties in an APE developed by Caltrans. No tribal cultural resources were reported in record searches or in consultation with Native groups and individuals. Based on this report, Caltrans made a finding of no impact to tribal cultural resources.

Project Features

Feature TRIBE-1: If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified Caltrans archaeologist can assess the significance of the find.

Feature TRIBE-2: If any tribal cultural resources are found, these resources will be delineated on the ground with temporary fencing. No construction-related activities or staging are permitted within these areas.

Utilities and Service Systems

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a, b, c) No Impact

The proposed project would not result in increased impervious surfaces and would not exceed wastewater treatment requirements. The project would not require the construction of new water or waste water treatment facilities. The proposed project would not require new stormwater drainage facilities. There would be no impact.

d) No Impact

The proposed project would repair existing culverts at Irwin Creek and would not require water supplies post-construction.

e) No Impact

The proposed project would not result in increased wastewater demand. There would be no impact.

f, g) No Impact

The proposed project would not result in substantial demands for solid waste disposal and would comply with federal, state, and local statutes regarding solid waste.

MANDATORY FINDINGS OF SIGNIFICANCE

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

a) No Impact

The proposed project would not result in significant impacts to biological resources in Irwin Creek or the surrounding environment, and BMPs will be implemented to minimize potential biological or water quality impacts. There are no historical resources within the APE of the project area. There would be no impact.

b) No Impact

The proposed project involves the repair of existing culverts under US 101 in a built-out urban environment. No other projects are proposed in the project study area. There would be no cumulative impacts.

c) Less than Significant Impact

The proposed project would result in temporary construction activities in close proximity to two apartment complexes located adjacent to US 101: the Pacheco Apartments and the Plum Tree Lane Apartments and private residences. Residents living in these buildings would have increased exposure to noise and dust from construction equipment, staging, and stockpiling and movement of construction materials. In addition, the construction staging would require the temporary closure of one lane of the multi-use pathway that runs parallel to US 101 on the western side of the freeway. The proposed project will implement noise and air quality BMPs to address dust and noise impacts and flaggers will be provided during the partial closure of the multi-use pathway. These temporary construction-related activities would not result in permanent or significant impacts to human beings.

Chapter 4 Comments and Coordination

A meeting was held on January 29, 2019, with Caltrans and Kevin McGowan, the Assistant Public Works Director/City Engineer for City of San Rafael.

The City was amenable to closing only one lane of the multi-use pathway during the entire duration of the culvert rehabilitation.

A meeting was held on April 2, 2019, with Caltrans and Bjorn Gripenburg, Policy and Planning Director of the Marin Bicycle Coalition. Comments from Mr. Gripenburg included the following:

- Partial width closure of a short segment of the multi-use pathway is preferable to full closure and detour to Lincoln Avenue. This is because the conditions of Lincoln Avenue are generally not suitable for many path users (small children, elderly pedestrians, casual bicyclists, etc.) since this arterial has no dedicated bicycle facilities and has heavier and faster vehicular traffic compared to the side streets.
- For partial width closure, reducing path speeds and requiring bicyclists to dismount would be acceptable since it is a relatively short segment of the multi-use pathway.
- Experienced and commuter bicyclists who are more comfortable riding adjacent to vehicular traffic may take their own detour via Lincoln Avenue to avoid a slowdown in travel, which would be acceptable to the Marin Bicycle Coalition.

Chapter 5 List of Preparers

The primary persons responsible for contributing to, preparing and reviewing this report are listed in Table 2.

Table 2 List of Preparers and Reviewers

Organization Name	Role
Caltrans	
Althea Asaro	Cultural Resources
Helen Blackmore	Architectural Historian
Robert Blizard	Office of Biological Sciences and Permits
Stefan Galvez-Abadia	Chief, Office of Environmental Analysis
Kara Gonzales	Biologist
Kevin Krewson	Environmental Engineer, Noise/Air Quality
Khai Leong	Hydrology
Susan Lindsay	Landscape Architecture
Arnica MacCarthy	Branch Chief, Office of Environmental Analysis
Karen Mai	Water Quality
Kristina Montgomery	Archaeology
Charles Palmer	Cultural Resources
Chris Ridsen	Geotechnical Design
Kathryn Rose	Branch Chief, Cultural Resources/Archaeology
Ronald Sangalang	Branch Chief, Project Engineer
Noah Stewart	Branch Chief, Cultural/Built Resources/Architectural History
Ji Zhang	Project Engineer
CH2M	
Chris Archer	GIS
Clarice Ericsson	Publishing Technician
Natalie Escoffier	Environmental Planner
Lynne Hosley	Project Manager
Tiffany Lim	Environmental Planner
Mia Marek	Biologist
Loretta Meyer	Senior Environmental Planner
Leslie O'Connor	Editor
Erika Sawyer	Environmental Planner

Organization Name	Role
Stantec	
Danielle Althaus	Environmental Planner
David Lundgren	Principal Environmental Services

Chapter 6 Distribution List

The Initial Study with proposed Negative Declaration will be circulated by March 21, 2019, to the following agencies and government officials:

Agencies

U.S. Fish and Wildlife Service

U.S. Army Corps of Engineers

San Francisco Regional Water Quality Control Board

California Department of Fish and Wildlife

Office of Planning and Research

Marin County Clerk

City of San Rafael

Elected Officials

Senator Dianne Feinstein

Senator Kamala D. Harris

Senator Mike McGuire

Congressman Jared Huffman

Assembly Member Marc Levine

Mayor Gary Phillips

Vice Mayor Andrew Cuyugan McCullough

Appendix A Title VI Policy Statement

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April 2018

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LAURIE BERMAN
Director

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

Appendix B Summary of Project Features and Avoidance, Minimization, and Mitigation Measures

Project Features

Feature AQ-1: Control Measures for Construction Emissions of Fugitive Dust. Dust control measures will be implemented to minimize airborne dust and soil particles generated from graded areas. For disturbed soil areas, the use of an organic tackifier to control dust emissions will be included in the construction contract.

Watering guidelines will be established by the contractor and approved by the Caltrans Resident Engineer (RE). Any material stockpiles will be watered, sprayed with tackifier, or covered to minimize dust production and wind erosion.

Feature BIO-1: Worker Environmental Awareness Training. Prior to ground-disturbing activities, an agency-approved biologist will conduct an education program for all construction personnel in accordance with applicable permits.

Feature BIO-2: Environmentally Sensitive Area Fencing. Prior to the start of construction, environmentally sensitive areas (ESAs) will be clearly delineated using high-visibility orange fencing. The ESA fencing will remain in place throughout the duration of the project. The final project plans will depict all locations where ESA fencing will be installed and indicate how it will be installed. The special provisions in the bid solicitation package will clearly describe acceptable fencing material and prohibited construction-related activities within ESAs.

Feature BIO-3: Implementation of Best Management Practices. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and erosion control BMPs will be implemented in compliance with the requirements of the San Francisco Regional Water Quality Control Board (RWQCB). The 2017 Caltrans *Construction Site Best Management Practices (BMP) Manual* (BMP Guidance Handbook) will provide guidance for the development and inclusion of standard and special provisions. Protective measures will include, at a minimum:

- a. Disallowing any discharging of pollutants from vehicle and equipment cleaning into any storm drains or watercourses.

- b. Keeping vehicle and equipment fueling and maintenance operations at least 50 feet away from watercourses, except at established commercial gas stations or an established vehicle maintenance facility.
- c. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any downstream riparian habitat, aquatic habitat, culvert, or drainage feature.
- d. Dedicated fueling and refueling practices will be designated as part of the approved SWPPP. Dedicated fueling areas will be protected from stormwater run-on and will be located at least 50 feet from downslope drainage facilities and water courses.
- e. Fueling must be performed on level-grade areas. Onsite fueling will only be used when and where it is impractical to send vehicles and equipment offsite for fueling. When fueling must occur onsite, the contractor will designate an area to be used subject to the approval of the Caltrans RE. Drip pans or absorbent pads will be used during onsite vehicle and equipment fueling.
- f. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
- g. Any and all non-hazardous dredge and fill material produced as a result of removing sediment from the southern culvert will either be reused and fully contained within the project limits or will be properly disposed of offsite.
- h. Dust control measures consistent with Air Quality Project Features will be implemented. Dust control will be addressed during the environmental education session.
- i. Coir logs or straw wattles will be installed in accordance with the Caltrans BMP Guidance Handbook, to capture sediment.
- j. Graded areas will be protected from erosion using a combination of silt fences, erosion control netting (such as jute or coir), and fiber rolls along edges of designated staging areas and as appropriate on sloped areas in accordance with the Caltrans BMP Guidance Handbook.

Feature BIO-4: Construction Site Management Practices. The following site restrictions will be implemented:

- a. Project-related vehicle traffic will be restricted to established roads and construction areas. Project vehicles will observe a 15-mile-per-hour speed limit while in the project footprint, except on the current highway.
- b. Locating construction access, staging, storage, and parking areas within the project ROW outside of any designated ESA or outside of the ROW in areas environmentally cleared and permitted by the contractor. The following areas will be limited to the minimum necessary to construct the proposed project: access routes, staging and storage areas, and contractor parking. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
- c. Certifying, to the maximum extent practicable, that any borrow material is nontoxic and free of weeds.
- d. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once daily from the project footprint.
- e. Prohibiting all pets from entering the project area during construction.
- f. Prohibiting firearms within the project site, except for those carried by authorized security personnel or local, state, or federal law enforcement officials.
- g. Maintaining all equipment in order 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, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from wetlands and aquatic habitats.
- h. Servicing vehicles and construction equipment including fueling, cleaning, and maintenance at least 50 feet from any aquatic habitat unless separated by topographic or drainage barrier.

Feature BIO-5. Biological Monitoring. At least 30 days prior to the onset of activities, the name(s) and credentials of proposed project biologists will be submitted to the California Department of Fish and Wildlife (CDFW), and a final preconstruction survey for sensitive resources will be conducted onsite. An agency-approved biologist will be present onsite during the construction of any erosion

control fencing or dewatering equipment, and prior to and during the dewatering activities to monitor for special status species. Through communication with the RE or his/her designee, the agency-approved biologist may stop work if deemed necessary for any reason to protect special status species and will advise the RE or designee on how to proceed accordingly.

Feature BIO-6: Vegetation Removal. Ground disturbance will be minimized to the extent feasible. Vegetation that is located where staging areas are may be trimmed or cleared. Vegetation will be cleared only where necessary; grubbing will be minimized to the greatest extent possible. Vegetation will be cut above soil level to allow reestablishment after construction. Clearing and grubbing of woody vegetation will occur by hand or by using construction equipment such as mowers, backhoes, and excavators. If clearing and grubbing occur between February 1 and September 30, a qualified biologist will survey for nesting birds within the areas to be disturbed no more than 72 hours prior to construction. If nesting birds are observed in the project area, all nest avoidance requirements of the MBTA and CFGC will be observed. Cleared vegetation will be removed from the project footprint and disposed of appropriately to avoid attracting animals to the project site.

Feature BIO-7: Replant, Reseed and Restore Disturbed Areas. Caltrans will restore temporarily disturbed areas to the maximum extent practicable. Exposed slopes and bare ground will be reseeded with native grasses and shrubs to stabilize and prevent erosion. Where disturbance includes the removal of trees and woody shrubs, native species will be replanted at a ratio to be determined in a later project phase, based on the local species composition.

Feature BIO-8: Dewatering. Dewatering and discharging activities will be conducted according to Caltrans SWPPP standards and project specifications as contained in Section 13-2 of the 2015 Standard Specifications.

Feature BIO-9: Seasonal Avoidance. To the extent practicable, construction will not occur during the wet season (between November 1 and April 1). Work within the streambed will occur between June 1 and October 31.

Feature BIO-10: 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 at least one escape ramp constructed of earth fill or wooden planks. Before such holes or trenches are filled, they must be thoroughly

inspected for trapped animals. Replacement pipes, culverts, or similar structures stored in the project area overnight will be inspected before they are subsequently moved, capped or buried.

Feature BIO-11: Special Status Species on Site. Should any special status species be observed within a construction zone, appropriate actions will be taken by the project biologist.

Feature BIO-12: Night Work. Nighttime work will be avoided to the maximum extent practicable. Should nighttime work need to be conducted, all lighting will be directed downwards and towards the active construction area.

Feature BIO-13: Migratory Birds and Nest Avoidance. During the nesting season (February 1 through September 30), pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction activities. If work is to occur within 300 feet of active raptor nests or 50 feet of active non-game bird nests, a non-disturbance buffer will be established through consultation with CDFW and/or USFWS (depending on the species), at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance.

Feature BIO-14: Erosion Control Matting. To avoid wildlife entrapment, plastic monofilament netting or similar material will not be used if erosion control matting is required. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds.

Feature BIO-15: Reduce Spread of Invasive Species. To reduce the spread of invasive, nonnative plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order (EO) 13112. 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 with fast-growing native grasses or a native erosion control seed mixture. Where seeding is not practical, the target areas within the project area will be covered to the extent practicable with heavy black plastic solarization material until the end of the project.

Feature CULT-1: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

Feature CULT-2: If Caltrans Professionally Qualified Staff determines that cultural materials contain human remains, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. Caltrans' Cultural Resources Studies Office will contact the Sonoma County Coroner. Pursuant to California Public Resources Code Section 5097.98, if the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. Caltrans, District 4, Cultural Resources Studies Office will work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Feature CULT-1: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

Feature CULT-2: If Caltrans Professionally Qualified Staff determines that cultural materials contain human remains, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. Caltrans' Cultural Resources Studies Office will contact the Sonoma County Coroner. Pursuant to California Public Resources Code Section 5097.98, if the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. Caltrans, District 4, Cultural Resources Studies Office will work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Feature WQ-1: Construction Site BMPs. To prevent or reduce impacts to water quality of San Rafael Creek, construction site BMPs will be deployed for sediment control, pH, and material management. BMPs will include measures of soil stabilization, sediment control, wind erosion control, tracking control, non-stormwater management, and waste management/materials pollution control. These BMPs will also include, but are not limited to, drainage inlet protection, and fiber roll, silt fence, hydraulic mulch, temporary concrete washout, street sweeping, and similar.

Access roads and staging areas may need temporary cover during construction. Gravel bag berms wrapped with an impermeable liner will be used to address pH issues.

Feature TRIBE-1: If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find.

Feature TRIBE-2: If any tribal cultural resources are found, an environmentally sensitive area (ESA) will be established to protect these resources and be delineated on the ground with temporary fencing. No construction-related activities or staging is permitted within the ESAs.

Avoidance, Minimization, and Mitigation Measures

AMM AES-1: Storage of material and equipment in staging areas should be located outside direct views of residents and the motoring public to the greatest extent practicable.

AMM AES-2: Staging areas should be sited in areas that will not require the removal of trees or native vegetation, unless no alternative exists.

AMM AES-3: Post-construction, appropriate erosion control measures should be implemented at all areas of disturbed soil.

AMM PUB-1: To offset temporary disruptions during construction, a TMP will be developed by Caltrans with input from the local community during the design phase. The TMP will include elements such as alternate routes, one-way traffic controls, flag workers, and construction phasing to reduce impacts to local residents and maintain access to businesses and residents in the local area and along Lincoln and Belle Avenues. The TMP will be implemented to provide access to emergency providers through the construction zone such that existing police, fire, and medical facilities would not be adversely affected by the proposed project. The TMP would also include flaggers for users of the multi-use pathway between Paloma Avenue and Pacheco Street, coordination with the City of San Rafael and the San Rafael Bicycle and Pedestrian Advisory Committee, and public notification.

AMM TRANS-1: Access and Circulation: To minimize potential effects from construction activities to motorists, bicyclists, or pedestrians using local streets, such as Belle Avenue and Lincoln Avenue, or bicycle pathways during construction, a

TMP will be developed and implemented that would include public information, motorist information, incident management, construction, and alternate routes.

Appendix C List of Acronyms

ADA	Americans with Disabilities Act
AES	aesthetics
AMM	avoidance and minimization measure
APE	area of potential effects
AQ	air quality
BIO	biology
BMP	best management practice
BSA	biological study area
CA	California
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CIA	Community Impacts Assessment
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO ₂	carbon dioxide
CULT	cultural
DSA	disturbed soil area

EIR	environmental impact report
EO	Executive Order
ESA	environmentally sensitive area
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GHG	greenhouse gas
GIS	geographic information system
HPSR	Historic Property Survey Report
HSA	Hydrologic Sub-Area
IS	initial study
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
OCRS	Office of Cultural Resource Studies
PM	post mile
PRC	Public Resources Code
PUB	public services
RCEM	road construction emissions model
RE	resident engineer
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SHOPP	State Route Operation and Protection Program
SMART	Sonoma-Marín Area Rail Transit

SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TCE	temporary construction easement
TMP	Traffic Management Plan
TRANS	transportation and traffic
TRIBE	Tribal cultural resources
TTY	text telephone
US 101	U.S. Highway 101
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
WQ	water quality

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